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THE INFLUENCE OF ENGLISH AS A SECOND LANGUAGE ON READING SKILLS IN FIRST GRADE CHILDREN, A COMPARISON

by

Vesna Vucicevic

A thesis submitted in conformity with the requirements for the degree of Master of Arts
Department of Human Development And Applied Psychology
Ontario Institute for Studies In Education of the University of Toronto

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The Influence of English as a Second Language on Reading Skills in First Grade Children, a Comparison, by Vesna Vucicevic, Master of Arts 1998, Graduate Department of Education, Ontario Institute for Studies In Education of the University of Toronto

Abstract

The purpose of this study was to examine the influence of speaking English as second language on various indicators of early reading skill. Forty-four grade one native English speaking and thirty-four ESL children were given phonemic, syntactic, working memory and reading tasks in English. The ESL children were divided in two main groups, South Asian or East Asian first languages. Normal readers across the language groups had more developed phonemic awareness skills and were better at reading English pseudowords than their reading disabled classmates. English normal readers had significantly higher scores on a task of simple recognition of English phonemes than ESL normal readers. ESL children, whether they were reading disabled or normal readers had significantly lower scores on tasks of English syntax and awareness of phonemes than children with English as a first language. In particular, East Asian children had significantly more difficulty than their native English speaking classmates in recognizing and segmenting English sounds.

However, both South Asian and East Asian ESL children did not significantly differ from their native English speaking classmates for working memory, word and pseudoword reading tasks. The findings indicate that the ability to acquire grapheme-phoneme conversion rules necessary for reading is not significantly influenced by speaking English as a second language.
ACKNOWLEDGEMENTS

I would like to thank Dr. Linda Siegel for her supervision and guidance during the course of this thesis. Her support and helpful suggestions were a very important contribution. I would also like to thank Dr. Esther Geva for her advice and support during the final stages of this work. Finally, my appreciation goes towards my parents who encouraged me, as well as towards my husband, mother in law and little girl who have given their time so that I devote myself to this challenging, at times overwhelming task.
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Chapter 1

INTRODUCTION

1.1. Main Processes in the Development of Reading Skills

As a result of today's increased immigration in Canada, many children will learn to read in English as a second language. Three main processes are considered significant in the development of reading skills in English. These processes are phonological processing, syntactic skills and working memory (Siegel, 1993a).

1.1.1. Phonological Processing

Phonological processing refers to the use of information based on the sounds of one's language in processing written and oral language (Wagner & Torgesen, 1987). Central to the concept of phonological skills is phonological awareness which refers to the ability to reflect on and manipulate the subunits of spoken language, the phonemes (Tunmer, Herriman & Nesdale, 1988).

Evidence from a variety of sources suggests that phonological awareness is significantly correlated with reading achievement in beginning readers (Alegria, Pignot & Morais, 1982; Cossu, Shankweiler, Liberman, Katz & Tola, 1988; Da Fontoura & Siegel, 1995; Durgunoglu, Nagy & Hancin-Bhatt, 1993; Juel, Griffith & Gough, 1986; Siegel, 1992; Siegel & Ryan 1988; Stanovich, 1986; Stuart & Coltheart, 1988; Torneus, 1984; Vandervelden & Siegel, 1995; Wagner & Torgesen, 1987). Phonological awareness has also been shown to correlate more strongly with first-grade reading than did a standardized IQ test.
(Stanovich, Cunningham & Cramer, 1984). The influence of formal literacy training on the development of phonemic awareness was also demonstrated by Morais, Cary, Alegria and Bertelson (1979). The sample of illiterate adults in their study could neither delete nor add a phoneme at the beginning of a non-word. In the context of the development of reading skills, phonological processing skills involve the understanding of grapheme-phoneme conversion rules and the exception to these rules (Siegel, 1993b). Research evidence has identified complex interrelationships of phonological recoding, that is the association of sounds with letters, with phoneme awareness. Vandervelden and Siegel (1995) have found a strong correlation between more complex phonemic skills such as deletion and substitution of phonemes and accuracy in pseudoword reading. Furthermore, the ability to segment phonemes appears to be a necessary, but not sufficient condition for learning to read. Several studies have found some first grade children who performed well on phonemic segmentation tasks but poorly on pseudoword decoding measures when tested at the end of the school year (Juel, Griffith & Gough, 1986; Tunmer, Herriman & Nesdale, 1988; Tunmer & Nesdale, 1985). It appears that these students had sufficiently developed awareness of the basic phonemic segments of language, but had difficulty mastering grapheme-phoneme conversion rules.
1.1.2. Bilingualism and Phonological Processing

There has been very little research on the association between bilingualism and phonological awareness. Studies that have addressed bilingualism and phonemic awareness generally support claims that these metalinguistic abilities may appear earlier in bilingual than monolingual children. For example, Campbell and Sais (1993) have studied phonological abilities such as categorizing words on the basis of the initial sound and deleting the first part of a word. The participants were English speaking children and bilingually schooled Italian-English children attending kindergarten in London (UK). Children came from a similar socioeconomic status, ethnic group and attended schools with similar teaching approaches. The authors found that bilingually schooled children had more developed phonological awareness than English speaking children. They attribute this finding to the exposure to a second language (Italian) and the need to utilize appropriate phonological structures in the first and second language. Bruck and Genesee (1995) have also studied the differential effects of bilingualism on phonological awareness. English speaking children attending French schools and monolingual English speaking children attending all-English schools were administered phonological tests in kindergarten and in grade 1. Their findings indicated that French schooled kindergarten children with relatively low levels of proficiency in the second language had higher levels of rhyme awareness than monolingual English speaking children. However, in grade 1 the pattern of results revealed
higher phonemic awareness skills of monolingual children, which Bruck and Genesee (1995) attribute to the introduction of reading instruction.

1.1.3 Syntactic Awareness

Another important component involved in the acquisition of reading is syntactic awareness. The ability to understand the syntax of the language would appear to be critical for fluent and efficient reading of text. Syntactic awareness allows making predictions about the words that come next in the sequence (Siegel, 1993b). Siegel and Ryan (1988) have found that 7 to 13 years old reading disabled children performed significantly more poorly on measures of syntactic awareness than children who were normal readers. Tunmer, Nesdale and Wright (1987) compared second grade and fourth grade children on syntactic awareness tasks. Good, younger readers were matched with poor, older readers on decoding ability, reading fluency and reading comprehension. The results indicate that good, younger readers scored significantly higher than the poor, older readers on measures of syntactic awareness. Similarly, Willows and Ryan (1986) investigated the development of grammatical sensitivity among first, second and third grade children and found that grammatical sensitivity was correlated with reading skills. Similar results were found for Portuguese-Canadian children aged 9-12 years (Da Fontoura & Siegel, 1995). The researchers found significant correlations between the Oral Cloze task and word and pseudoword reading in the first language of Portuguese-Canadian and native English speaking children. In
addition, Bialystok (1987) studied grade two and grade three children instructed in English and found that children who spoke a language other than English at home were weaker on a task of judgment of accuracy of English grammatically anomalous sentences compared to their native English speaking peers. Bozinou and Santiago (1984) also found more errors of bilingual (Greek/English) kindergarten children who spoke Greek at home on tasks of comprehension and production of grammatical tenses compared to their English speaking controls.

1.1.4. Working Memory

The relationship between working memory processes and reading ability has also been documented. The concept of working memory implies a system for the temporary holding and manipulation of information during the performance of a range of cognitive tasks such as comprehension, learning, and reasoning (Baddeley, 1986) in reading, working memory means remembering what has been read while retrieving grapheme-phoneme conversion rules for recognizing of words or phrases (Siegel, 1993b). Siegel and Ryan (1989) have studied working memory in normally achieving and reading disabled children age 7-13. The authors found that the reading disabled children had significantly lower scores on tasks of working memory than normal readers. Da Fontoura and Siegel (1995) have found significant correlations among English and Portuguese working memory tasks in Canadian-Portuguese children, suggesting similar processes in the first and
second language. When tested in their first language, disabled Portuguese speaking readers showed the same deficits in working memory as reading disabled English speaking children in their first language.

1.1.5. Reading Skills and Bilingualism

The studies that have addressed bilingual reading skills mostly support the linguistic interdependence hypothesis advanced by Cummins (1979). In other words, children who have learning problems in their second language will also manifest similar difficulties in their first language. Word decoding skills in the first language seem to transfer across orthographies, even in the case of highly contrasting alphabets, such as Arabic and French (Wagner, Spratt & Ezzaki, 1989). Da Fontoura and Siegel (1995) found that bilingual Portuguese-Canadian children aged 9-12 years who had reading problems in English are likely to manifest reading problems in Portuguese. They showed that there is a significant relationship between the acquisition of word and pseudoword reading, working memory and syntactic awareness in the two languages. Normally achieving bilingual children in their sample significantly differed from their English speaking peers only for a task of syntactic awareness. Barik and Swain (1978) did not find significant academic differences between grade 3 to grade 5 children in French immersion programs and their peers in the regular English program. Cummins et al. (1984) have studied academic skills in the first and second language of Japanese and Vietnamese grade one to grade six students in Toronto. The authors found that the development of
cognitive/academic proficiency in the second language is partially a function of the level of cognitive/academic proficiency in the first language at the time intensive exposure to the second language begins. Geva and Clifton (1994) have also shown a significant correlation between reading level in French and English for grade 2 French immersion students. Very few studies have addressed specific components of early reading acquisition among minority children schooled in a majority language. Verhoeven (1990) conducted a longitudinal reading study of Turkish and Dutch children in the Netherlands. The students were matched for socioenonomic background and age. After five and ten months of reading instruction in grade one, Dutch children achieved higher overall reading scores than Turkish children. However, after 20 months of reading instruction, word reading efficiency was no longer significantly different for Turkish and Dutch children. Furthermore, Turkish and Dutch children relied on highly comparable strategies in the first two years of their literacy acquisition. For example, both groups of learners were more efficient in reading meaningful words than pseudowords, words with CVC (consonant-vowel-consonant) patterns than words with CC (double consonant) patterns. They were also more successful in reading monosyllabic and familiar words than bisyllabic and unknown words. McLaughlin (1987) studied good and poor readers among grade five and six Hispanic and native English speaking children in a California school. Children were required to have scores a grade or more above grade level on the reading subtest of the California Test of Basic Skills (CTBS) to be considered good readers. They also were required to have
scores a grade or more below grade level on the CTBS to be included in the poor reading group. The author found that poor monolingual readers made equally frequent lexical and syntactic errors. However, poor bilingual readers made significantly more syntactic errors than lexical errors. The author attributed this finding to the less developed automatic syntactic knowledge of the bilingual children.

1.1.6. The Influence of First Language Oral Language Competency for Reading in a Second Language

The influence of oral language competency in the language of instruction has also been approached by several researchers. Durgunoglu, Nagy and Hancin-Bhatt (1993) have found that neither English nor Spanish oral proficiency affected word-identification performance in either language among first grade Spanish-speaking students. The children were instructed in Spanish and were learning English as a second language. Furthermore, the authors have shown that cross-language transfer can occur in word recognition. Both phonological awareness and word recognition skills in Spanish were predictive of word recognition in English. Jackson and Lu (1992) have tested gifted ESL kindergarten children whose reading corresponded to a grade three or above level. They found that the lack of English oral language proficiency of gifted ESL kindergarten children did not impede their precocious reading skills. Geva and Siegel (1998) have studied the reading skills of grade 1 to grade 5 children with English as a first language and Hebrew as a second language. Their
findings indicate that second language oral proficiency plays only a limited role in explaining individual differences in accurate L2 word recognition skills.

1.1.7. Purpose of the Present Study

The ESL children who participated in this study speak another language at home, but are exposed to a dominant language, which in case of this part of Canada is English, through TV, radio, their teachers and sometimes their older siblings. The present study attempted to determine the extent to which reading performance in a language which has the status of “second” language is influenced by variables which have been found to be related to reading achievement in general. We were also interested in studying the effect of reading ability on these different variables, by comparing normal and reading disabled readers among children with English as a first and as a second language. The study was designed to answer the following questions: Do ESL children have a higher developed phonemic awareness than native English speaking children due to the necessity to differentiate phonological features involved in speaking two languages? Do syntactic and memory skills of native English speaking children exceed those of ESL children due to the lesser exposure of ESL children to English syntax and vocabulary? Will our results support the evidence that the lack of fluency in the language of instruction will not impede the development of normal reading skills in children with English as a second language? Do normal readers have higher phonemic awareness and phonological recoding skills than reading disabled children? What is the
relationship between syntactic awareness, working memory and early word recognition skills?
Chapter 2

METHOD

2.1. Participants

Fourty-four native-English speaking children (21 male and 23 female) and 34 children who spoke a language other than English at home (15 female and 19 male) participated in the study. They were all first grade students and attended several schools in urban blue collar neighborhoods in Toronto, containing large immigrant populations. For the purposes of this study the languages spoken at home were grouped in three groups: South Asian languages, East Asian languages and English as a first language. The children included in the South Asian group were 22 children: 11 children who spoke Gujarati, 5 children who spoke Punjabi, 4 children who spoke Urdu, 1 child who spoke Hindi and 1 child who spoke Tamil at home. Twelve children were included in the East Asian group of which 8 children who spoke Cantonese, 2 Chinese and 2 Korean at home. All the ESL children along with their native English speaking classmates are instructed in the English language. An intelligence (IQ) test was not administered because of the cultural biases inherent to testing and the inappropriateness of national norms as a reference (Sattler, 1992, p 566). In addition, Siegel (1989) has also demonstrated that IQ scores do not necessarily predict poor reading skills.
2.2. Procedure

The testing consisted of five tasks individually administered in English.

2.2.1. WRAT-3 Reading Task

The reading subtest of the WRAT-3 (Wide Range Achievement Test -3, Wilkinson, 1993) was used to assess reading skills. The task required the child to read an increasingly difficult series of words. Examples of test items are: cat, book, tree, how, animal, even, spell, finger, size, felt, etc. The scoring provides the conversion of raw scores into standard scores, percentiles, and grade equivalents. Normal readers were defined as having a score percentile 30 or above. The remainder of the children with a score percentile 25 or below were considered reading disabled readers. Thirty-five native English readers, with a mean age of 6 years 8 months (SD = 3.9 months) and twenty-six ESL readers, with a mean age of 6 years 7 months (SD = 2.9 months) were identified as normal readers. Nine native English speaking children, with a mean age of 7 years (SD = 3.2 months) and 8 ESL children with a mean age of 7 years 3 months (SD = 4.8 months) were identified as reading disabled readers.

2.2.2. Pseudoword Reading Task

The Pseudoword Reading Task consisted of 10 CVC pseudowords: bav, dut, lod, tid, mul, sep, lin, kef, hap and 5 CVC+E pseudowords: beve, nade, lope, mude and tibe. The child was expected to read this list of pseudowords according to the English phonological system. The scoring corresponds to the
total number of correctly pronounced pseudowords. The Pseudoword Task was used as a measure of phonological recoding skills and the ability to apply grapheme-phoneme conversion rules (Siegel, 1993b).

2.2.3. Phoneme Awareness Tasks

Three Phoneme Recognition Tasks (Vandervelden & Siegel, 1995) were used to evaluate phonemic awareness skills in English oral language. The Phoneme Recognition Task was used to evaluate simple phoneme recognition skills. The Phoneme Recognition/Location Task was used as a measure of complex phoneme recognition skills. The Phoneme Deletion and Substitution Task was used to measure the more complex ability to segment phonemes. In the Phoneme Recognition Task, the child was required to recognize if a target phoneme is present in a particular word, for example: “Listen for /s/; Does sock have /s/?” In the second Phoneme Recognition and Location Task, the child was required to recognize a particular phoneme and to determine if it is in the first sound in the word, the last sound in the word, or if it is not in the word. For example: “Listen for /m/, and tell me if it is the first sound in the word, the last sound in the word, or if it is not in the word?” In the Phoneme Deletion/Substitution task the child was asked to say a particular word, with certain deletions or substitutions of phonemes. For example “Say /flat/. Now say it again, but don’t say /l/; or “Say /bat/. Now say it again, but instead of /b/ say /s/.” The score was the total number of correct answers. All the items are listed in appendix.
2.2.4. Syntactic Awareness Task

The Oral Cloze Task was developed by Siegel and Ryan (1988) to assess syntactic awareness, or the explicit knowledge of the syntax of the English language. Children were instructed to fill in the missing word in each of the 12 sentences presented orally. An example of a sentence is: "The children put on their boots __________ it snows". The score refers to the total number of correct answers. All the items are listed in appendix.

2.2.5. Working Memory Task

The Working Memory Task was developed by Siegel and Ryan (1989). The children were presented sentences orally with the final word missing. They were then asked to supply the missing word and repeat all the missing words from the set. There are three trials at each set size (2, 3, 4 and 5). Examples of sentences are: "In summer it is very ______. People go to see monkeys in a ________. With dinner we sometimes eat bread and ________".

The children were asked to repeat the three words he or she selected, in this case "hot, zoo, butter", in the same order that the words were said. To minimize word finding problems, the missing words are virtually predetermined. The score refers to the total number of correctly accomplished trials. All the items are listed in appendix.
3.1. English Reading Tasks as a Function of Reading Ability and First Language

The mean proportion of correct scores of normal and reading disabled native English speaking and ESL children on the reading tasks (WRAT-3 Reading, CVC and CVC+ e Pseudowords) are shown in Table 1. A 2 (reading ability) X 2 (first language) analysis of variance was performed on these scores.

For the WRAT-3 Reading standard scores, the results of the analysis of variance revealed a significant main effect for reading ability $F(1,74) = 63.64, p < .001$. Normal ESL and normal native English speaking readers had significantly higher reading scores than their reading disabled peers. No significant main effect for first language was found $F(1,74) = 0.29, p > .05$.

There were no significant differences between ESL and native English speaking readers for the WRAT-3 Reading scores. There was no significant interaction between reading ability and first language $F(1,74) = 0.95, p > .05$.

There were no significant differences between normal native English speaking and ESL readers for the WRAT-3 Reading scores. Similarly, there were no differences between reading disabled native English speaking and ESL children for the ability to read words.

For the CVC Pseudoword Reading Task, there was a significant main effect for reading ability $F(1,73) = 12.83, p < .001$. Normal readers,
regardless of the first language they speak at home, had significantly higher scores than their reading disabled peers. However, there was no significant main effect for first language $F(1,73) = 3.15$, $p > .05$. ESL children did not significantly differ from their native English speaking peers for the CVC Pseudoword Reading Task. Furthermore, there was no significant interaction between reading ability and first language $F(1,73) = 0.31$, $p > .05$. There were no significant differences between normal or reading disabled ESL and native English speaking readers for the ability to read CVC pseudowords. There was a significant main effect for reading ability for the CVC+e Pseudoword Reading Task, $F(1,73) = 7.67$, $p < .01$. Normal readers scored significantly higher than their reading disabled classmates across the two language groups. There was no significant main effect for first language $F(1,73) = 0.15$, $p > .05$. There were no significant differences between native English speaking and ESL children for the ability to read CVC+e Pseudowords. There was also no significant interaction between reading ability and first language $F(1,73) = 2.05$, $p > .05$. There were no significant differences between normal or reading disabled ESL and native English speaking children for the CVC + e Pseudoword Reading Task.
Table 1

Mean Proportion of Correct Responses of Normal and Reading Disabled Children with English as a First and Second Language on Reading Tasks

<table>
<thead>
<tr>
<th></th>
<th>Native English</th>
<th>ESL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Readers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>WRAT Reading&lt;sup&gt;a&lt;/sup&gt;</td>
<td>111.14 (15.05)</td>
<td>106.73 (13.67)</td>
</tr>
<tr>
<td>CVC Pseudowords</td>
<td>.51 (.35)</td>
<td>.31 (.30)</td>
</tr>
<tr>
<td>CVC+e Pseudowords</td>
<td>.33 (.29)</td>
<td>.20 (.28)</td>
</tr>
<tr>
<td><strong>Reading Disabled</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>WRAT Reading&lt;sup&gt;a&lt;/sup&gt;</td>
<td>76.77 (13.65)</td>
<td>79.87 (8.45)</td>
</tr>
<tr>
<td>CVC Pseudowords</td>
<td>.15 (.26)</td>
<td>.05 (.09)</td>
</tr>
<tr>
<td>CVC+e Pseudowords</td>
<td>.02 (.06)</td>
<td>.10 (.21)</td>
</tr>
</tbody>
</table>

Note. Standard deviations are in parentheses.

<sup>a</sup> The values of the WRAT Reading scores represent standard scores.
3.2. English Language Tasks as a Function of Reading Ability and First Language

The mean proportion of correct scores of native English and ESL children on the various language tasks (phonemic awareness tasks, Oral Cloze and Working Memory) are shown in Table 2. A 2 (reading ability) X 2 (first language) analysis of variance was performed on each of the task scores.

For the Oral Cloze, a task of syntactic awareness skills, the analysis of variance did not indicate a main effect for reading ability $F(1,73) = 1.61, p > .05$. Normal readers did not significantly differ from their reading disabled peers across the language groups for this variable. However, there was a main effect for first language $F(1,73) = 27.69, p < .001$. The results indicated that children who had English as a second language, whether they were reading disabled or normal readers, had significantly lower scores than English native speakers for this measure of syntactic awareness. There was no significant interaction between reading ability and English as a second language $F(1,73) = 0.54, p > .05$. There were no significant differences between normal or reading disabled ESL and native English children for the Oral Cloze Task.

No significant main effect for reading ability $F(1,72) = 2.86, p > .05$ was found for the Working Memory Task. There were no significant differences between normal and reading disabled readers across the two language groups for working memory. There was no significant main effect for first language $F$
(1,72) = 2.27, p > .05. The ESL children did not significantly differ from their native English speaking peers for the Working Memory Task. Furthermore, no significant interaction between speaking English as a second language and reading ability $F(1,72) = 0.36, p > .05$ was found for this variable. There were no significant differences between normal or reading disabled ESL and native English speaking children for the Working Memory Task.

A main effect for reading ability was found for the Phoneme Recognition Task $F(1,74) = 7.19, p < .01$. Good readers scored significantly higher for phonemic awareness than their reading disabled peers regardless of the first language they speak at home. A main effect for first language was found for the Phoneme Recognition Task $F(1, 74) = 11.81, p < .01$. Native English speaking children achieved significantly higher scores than their ESL peers for the Phoneme Recognition Task. A significant interaction was also found between reading ability and first language for the Phoneme Recognition Task $F(1,74) = 4.24, p < .05$. Normal native English speaking children scored significantly higher than normal ESL readers for this variable.

A main effect for reading ability was found for the Phoneme Recognition and Location Task, $F(1,73) = 5.16, p < .05$. Good readers scored significantly higher for this particular task than their reading disabled peers, regardless of the first language they speak at home. A main effect for first language was found for the Phoneme Recognition and Location Task $F(1,73) = 16.33, p < .001$. Native English speaking children achieved significantly higher scores
than their ESL peers for the Phoneme Recognition and Location Task. No significant interaction between reading ability and first language was found for the Phoneme Recognition and Location Task $F(1,73) = 2.09, p > .05$. There were no significant differences between normal or reading disabled native English speaking and ESL readers for this particular variable.

A main effect for reading ability was found for the Phoneme Deletion and Substitution Task $F(1,73) = 7.53, p < 0.01$. Normal readers across the two language groups had significantly higher scores than their reading disabled peers for this particular task. A main effect for first language was also found for the Phoneme Deletion and Substitution Task $F(1,73) = 5.50, p < .05$. Native English speaking children achieved significantly higher scores than their ESL peers for the Phoneme Deletion and Substitution Task. No significant interaction between reading ability and first language was found for the Phoneme Deletion and Substitution Task $F(1,73) = 0.20, p > .05$. There were no significant differences between normal or reading disabled native English speaking and ESL readers for this particular phonemic awareness task.
Table 2

Mean Proportion of Correct Responses of Normal and Reading Disabled Children With English as a First and Second Language on English Language Tasks

<table>
<thead>
<tr>
<th></th>
<th>Native English</th>
<th>ESL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Readers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>Oral Cloze</td>
<td>.61 (.25)</td>
<td>.31 (.23)</td>
</tr>
<tr>
<td>Phoneme Recognition</td>
<td>.96 (.10)</td>
<td>.92 (.11)</td>
</tr>
<tr>
<td>Phoneme Recognition/Location</td>
<td>92 (.16)</td>
<td>.74 (.32)</td>
</tr>
<tr>
<td>Phoneme Deletion/Substitution</td>
<td>.57 (.29)</td>
<td>.34 (.31)</td>
</tr>
<tr>
<td>Working Memory</td>
<td>.21 (.13)</td>
<td>.13 (.13)</td>
</tr>
<tr>
<td><strong>Reading Disabled</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Oral Cloze</td>
<td>.57 (.26)</td>
<td>.17 (.15)</td>
</tr>
<tr>
<td>Phoneme Recognition</td>
<td>.94 (.08)</td>
<td>.77 (.16)</td>
</tr>
<tr>
<td>Phoneme Recognition/Location</td>
<td>.86 (.19)</td>
<td>.48 (.35)</td>
</tr>
<tr>
<td>Phoneme Deletion/Substitution</td>
<td>.30 (.24)</td>
<td>.15 (.27)</td>
</tr>
<tr>
<td>Working Memory</td>
<td>.13 (.11)</td>
<td>.09 (.14)</td>
</tr>
</tbody>
</table>

Note. Standard deviations are in parentheses.
3.3. Reading Tasks as a Function of Reading Ability and Type of First Language

The mean proportion of correct scores of native English speaking children, South Asian and East Asian children on the reading tasks (WRAT-3 Reading, CVC and CVC+ e Pseudowords) are shown in Table 3. A 2 (reading ability) X 3 (type of first language) analysis of variance was conducted on the reading tasks scores.

For the WRAT-3 standard scores, the analysis of variance indicated a main effect for reading ability $F(1,72) = 45.68, p < .001$. Normal readers had significantly higher scores than reading disabled children on the WRAT-3, regardless of the type of first language they speak at home. However, no main effect for the type of first language was found for the WRAT-3 standard scores $F(2,72) = 0.05, p > .05$, as well as no significant type of first language X reading ability interaction $F(2,72) = 1.17, p > .05$. There were no significant differences between the three language groups as well as between normal native English speaking, South Asian and East Asian readers for the reading scores. Similarly, there were no differences between reading disabled South Asian, East Asian and native English speaking children for the ability to read individual words.

For the CVC Pseudoword Reading Task, a main effect for reading ability was found $F(1,71) = 9.34, p < .01$. Normal readers scored significantly higher than reading disabled readers across the language groups for this particular variable. No significant main effect for the type of first language was found for the CVC Pseudoword Reading Task, $F(2,71) = 1.51, p > .05$. There were no
significant differences between the three language groups for the ability to read CVC Pseudowords. There was no significant interaction between the type of first language spoken at home and reading ability for the CVC Pseudoword Reading Task $F(2,71) = 0.14, p > .05$. There were no significant differences between normal South Asian, East Asian and native English readers for the ability to read CVC pseudowords. Similarly, there were no significant differences between reading disabled South Asian, East Asian and native English speaking readers for the CVC Pseudoword Reading Task. Unlike for the CVC Pseudoword Reading Task, no main effect for reading ability was found for the Pseudoword CVC+e Reading Task $F(1,71) = 3.51, p > .05$. At this stage of reading acquisition, no significant differences for the CVC +e Pseudoword Reading Task were found between normal and reading disabled readers across the three language groups. No significant main effect for the type of first language was found for the CVC+e Pseudoword Reading Task $F(2,71) = 0.72, p > .05$. There were no significant differences between South Asian, East Asian and native English speaking children for the ability to read CVC+e pseudowords. There was also no significant interaction between the type of first language spoken at home and reading ability for the CVC +e Pseudoword Reading Task $F(2,71) = 1.27, p > .05$. There were no significant differences between normal South Asian, East Asian and native English readers for the ability to read CVC + e pseudowords. In other words, there were
no significant differences between reading disabled South Asian, East Asian
and native English readers for the CVC+e Pseudoword Reading Task.
Table 3

Mean Proportion of Correct Responses of Normal and Reading Disabled English Speaking, South Asian and East Asian Children on the Reading Tasks

<table>
<thead>
<tr>
<th>Normal Readers</th>
<th>Native English</th>
<th>South Asian</th>
<th>East Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>WRAT Reading(^a)</td>
<td>111.14</td>
<td>108.77</td>
<td>102.12</td>
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<tr>
<td></td>
<td>(15.05)</td>
<td>(15.26)</td>
<td>(8.14)</td>
</tr>
<tr>
<td>CVC Pseudowords</td>
<td>.51</td>
<td>.31</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>(.35)</td>
<td>(.27)</td>
<td>(.38)</td>
</tr>
<tr>
<td>CVC+e Pseudowords</td>
<td>.33</td>
<td>.24</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>(.29)</td>
<td>(.28)</td>
<td>(.28)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reading Disabled</th>
<th>9</th>
<th>4</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRAT Reading(^a)</td>
<td>76.77</td>
<td>76.75</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>(13.65)</td>
<td>(7.27)</td>
<td>(9.38)</td>
</tr>
<tr>
<td>CVC Pseudowords</td>
<td>.15</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>(.26)</td>
<td>(.10)</td>
<td>(.10)</td>
</tr>
<tr>
<td>CVC+e Pseudowords</td>
<td>.02</td>
<td>.15</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>(.06)</td>
<td>(.30)</td>
<td>(.10)</td>
</tr>
</tbody>
</table>

*Note.* Standard deviations are in parentheses.

\(^a\) The values of the WRAT Reading scores represent standard scores.
3.4. English Language Tasks as a Function of Reading Skill and Type of First Language

The mean proportion of correct scores of native English speaking, South Asian and East Asian children on the language tasks (phonemic awareness tasks, Oral Cloze and Working Memory) are shown in Table 4. Analyses of variance were performed on the language tasks scores, with reading ability (normal and reading disabled) and type of first language (English speaking, South Asian and East Asian) as independent variables.

There was no significant main effect for reading ability for the Oral Cloze Task $F(1,71) = 1.95, p > .05$. There were no significant differences between normal and reading disabled readers across the language groups for syntactic awareness. A main effect for type of first language was found for the Oral Cloze Task $F(2,71) = 13.25, p < .001$. Post hoc Tukey-HSD tests showed that native English speaking children had significantly higher scores than both South Asian and East Asian ESL children for the Oral Cloze Task $F(2,76) = 17.02, p < .001$. There was no significant type of first language X reading ability interaction for the Oral Cloze $F(2,71) = 0.27, p > .05$. The results show that normal South Asian and East Asian readers did not differ from normal native English speaking readers for syntactic awareness. Similarly, reading disabled South Asian and East Asian children did not significantly differ from their reading disabled native English speaking classmates for the Oral Cloze task.
There was no significant main effect for reading ability for the Working Memory Task $F(1,70) = 1.11, \ p > .05$. There were no significant differences between normal and reading disabled readers across the language groups for working memory. There was no main effect for the type of first language for the Working Memory Task $F(2,70) = 2.61, \ p > .05$. There were no significant differences between South Asian, East Asian and native English speaking children for this particular variable. There was no significant type of first language X reading ability interaction for the Working Memory Task $F(2,70) = 1.0, \ p > .05$. Normal South Asian and East Asian readers did not significantly differ from normal native English speaking readers for working memory skills. Similarly, reading disabled South Asian and East Asian children did not significantly differ from their reading disabled native English speaking classmates for the Working Memory task.

There was a significant main effect for reading ability for the Phoneme Recognition Task $F(1,72) = 8.49, \ p < .05$. When summed across the three language groups, normal readers scored significantly higher than their reading disabled classmates for the Phoneme Recognition Task. A main effect for type of first language was also found for the Phoneme Recognition Task $F(2,72) = 6.09, \ p < .05$. Post hoc Tukey-HSD tests revealed that native English speaking children scored significantly higher than East Asian children for the Phoneme Recognition Task $F(2,77) = 4.0310, \ p < .05$. There was no significant effect of the type of first language X reading ability interaction for the Phoneme Recognition task $F(2,72)$
= 2.26, p > .05. Normal and reading disabled South Asian and East Asian children did not significantly differ from their native English peers for this particular task.

There was a significant main effect for reading ability for the Phoneme Recognition and Location Task F(1,71) = 5.64, p < .05. Normal readers across the three language groups scored significantly higher than their reading disabled classmates for this particular variable. A main effect for type of first language was found for the Phoneme Recognition and Location task F(2,71) = 8.94, p < .001. Post hoc Tukey-HSD indicated that native English speaking children had significantly higher scores than both South Asian and East Asian ESL children for the Phoneme Recognition and Location Task F(2,76) = 7.4904, p < .001. There was no significant effect of the type of first language X reading ability interaction for the Phoneme Recognition and Location Task F(2,71) = 2.15, p > .05. There were no significant differences between normal or reading disabled South Asian, East Asian and native English speaking children for this particular variable.

There was a significant main effect for reading ability for the Phoneme Deletion/Substitution Task F(1,71) = 4.39, p < .05. Normal readers had significantly higher scores than their reading disabled peers across the three language groups for the Phoneme Deletion/Substitution Task. A main effect for type of first language was found for the phoneme Deletion/Substitution task F(2,71) = .322, p < .05. Post hoc Tukey-HSD tests indicated that native English speaking children scored significantly higher than East Asian children for the Phoneme Deletion and Substitution Task F(2,76) = 5.6771, p < .05. There was no significant effect of
the type of first language X reading ability interaction for the Phoneme Deletion and Substitution $F(2,71) = 0.22 \ p > .05$. Normal or reading disabled South Asian and East Asian children did not significantly differ from their native English speaking peers for this particular task.
Table 4

Mean Proportion of Correct Responses of Normal and Reading Disabled Native English Speaking, South Asian and East Asian on English Language Tasks

<table>
<thead>
<tr>
<th>Normal Readers</th>
<th>Native English</th>
<th>South Asian</th>
<th>East Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>35</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Oral Cloze</td>
<td>.61 (0.25)</td>
<td>.30 (0.23)</td>
<td>.32 (0.26)</td>
</tr>
<tr>
<td>Phoneme Recognition</td>
<td>.96 (0.10)</td>
<td>.93 (0.10)</td>
<td>.89 (0.15)</td>
</tr>
<tr>
<td>Phoneme Recognition/Location</td>
<td>.92 (0.16)</td>
<td>.77 (0.29)</td>
<td>.68 (0.38)</td>
</tr>
<tr>
<td>Phoneme Deletion/Substitution</td>
<td>.57 (0.29)</td>
<td>.37 (0.32)</td>
<td>.27 (0.30)</td>
</tr>
<tr>
<td>Working Memory</td>
<td>.21 (0.13)</td>
<td>.14 (0.14)</td>
<td>.11 (0.08)</td>
</tr>
</tbody>
</table>

Reading Disabled

| N              | 9              | 4            | 4            |
| Oral Cloze     | .57 (0.26)     | .16 (0.18)   | .18 (0.14)   |
| Phoneme Recognition | .94 (0.08) | .75 (0.17)   | .79 (0.18)   |
| Phoneme Recognition/Location | .86 (0.19) | .37 (0.41)   | .59 (0.29)   |
| Phoneme Deletion/Substitution | .30 (0.24) | .24 (0.41)   | .08 (0.13)   |
| Working Memory | .13 (0.11)     | .19 (0.19)   | .02 (0.04)   |

Note. Standard deviations are in parentheses.
Chapter 4

DISCUSSION

Several significant findings regarding the interrelationships between the language spoken at home and specific indicators of reading ability emerged from this study. Children with English as a second language, whether they spoke East Asian or South Asian languages at home, had significantly more difficulty than their native English speaking peers in recognizing, localizing and segmenting English sounds. In particular, East Asian children had significantly more difficulty than their native English speaking classmates on tasks involving simple recognition, deletion and substitution of English sounds. It appears that certain phonological features of Chinese, Cantonese (Southern Chinese) and Korean languages render the ability to recognize and segment English phonemes more difficult. Chinese has a predominance of vowel sounds, and a paucity of consonant sounds. Double consonant blends such as “bl”, “sp”, “nd”, “nt” are nonexistent. The dominance of vowel over consonant sounds accounts for the relatively small number of different syllables in the spoken form of the language and leads to a great number of homophones. To resolve this confusion of homophones, a system of tones is used (Leong, 1973). Unlike Chinese, Korean is a polysyllabic language with an extremely complex morphological structure. Clusters of consonants at the beginning of a syllable are not characteristic, there being no equivalents of English “sk”, “st”, “str”, “sh”, etc.
Korean also has sound changes and sound movements between syllables. When a syllable which ends in a consonant is followed by a syllable beginning with a vowel, the final consonantal sound passes over to the next syllable. Vowels are characterized by phonemic length which refers to an alteration in tonal height (Asher, 1994). Certain peculiarities of the phonological features of East Asian languages such as the dominance of vowel over consonant sound in Chinese, the absence of clusters of consonants at the beginning of a syllable in Korean, and the presence of tones in Chinese and Korean may represent the source of difficulty for East Asian children learning to recognize and segment English sounds. Their task was made more difficult by the fact that all the items of our phoneme awareness tasks were consonants. Furthermore, both South Asian and East Asian children had significantly lower scores than their English speaking peers on a task measuring complex phoneme recognition of English sounds (Phoneme Recognition and Location). Normal native English speaking readers scored significantly higher than normal ESL readers for the ability to recognize simple English phonemes in oral language. These particular findings can be explained by the relative lack of exposure to English of ESL children compared to their native English speaking peers. This may contribute to their less developed mental phonemic representations of English sounds than in native English speaking children. The majority of the studies that have found superior phonemic skills in bilingual children (Campbell & Sais, 1993, Da Fontoura & Siegel, 1995, Bruck & Genesee, 1995) were based on bilingually schooled samples. Literacy in two languages would
promote enhanced metalinguistic awareness of sounds by having the children utilize appropriate phonological features in each language and having to map these phonological patterns to their two different representations of words. In our study, tasks of phonemic awareness of English phonemes rely strictly on English sounds as cues. Tasks of pseudoword reading rely on the letters of the alphabet as cues for the ability to transform sequences of letters into a phonological code.

Our findings revealed that even if ESL children had less developed phonemic and syntactic awareness than their native English speaking classmates, there were no significant differences between South Asian, East Asian and native English speaking children for the ability to read words and pseudowords. This lack of significant differences between ESL and native English speaking children for pseudoword and word recognition tasks can be explained by the fact that all children are exposed to English reading instruction at the same time. It appears that the acquisition of an alphabetic code transmitted through the language of instruction serves as an essential medium for phonological recoding skills. It would facilitate the efficiency with which phonological codes are paired with letters. Since language groups did not differ from each other for phonological recoding skills, it appears that this ability is not influenced by the first language children speak at home.

The results of this study have also shown the relationship between phonemic awareness and reading ability across the three language groups. This finding corroborates the results of numerous studies that have related

Normal readers, regardless of their first language, can more easily localize, delete and substitute phonemes than reading disabled readers across the three language groups. Normal readers, regardless of the first language they speak at home, are also better at reading CVC pseudowords and CVC + e pseudowords than their reading disabled classmates. Similarly, when one compares children who have reached a particular reading level, there are no significant differences between normal South Asian, East Asian and native English speaking readers for the tasks of phonemic awareness, syntactic knowledge and working memory.

At this stage of reading acquisition, there were also no significant differences between ESL and English speaking children for working memory, whether they speak South Asian or East Asian languages at home. There were also no significant differences between normal or reading disabled children across the language groups for syntactic knowledge and working memory. However, as predicted, speaking English as a first language at home influenced the development of syntactic awareness skills. First grade ESL children, whether they were South Asian or East Asian had significantly lower scores than their native English speaking classmates on the Oral Cloze, a test
of syntactic awareness of the English language. This finding is analogous to those of Bialystok (1987), Bozinou and Santiago (1984) and Da Fontoura and Siegel (1995). Furthermore, if we consider working memory, syntactic and phonemic awareness tasks as measures of English oral proficiency, our ESL children were able to read English words and pseudowords better than might be expected from their oral English skills. This particular finding supports the study of Durgunoglu et al. (1993) who found that there was no relationship between English or Spanish oral proficiency and word identification skills of Spanish speaking beginning readers. It also supports the study of Jackson and Lu (1992) who found that the lack of English oral language proficiency of gifted ESL kindergarten children did not impede their precocious reading skills. Geva and Siegel (1998) have also found that second language oral proficiency played only a limited role in explaining individual differences in accurate L2 word recognition skills of grade 1 to grade 5 children with English as a first language and Hebrew as a second language.

In summary, both South Asian and East Asian ESL children had more difficulty than their native English classmates in verbally accessing the sounds and the syntax of the English language probably due to their relative lack of exposure to the English language. However, there were no significant differences between language groups for the ability to read words and pseudowords, probably due to the influence of reading instruction on the development of phonological recoding skills. Even if ESL children had less developed awareness of English phonemes than their English speaking peers,
there were no significant differences between the language groups for the ability to acquire grapheme-phoneme conversion rules and word recognition skills. When one compares children who reached a normal reading level, there are no differences between children taught in their first and second language. In many respects, learning to read in English as a first and second language seems to follow universal principles, as the linguistically diverse children in this study relied on highly comparable strategies in mastering the alphabetic code.
REFERENCES


Cummins, J. (1979). Linguistic interdependence and the educational


Appendix A

Phoneme Recognition Task

1. /s/: sock, fat, soup, meat.
2. /m/: milk, map, paint, cake.
3. /f/: head, foot, stick, face.
4. /t/: pen, take, top, duck.
5. /bl/: cook, hot, boot, beard.
6. /k/: kiss, kite, bad, gate.
7. /p/: duck, put, plant, black.
8. /d/: dime, cup, duck, top.
9. /g/: gum, boat, goat, cup.

Phoneme Recognition and Location

1. /s/: neck, sun, class, grass, sick, pen.
2. /m/: milk, ham, sit, pen, moan, comb.
3. /f/: girl, calf, fat, fruit, knife, class.
4. /t/: sit, top, milk, grass, toe, cat
5. /bl/: bike, milk, cab, bus, tub, nose.
6. /k/: milk, fat, kill, sick, toe, cup.
7. /p/: soap, neck, ape, grass, pill, pen.
8. /d/: milk, mad, dog, dip, ride, class.
9. /g/: gum, dog, cab, bag, girl, nose.

Phoneme Deletion/Substitution
Initial
1. fill (remove /f/)________________________4. fill (change /f/ to /b/)________________________
2. cup (remove /c/)________________________5. cup ( change /c/ to /p/)________________________
3. bat (remove /b/)________________________6. bat (change /b/ to /s/)________________________

Final
1. goat (remove /t/)________________________4. fill (change /l/ to /t/)________________________
2. make (remove /k/)________________________5. cup (change /l/ to /t/)________________________
3. seal (remove /k/)________________________6. bite (change /t/ to /k/)________________________

Blends
1. slip (remove /l/)________________________4.crest (change /s/ to /p/)________________________
2. slip (change /l/ to /n/)________________________5. stick (remove /t/)________________________
3. nest (remove /s/)________________________6. stick (change /t/ to /l/)________________________
Appendix B

Oral Cloze

1. The ___________little pigs ate corn.
2. Fred put the big turkey ___________the oven.
3. The ___________ put his dairy cows in the barn.
4. Jane ___________her sister ran up the hill.
5. It wasa sunny day with a pretty ___________sky.
6. Betty ___________a hole with her shovel.
7. Jim set the lamp on the desk so he could ___________.
8. The boy had big brown eyes and a pleasant ___________.
9. The children put on their boots ___________it snows.
10. Jeffrey wanted to go ___________the roller coaster.
11. When we go ___________the building, we must be quiet.
12. Dad ___________ Bobby a letter several weeks ago.
Appendix C

Working Memory Task

2a. (1) In a baseball game, the pitcher throws the ___.

(2) On my two hands, I have ten ____________.

2b. (1) In the fall, we need to rake ____________.

(2) When we are sick we often go to the ________.

2c. (1) An elephant is big, a mouse is ____________.

(2) A saw is used to cut ____________________.

3a. (1) Running is fast, walking is ____________.

(2) At the library, people read ________________.

(3) An apple is red, a banana is ____________.

3b. (1) The sun shines during the day, the moon at _____.

(2) In the spring, the farmer plows the ____________.

(3) The young child had blond hair and blue ________.

3c. (1) In summer it is very ________.

(2) People go to see monkey in a ________.

(3) With dinner we sometimes eat bread and ________.

4a. (1) Please pass the salt and ________________.

(2) When our hands are cold we wear ________.

(3) On my way to school I mailed a ________.

(4) After swimming I was soaking __________.

4b. (1) Snow is white, coal is ____________.

(2) After school, the children walked ________.
(3) A bird flies, a fish ____________.

(4) In the barn, the farmer milked the ____.

4c. (1) In the autumn the leaves fall off the ____.

(2) We eat soup with a ____________.

(3) On hot days I go to the pool to ____.

(4) We brush and comb our ____________.

5a. (1) For the party, the girl bought a pretty pink ____.

(2) Cotton is soft and rock are ____________.

(3) Once a week the maid washes the kitchen ______

(4) In the winter we have to shovel ____________.

(5) I throw the ball up and then it comes ______.

5b. (1) The snail is slow, the rabbit is ____________.

(2) At a birthday party, we usually eat ice cream and ______

(3) Sand paper is rough but glass is ____________.

(4) In a garden, the workers pick ears of ____________.

(5) Over the fields, the girl rode the galloping__________.

5c. (1) To cut meat we use a sharp ____________.

(2) In the daytime it is light, and the night it is ______

(3) Dogs have four ____________.

(4) At the grocery store we buy ______

(5) A man is big, a baby is ____________.