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Tucker Signing as a Phonics Instruction Tool to Develop Phonemic Awareness in Children[1]

Tucker Signing como Herramienta Fónica para el Desarrollo de la Conciencia Fonética en Niños

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Abstract

To develop reading acquisition in an effective way, it is necessary to take into account three goals during the process: automatic word recognition, or development of phonemic awareness, reading comprehension, and a desire for reading. This article focuses on promoting phonemic awareness in English as a second language through a program called Tucker Signing. Twenty-five first grade students in a public school participated in the study using the program as phonics instruction. In the process, students would see a word, do a movement with the left hand as a representation of the grapheme, and make the sound. To analyze if the program was useful, students took a pre- and post-test, and results were compared. Findings show that the program helped children to develop phonemic awareness through the identification and the relationship between each of the twenty-seven English graphemes (letters) and most of their corresponding phonemes (sounds). At the end, students developed phonemic awareness through the identification of English phonemes without the mix to translate from their L1 (Spanish) to the L2 (English); although some phonemes like "th" /θ/ /ð/, "j" /dʒ/, and vowels would need more reinforcement.

Keywords: reading, phonemic awareness, phonics instruction, the Tucker signing program, grapheme, phoneme

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Resumen

Para desarrollar la lectura de manera efectiva, es necesario tener en cuenta tres objetivos durante el proceso: reconocimiento automático de las palabras (desarrollo de conciencia fonémica), comprensión lectora y deseo por leer. Este artículo se enfoca en promover la conciencia fonémica en inglés como segunda lengua, a través del programa Tucker Signing. Veinticinco estudiantes de primer grado de un colegio público participaron en el estudio usando el programa Tucker Signing como instrucción fónica. Los estudiantes que participaron en el proceso tenían que observar una palabra, hacer el movimiento con la mano izquierda como representación de cada grafema de la palabra, y finalmente reproducir el sonido de cada grafema. Para analizar si el programa era útil, los estudiantes tomaron un test diagnóstico y un test posterior a la implementación del programa con el propósito de comparar los resultados. Los hallazgos muestran que el programa ayudo a los niños a desarrollar conciencia fonémica a través de la identificación y de la relación de cada uno de los veintisiete grafemas (letras) en inglés y la mayoría de sus fonemas correspondientes (sonidos). Al final los estudiantes desarrollaron conciencia fonémica a través de la identificación de los fonemas en inglés, sin mezclar o traducir de su L1 (español) a su L2 (ingles); sin embargo algunas vocales y fonemas como "th" /θ/ /ð/, "j" /dʒ/ necesitarían más refuerzo.

Palabras clave: lectura, conciencia fonémica, instrucción fónica, the Tucker Signing program, grafema, fonema,

Resumo

Para desenvolver a leitura de maneira efetiva, é necessário considerar três objetivos durante o processo: reconhecimento automático das palavras (desenvolvimento de consciência fonêmica), compreensão leitora e vontade de ler. Este artigo se enfoca em promover a consciência fonêmica em inglês como segunda língua, através do programa Tucker Signing. Vinte e cinco estudantes de primeiro ano de um colégio público participaram no estudo usando o programa Tucker Signing como instrução fônica. Os estudantes que participaram no processo tinham que observar uma palavra, fazer o movimento com a mão esquerda como representação de cada grafema da palavra, e finalmente reproduzir o som de cada grafema. Para analisar se o programa era útil, os estudantes tomaram um teste diagnóstico e um teste posterior à implantação do programa com o propósito de comparar os resultados. As descobertas mostram que o programa ajudou as crianças a desenvolver consciência fonêmica através da identificação e da relação de cada um dos vinte e sete grafemas (letras) em inglês e a maioria de seus fonemas correspondentes (sons). No final os estudantes desenvolveram consciência fonêmica através da identificação dos fonemas em inglês, sem misturar ou traduzir da sua L1 (espanhol) à sua L2 (inglês); entretanto algumas vocais e fonemas como "th" /θ/ /ð/, "j" /dʒ/ necessitariam mais reforço.

Palavras chave: leitura, consciência fonêmica, instrução fônica, the Tucker Signing program, grafema, fonema

Introduction

In order to learn a foreign language it is basic to develop the four skills: speaking, reading, writing, and listening, with the purpose of communicating different kinds of information. Reading can be one of the most complex skills to acquire in a second language, especially when the native and the second language have key linguistic differences that make the process more difficult. A native Spanish speaker who is learning English as a second language needs to make distinctions in order to produce the second language efficiently. One major difference is the phonological system used in Spanish, which is different from that of English. Spanish has fewer phonemes than English. Spanish has five pure vowels and five diphthongs; in contrast, English has twelve pure vowels and eight diphthongs (Shoebottom, 1996).

The consonants in English are also different and vary in pronunciation from Spanish. For example, the "h" /h/ in Spanish does not make any sound in words like "hoy," while in English the "h" /h/ makes a sound, and it has the pronunciation of the "j" in Spanish in words like "horse." Other differences can be found in the way of writing and the sound of each of the graphemes. For example, the "f" /f/ sound in Spanish and "ph" /f/ sound in English in words like "foca" in Spanish and "phase" in English (Perea, 2010).

Because of these differences, it is necessary to accomplish three goals during the process of learning to read in order to develop this specific skill in a successful way: automatic word recognition (development of phonemic awareness), reading comprehension, and a desire for reading. This study focused on first grade students from a public school in Bogotá, Colombia who have to deal with the aforementioned differences between the two languages while reading, and many of them do not recognize these differences. For these students understanding in English classes can become demanding because they do not see a relationship between the phonological system and the writing system. In other words, they lack phonemic awareness (Hoover, 2002).

To deal with this difficulty, this study proposes a program called Tucker Signing strategies for reading. This program helps learners identify in first instance the associations between letters (graphemes) and sounds (phonemes) (Tucker, 2001). It is a strategy that can be incorporated into reading lesson plans.

> [It] provides a mental model that students need in order to decode words easily, accurately—and fast. It uses a system of 44 hand signs that prompt associations between letters or word chucks and their sounds. Tucker

> Signs require readers to see the letter(s), make a sign, and say the sound at the same time. (p. 3)

The objective of the program is to develop phonemic awareness in children while they have fun. This program is used during class instruction as phonics, which is the methodology that teachers use for developing phonemic awareness (Tankersley, 2003). It is important to highlight that this program has been used exclusively for children who are learning English as the native language. In this article, we explore how the implementation of the Tucker Signing program with first grade ESL students helps them to acquire the first step of reading in the second language, which means the acquisition of phonemic awareness. In brief, the development of phonemic awareness is necessary in order for students who struggle reading in English as a second language to be able to manipulate the relationship between graphemes and phonemes presented in any given text. Tucker Signing claims to be a phonics instruction program that helps children to obtain such a manipulation in a short period of time, while also allowing students to have fun.

Literature Review

There are several studies that support the importance of developing phonemic awareness to acquire reading skills, and why phonics instruction is used in this process. Furthermore, research also shows how Tucker signing addresses the latter two concepts. Ault (2011) analyzed whether phonics instruction increased the students' reading fluency. Ault believed that phonics instruction can "help students in their future reading pursuits, and knowing phonemes, syllable types, prefixes, and suffixes are only some of the important skills that help students read multisyllabic words when they are in the higher grades and in everyday life" (p. 4). Ault administered a pre-test, implemented the phonics instruction for five weeks, and then administered a post-test. The results of the analysis were not favorable; students read an average of 5.8 words per minute less in the post-test than in pretest. Nevertheless, they did affirm the author's thoughts about an increase of accuracy of reading in the whole target population (Ault, 2011). This means that students developed a relationship between graphemes and each one of the phonemes.

A study by Martínez (2011) used explicit phonics instruction to improve literacy skills in ESL students from Bogotá Colombia. The main objective of this study was the development of reading abilities in the second language, including reading comprehension, spelling,

and proper use of verbs in written statements. The students showed proficiency in literacy in Spanish (L1), and during the kindergarten courses they developed the basic diagraph in English (L2) (the combination of two sounds as /θ/ /ð/ /ʃ/ /tʃ/) and short and long vowels. The author found that explicit phonics instruction does improve EFL children's reading comprehension. "Phonics helps students to better decode and pronounce an English word, which translates into better understanding of what is being read, and hence improve the reading comprehension of EFL students" (Martínez, 2011, p. 45). The author recognizes that adequate phonics instruction helps children to develop phonemic awareness, which later will help to develop skills including reading comprehension and writing.

Further studies also demonstrate that English language learners (ELLs) have shown improvement in their reading abilities when phonemic awareness skills are encouraged. Walter (2010) conducted a study with kindergarten students whose native language was Spanish. Most of them presented a deficiency in the second language because of little exposure of English at home or school. After the instruction given to develop phonemic awareness through meaningful activities, a test was given to observe and analyze if students enhanced reading abilities in the second language. The study showed that for students whose language is related to English, as in the case of Spanish, the emphasis of English phonemes that do not exist in their native language was a key factor in the optimization of reading acquisition. Additionally, students presented an improvement not only in reading but also in writing skills, including a positive outcome in the acquisition of new vocabulary in the second language (Walter, 2010).

Studies related to the Tucker Signing Strategies for Reading program show the effectiveness of the program in reading development. The first study conducted by Cole 2001), known as the Indiana Tucker pilot study, demonstrated that students improved their reading skills. A follow up study was carried out (Cole, 2005) which investigated the effects of the program on the decoding skills of elementary school students. The number of sessions using the program varied between 4 and 50. As in the previous study, the results suggest that students who received the Tucker reading strategy instruction exhibited greater progress in the decoding of sight words than their peers in the control group, who did not receive such instruction. Students with disabilities also benefited as much as the target population, in as much as they did not present any difficulty, and showed improvement in their reading process. There are no recent studies in which the program has been used with English as a foreign language (EFL) students.

Methodology

Research Design

In this study, the Tucker Signing program was applied with a population of 25 first graders aged 6-7 in a public school in Bogotá, Colombia. The population demonstrated proficiency in reading skills in Spanish, including the ability to identify letters, syllables, words, and sentences. Most of students also demonstrated phonemic awareness in their native language and were able to read aloud with fluency, and an understanding of most words.

The source of the information was the observation of one-hour classes delivered three times a week for six months. The observation of the program's activities allowed for interaction as well as the emergence of other phenomena, such as emotions of excitement and happiness, experiences, and thoughts, which might affect the results of the study. Observations were conducted after the implementation of each of the tests, with individual detailed analysis about how students related each of the graphemes with a phoneme (not necessary with the corresponding one). Observations also occurred during the process students were learning how the Tucker Singing program works. This part of the observation shows the cognitive and emotional experience between the students and the program.

Other sources of data in this study were a diagnostic test, the implementation of the Tucker Signing Strategies for Reading Program, and a post-test given after carrying out the program to measure the levels of proficiency in the acquisition of phonemic awareness.

Data Collection Instruments

The project used a diagnostic test before the implementation of the Tucker Signing program, and a post-test after its execution to show how effectively students developed phonemic awareness. The diagnostic test was designed taking into account three reading tests: the National Right to Read Foundation (2011), the Burt Reading Test (Hepplewhite, 2005), and the Quick Assessment of Reading Ability (Luke, 2011). The three tests were combined into one instrument, and all the words that were chosen have between one and two syllables (See Appendix). The test had three parts. The first part consisted of a list of fourteen letters, which students had to read. The second part was a list of fourteen simple words of one or two syllables; as the student read the words, they became more difficult to pronounce. The last part of the test consisted of five sentences that were simple in structure and easy

to pronounce. This test allowed the researcher to determine if students were able to relate graphemes to phonemes. A voice recorder was used in order to keep students from feeling intimidated while marking which words were well and incorrectly read. The post-test was the same as the pre-test. The post-test determined whether students have developed phonemic awareness as the first step in reading skill.

Data Analysis and Interpretation

After the implementation of the pre-test, the researcher used the recordings to listen to each student's pronunciation of the letters, words, and sentences given in the test. All the students were classified in different levels of reading described above. After the analysis of the pre-test, the Tucker Signing Strategies for Reading program, containing one book and a CD explaining how to pronounce and make each one of the forty-four phonemes with the left hand, was taught to the population. The idea is that students blend a word written on the board and pronounce the correct phoneme of each of the graphemes while they make the form of the grapheme in the air with their left hand. Afterward, students pronounce each of the phonemes together, thus arriving at the pronunciation of the complete word. At the end of the semester, after the implementation of the Tucker signing program, the post-test was analyzed in the same way as the pre-test.

Results

Lack of Phonemic Awareness

The pre-test evaluated and analyzed the reading abilities of the participants. The test was analyzed taking into account how the three tests assess students in order to see who is able to read proficiently. In the first part of the test, in which students must identify letters of the alphabet, if the student misses one or two letters, he or she is still on the right track. If the student misses three to five letters, he or she needs more instruction. If the student misses more than five letters, he or she requires considerable reinforcement in the identification of letters.

Results show that one student made four miscues, and the rest of the population made more than five miscues.

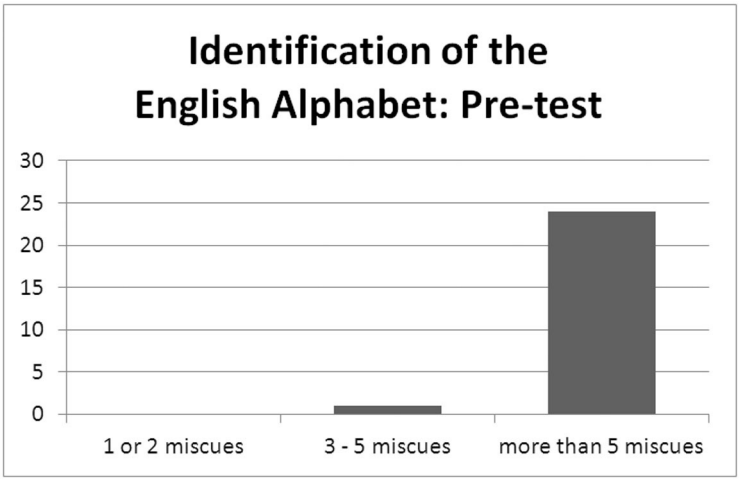

Figure 1. Identification of the English alphabet (pre-test)

The second part of the pre-test presents a sequence of words. According to the scoring information, if the student misses one or two words, the student may still be able to read independently at this level. If the student misses three words, he or she needs reinforcement in the reading process. If the student misses four or more words, this level could be frustrating for a student.

All students missed more than four words indicating a high degree of frustration.

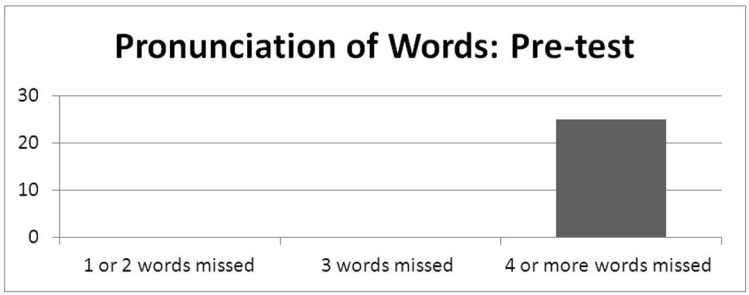

Figure 2. Pronunciation of words (pre-test)

In the last part of the pre-test, students are asked to read simple phrases. Scoring takes into account 1) skipping words, in the case that students do not pronounce the words; 2) insertion of a non-related

word, in which students may pronounce a word that is not included in the sentences; 3) fluency, or how fast students read the sentences with or without hesitation; and 4) mispronunciation of a word. If the student makes one miscue, he or she is still able to read independently. If the student makes two or three miscues, he or she needs more instruction in reading. A student who makes four or more miscues is not performing at the reading level for the grade.

Results of the pre-test show that most of the students performed well in the fluency task and in the incorporation of all the words in each of the sentences. However, they made miscues in the pronunciation of words, and in the insertion of non-related words.

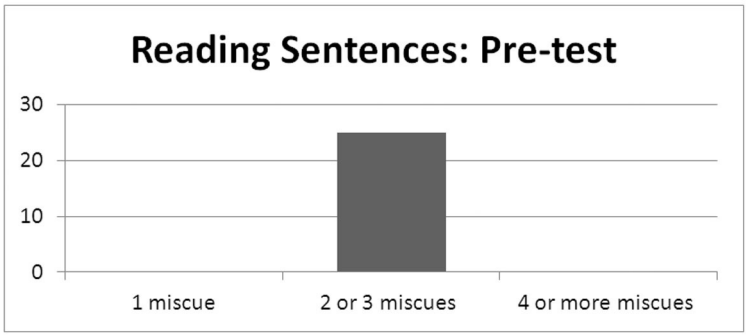

Figure 3. Reading sentences (pre-test)

Students' results from the pre-test indicate difficulties with the pronunciation of consonants and vowels. Most students continued to produce the patterns of Spanish while speaking English. For instance, all of them pronounced the "h" /h/ as silent in words like "he" or "hen." Another case related to this letter is the pronunciation of the "th" /θ/ /ð/ sound; students were prone to avoid the "h" /h/ just pronouncing the "t" /t/ in words like "the" and "things." The "j" /dʒ/ was pronounced voiceless as in Spanish instead of being pronounced as voiced in English with words like "just." The "w" /g/ was pronounced as a "g;" /g/. The letters "d" /d/ and "t" /t/ presented a special difficulty in words which finished with these two letters, as in the sentence "Ben can fix his bad bat."

Students also confused short and long vowels while reading the words and sentences. The "silent e" included in many words was pronounced by most of the students as if they were reading in Spanish. We can see this mistake in words offered by the test like "some" or "love."

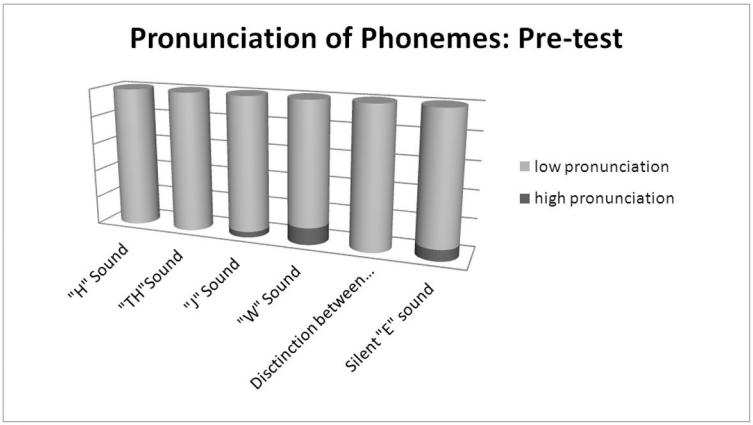

Figure 4. Analysis of the phonemes pronunciation (pre-test)

Development of Decoding Skills

The post-test test was carried out in a similar fashion, taking into account the same parameters as the pre-test, with the purpose of comparing students' performance before and after the implementation of the Tucker signing program.

This time in the first part of the test, where students have to identify the letters of the alphabet, just four of the 25 students had one or two miscues forgetting the name of letters and recognizing the vowels. One student made three miscues. However, they were able to self-correct miscues in the recognition of vowels. For example, if a student saw the letter "I" and he said that the letter was an "A" he realized instantly that he had made a miscue and stated the correct name of the letter. 20 of the 25 did not make miscues.

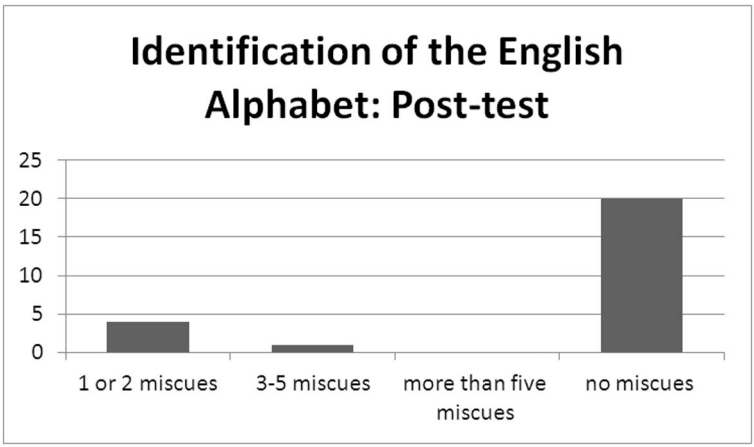

Figure 5. Identification of the English alphabet (post-test)

In the second part of the test, most of the students (14) just missed one or two words from the list using Tucker Signing; however, in nine cases students missed three words. None of the students missed more than three words.

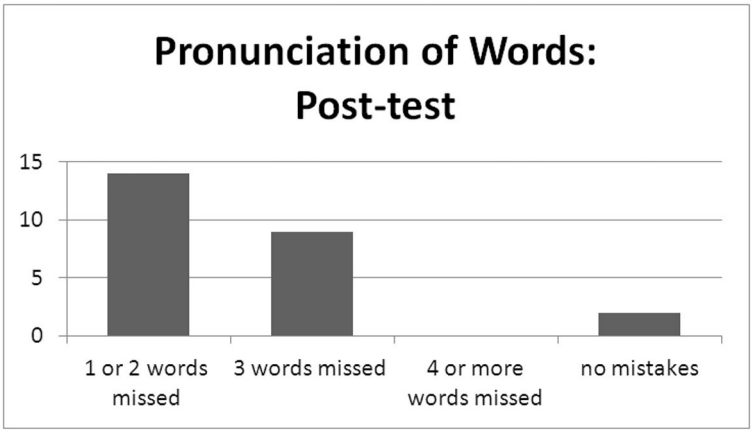

Figure 6. Pronunciation of words (post-test)

In the last part of the test, 24 students performed well in terms of fluency and the incorporation of all the words in each of the sentences, as in the pre-test. Four students made mistakes in the pronunciation of words. None of the students inserted non-related words.

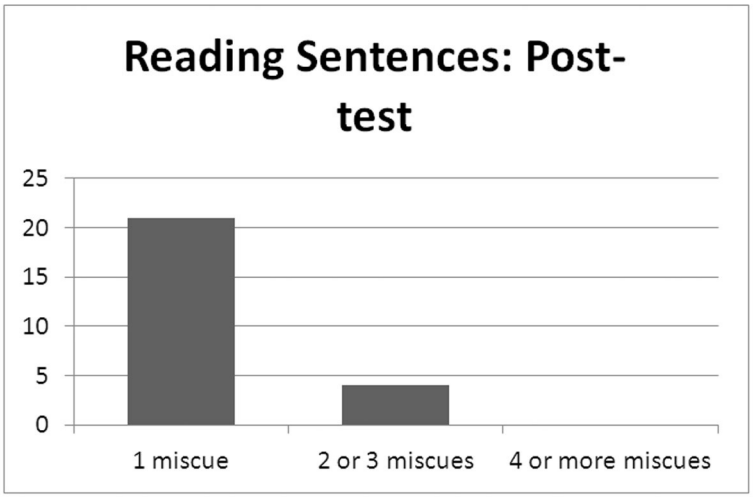

Figure 7. Reading sentences (post-test)

This time personal analysis and observations about the post-test give more detail as with the pre-test. This analysis shows a significant difference between the results obtained in the pre- and post-test. In general, students did not translate complete words from Spanish to the English. Nevertheless, a few students still struggled with the pronunciation of some vowels and consonants because they translated from Spanish to English. For instance, two students pronounced the "g" /g/ sound in English as a "j" /dʒ/ sound in Spanish. One student made "j" /dʒ/ sound in English as a "J" /x/ sound in Spanish; and one student pronounced the "h" /h/ sound as voiceless as in Spanish instead of pronouncing this sound as voiced as in English. Additionally, eight students out of the 25 presented confusion in the "th"/θ/ /ð/ sound, making the movements for the "T" and the "H" sounds separately. This likely occurred because there was insufficient time to reinforce this sound with students, and thus they did not remember how the movement was made. With the help of the instructor, they were able to remember the sound. Short and long vowels were confused by nine students while they were reading the words and the sentences. The silent "e" at the end of a word was recognized by 24 of the students, which means that just one student pronounced the silent "e" at the end of the word as a long vowel.

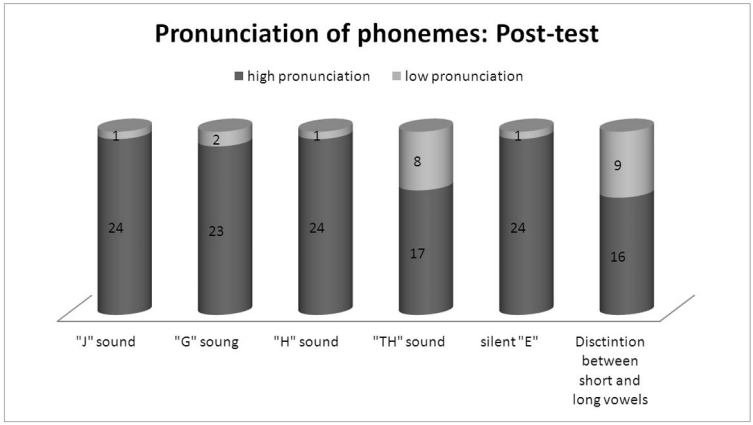

Figure 8. Analysis of the phonemes pronunciation (post-test)

Intervention with the Program and Observations during the Process

At the beginning, most of the students had problems with the identification of the left hand movement, either forming the letter with the right hand or using both hands. The researcher explained to the students that the use of the left hand is very important in order for the graphemes have the right position; on the contrary, if the form of the letter is made with the right hand, graphemes are going to be upside down and students can get confused. At the end of the process just a few students six students were still sometimes using their right hand instead of the left hand or mixing both hands.

Through the use of different contests to engage the class, students were able to learn not only how to pronounce each phoneme, but also several phonetic rules: "When we have two vowels in the same syllable, the first vowel is pronounced as a long vowel and the second vowel is silent," or "When we have a vowel the consonant S and another vowel the S /z/sounds like a "Z," then we have to do the "Z" /ʒ/ sound instead of the S /s/ sounds in words like "nose" or "rose."

The identification of vowels was hard for children at the beginning, but through the phonics rules they managed to identify the differences between long and short vowels, and how these are used. Through different activities students recognized the pronunciation of vowels in several words, which means most of the time they identified when they had to use short versus long vowels, taking into account two main phonetic rules: a) When there is one vowel following another in

the same syllable, the first vowel is pronounced as a long vowel, and the other one is not pronounced; and b) When a word is made of one consonant, one vowel, and other consonant, the vowel is taken as a short one.

The program motivated students to read words as well as both short and long easy sentences. They had fun while they were pronouncing different words using the program and taking into account the phonetic rules mentioned previously, and often laughed, shouted, or raised their hands to participate. After students pronounced a word or a sentence, they asked or looked for the meaning of them.

Conclusion

This study demonstrated how the implementation of the Tucker signing program influenced the development of phonemic awareness in first grade students in a public school. Students developed phonemic awareness while reading English words or sentences. Students of first grade learned to manipulate most of the English phonemes in different words and sentences, even when one grapheme had two or three phonemes. Students finished their school year developing phonemic awareness of most of the forty-four phonemes in English. They were also able to make relationships between phonemes with their corresponding grapheme.

The study also shows that the Tucker Signing program is a useful tool not only for native speakers of English who are learning to read, but also for Spanish speakers who are learning to read in English as a second language. After the implementation of the program, students did not translate phonemes of their native language (Spanish) to the second language (English). During the process, students also learned some of the phonetic rules used to identify vowels and some consonants.

The analysis of both tests allows readers to compare the results. Before the implementation of the Tucker Signing program students could not identify short and long vowels in words and they pronounced some of the consonants like "j," "h," and the "w" as Spanish sounds. This lack of phonemic awareness made the mispronunciation of most of the words and sentences students had to read in the test. After the implementation of the program, students continued to have some pronunciation miscues, but they were able to read most of the words and sentences presented in the test correctly.

The lack of time was a key factor in the process of developing phonemic awareness as there were not enough classes to implement the

program. It is necessary to spend more time than the six months allotted for the study because learner would benefit from reinforcement of each of the forty-four phonemes. Phonemes like "th"/θ/ /ð/ were taught in a rush without reinforcement, and most of the students forgot how to make this sound with the corresponding movement. Because of lack of time, some phonemes could not be taught. Those phonemes were the diphthongs and the use of "ar", "er", and "ir" /ɚ/ sounds.

Still, the Tucker Signing program proved to be engaging and motivating for students during their process of developing phonemic awareness. All 25 students wanted to learn a new sound every class, and they liked to participate trying to pronounce new words and simple sentences looking for the meaning by themselves after they got the right pronunciation.

Taking into account this previous information, future English teachers could consider implementing the Tucker Signing program in their classes to teach reading. This program has not been widely used in Colombia, and further research on this program could be useful particularly with children who have reading difficulties or even adult second language learners.

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Appendix

Reading Pre-test and Post-test

Part 1

J	N	V
K	E	B
H	W	F
F	L	G
P		

Part 2

Up, he, at, my, sun, the,
eggs, duck, some, went,
boys, love, now, sad.

Part 3

- The big red hen is mad.
- Did Bob get on the bus?
- Ben can fix his bad bat.
- Hit the fat bug on the bed.
- Don let the cat sit on his lap.