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Practice Report

A Comparative Analysis of Contracted Versus Alphabetical English Braille and Attitudes of English as a Foreign Language Learners: A Case Study of a Farsi-Speaking Visually Impaired Student

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Education is an absolute right of all human beings, especially in today's world, and there is a huge responsibility on those teachers who work with learners with disabilities. A very special kind of education is needed for people who are visually impaired, and braille is one method that is utilized by individuals to access educational materials.

There are two kinds of braille, alphabetic and contracted. In alphabetic braille, there are

graphemes for each character of the English alphabet, which consumes a lot of space, resulting in books that are very long. Contracted braille, on the other hand, uses 189 contractions, many of which represent whole words with one grapheme (*the, can, and people*, for example), which has led to shorter publications. The creation and utilization of contracted braille has had an effect on the education of visually impaired students. As a result, there has been extensive research in this area.

Lee and Hock (2014) investigated the effect of using contracted braille on the spelling proficiency of visually impaired students in a bilingual setting. Through doing quasi-experimental research, they concluded that the most frequent errors were grapheme substitution and direct translation of syllables of the first language. Troughton (1992) stated that the students who learn contracted braille later in school show a better performance in reading skills than those who learned contractions earlier. Wall Emerson, Holbrook, and D'Andrea (2009), on the other hand, concluded that if visually impaired students learn contractions at an earlier time, they will show better performance in their reading skills.

In the educational system of Iran, in which English is a foreign language, the duration of primary school is six years. After that, these English as a foreign language students enter high school and start to learn English during an additional six-year period. In years seven and eight, English textbooks are embossed in alphabetic English braille; but, for the next four years, these books are prepared in the contracted form. Visually impaired students in Iran use alphabetic braille to read and write in their own mother tongue (Farsi). Contracted braille is, therefore, a foreign concept to these students.

In Iran, the exposure of students who are learning English to contracted braille in high school has affected the reading skills of these students. The present researchers interviewed four teachers regarding the teaching of

contracted braille to English as a foreign language visually impaired high school students, and they also made some changes to the curriculum followed by the teachers. Since it is difficult for students to memorize a large amount of contractions quickly, all parties agreed that contracted braille needs to be taught as early as the first year of high school to Farsi-speaking students learning English.

The present study aims to scrutinize the effects on reading fluency of learning contracted English braille. To do so, we taught alphabetic and contracted braille to a visually impaired 12-year-old school boy to examine the degree of impact of teaching either of these two codes on his reading fluency.

METHODS AND MATERIALS

Visually impaired Iranian students learn alphabetic Farsi braille from the very beginning, with no knowledge of the contracted form of braille that exists in English. During years seven and eight, the students start learning alphabetic English braille and, in the next four years, they learn the contracted form. The subject of our research was a 12-year-old student (year six) whose primary method of reading and writing was alphabetic Farsi braille. He had no other disability and had no background knowledge of the English language.

The practical aspect of the study presented here was conducted in two phases, alphabetic and contracted. Alphabetic English braille was first taught to the student for three months (first phase) in two one-hour sessions per week, each lasting one hour for 20 sessions total. (We had intended hold 24 sessions, but due to the participant's reluctance and fatigue, some sessions were missed. Since we were not able to have 24 sessions in the first phase, we decided to have the same number of sessions in the second phase.) To correct errors, the student was asked to review the lessons and read them aloud in each session. To measure his reading fluency, a test was given in alphabetic braille based on what was already

covered. His voice was recorded when he was reading text, and a stopwatch was used to measure how long it lasted. After implementing the alphabetic braille test, teaching contracted braille started, with instruction over as many sessions as the alphabetic one (second phase). In this phase, we taught the same material but in contracted code, and a test was given after 20 sessions. Due to the time-consuming process of teaching the large number of braille contractions, we had to limit our project to teaching selected contractions to make the teaching sessions equal. The materials used in this period were adopted from *Interchange* by Richards (2005), converted into braille notation, first into alphabetic and second into contracted.

RESULTS

Based on the words correct per minute (WCPM) formula (University of Texas at Austin, n.d.) we measured the fluency and accuracy rate in each phase, counting the number of correct words per minute and per second and finally calculating WCPM. Through calculating the total number of errors of the first and second phase, we calculated the words which had been read correctly (WC) as follows:

$$(\text{Total number of words}) - (\text{total number of errors}) = \text{WC}$$

$$\text{First phase (alphabetic braille): } 74 - 6 = 68 \text{ in 128 seconds}$$

$$\text{Second phase (contracted braille): } 74 - 4 = 70 \text{ in 120 seconds}$$

By dividing WC by the total number of seconds, we got the words correct per second rate and multiplied that number by 60 to get the WCPM rate. When reading alphabetically, the student read 68 out of 74 words correctly in 128 seconds. In contracted braille, he read 70 out of 74 words correctly in 120 seconds. He read 31 correct words per

Table 1
The types of errors made by the student during the alphabetical braille test.

Word, substitution	Omissions
Question, goestion	No omissions
Write, wit	
School, shool	
Washes, washes	
Ate, eat	
The, she	
The, they	

minute in alphabetical braille, and 34 correct words per minute in contracted braille.

As shown, the reading speed in the second phase is faster, and the percentage of spelling errors is also lower than in the first phase, but the difference between the first and second phases is not large. Through determining WC in each phase, we divided them by the total number of words in the passage read to calculate the accuracy rate for his reading as follows:

First phase: $68WC/74 = 0.91\%$ accuracy

Second phase: $70WC/74 = 0.94\%$ accuracy

DISCUSSION

The data analysis indicated that substitutions in the first test (alphabetic braille, see Table 1) and omissions in the second one (contracted braille, see Table 2) were the most frequent spelling errors, despite the fact that the form and the content of the two tests were the same. It was shown that during the contracted test the participant omitted the stand-alone words (a form of contraction where the first letter stands for the whole word) such as *but* and *can* (changing into *b* and *c*), but read them correctly in the alphabetic form. One of the other interesting

Table 2
The types of errors made by the student during the contracted braille test.

Word, substitution	Omissions
Have, has	Can
En, enough	But

outcomes was that the words having *sh*, *ch*, and *th* sounds were read incorrectly in the alphabetic test, whereas they were read correctly in the contracted one. As a matter of fact, these sounds have somewhat difficult spellings but are easier in contracted braille in this regard; consequently, the student could read them correctly in the contracted format. This outcome is similar to what Harley, Truan, and Sanford (1997) concluded. They stated that *sh*, *th*, and *ch*, including a blended sound, can be much easier for visually impaired learners to spell in contracted form.

Comparing alphabetic and contracted groups, Hong and Erin (2004) concluded that the first one had fewer errors and the errors were unconscious (since, to the present researchers, they were considered as mistakes due to lack of concentration, fatigue, and stress). The results of the contracted test in this paper were the same as those of the alphabetic test carried out by Hong and Erin (2004). After the two tests were administered, we asked the participant to state the source of the errors, and he said that the source of errors was lack of concentration and also the difficulty of memorizing the contractions.

Although Troughton's study (1992) indicated that reading speed is faster when the text is in alphabetic code, the present study came to a different conclusion. The results were in line with those of Lee and Hock's (2014) in English as a second language context, which said that contracted braille has a significant influence on the spelling proficiency of visually impaired students.

As mentioned before, learning contracted braille in Iran is a concern for high school students. During the teaching process, we noticed that the participant was willing to learn contracted braille because of its ease of reading and writing. Although the difference between these two kinds of braille was so negligible, the collected data in this study illustrated that reading skill can be positively affected through using contracted braille.

CONCLUSION

In the educational system of Iran, English as a foreign language visually impaired students learn English during the six-year period of high school. In years one and two of high school, they learn English in alphabetical braille, but in the next four years in contracted form. After studying the effects of teaching alphabetical and contracted braille to an English as a foreign language visually impaired schoolboy, we noticed that contracted braille has some advantages over the alphabetical form.

This study showed that learning contracted braille has a positive effect on the reading skills of visually impaired students who are learning English as a foreign language. Compared with alphabetic braille, improving reading skills and saving a great deal of space are among the advantages of the contracted form. As a consequence, it is recommended that education planners put more emphasis on this code in visually impaired students' curriculum. Teaching contracted and alphabetical codes simultaneously or teaching contracted braille for teaching English to visually impaired students for whom English is a foreign language is much better than teaching contracted braille after being exposed to the alphabetical form for a long time.

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