Research Report

Teaching and Assessing the Appropriateness of Uncontracted Braille

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During the past 50 years, teachers have used contracted braille as the preferred method of teaching reading to children and adults. Contracted braille, previously referred to as grade 2 braille, involves the use of the traditional alphabet, along with 189 different characters and contractions that represent a group of letters or whole words (Ashcroft, Henderson, Sanford, & Koenig, 1994). Over 450 rules govern the use of these contractions (Miller & Rash, 2001).

Learning contracted braille is often complicated for young or beginning readers. Mangold (2000, p. 16) explained that "the cognitive demands of young blind children are greater than those required of their sighted peers if all of the contractions are presented during the first year of school." Beginning readers are also distinctly challenged because so much of their time and attention is spent decoding braille contractions that their comprehension of text is affected (Knowlton & Wetzel, 1996). Troughton (1992) suggested that reading contracted braille involves more intellectual exertion than does reading uncontracted (previously referred to as grade 1) braille and therefore leaves fewer cognitive resources available for interpreting text.

Learning contracted braille also appears to be particularly challenging for persons with learning disabilities or other cognitive impairments. In a national survey of 1,663 teachers, the majority of the sample (54.1%) attributed the recent decline in braille literacy to the increase in the number of students with multiple disabilities (Wittenstein & Pardee, 1996). Nolan and Kederis (cited in Miller & Rash, 2001, p. 23) similarly noted that "for students whose IQ is below 85, braille is an extremely inefficient medium of communication" and suggested that for students with cognitive impairments, learning contracted braille may be simply unfeasible.

Teaching students to read uncontracted (also known as alphabetic) braille is a recent movement led by consumers and educators in the field of braille literacy (Mangold, 2000) and is one of several alternative braille methods. The uncontracted method represents each letter of the alphabet with a corresponding braille symbol. Contractions and the rules that govern them are not used. Teachers have informally reported that this method is easy to incorporate into inclusive classroom activities and leads to increases in reading rates and accuracy (Mangold, 2000).

Research on uncontracted braille is limited, a notable exception being Troughton's (1992) work. (The recent Hong & Erin [2004] study on early exposure to uncontracted braille was not published at the time we did our study and analyzed our findings.) In a study of 124 participants who had already mastered contracted braille, Troughton found that 113 (91%) of them had higher speed and accuracy in reading and writing uncontracted braille than they did in reading contracted braille, despite their familiarity with the contracted method. Troughtman also found that in participants with learning disabilities, 98% performed better when reading with uncontracted braille.

It may be that uncontracted braille allows readers who are challenged by contracted braille to access a higher level of text. A Missouri study of the literacy levels of braille students revealed that 60% of those who used uncontracted braille read at or above grade level (Craig, Hough, Churchwell, & Schmitt, 2002). Sanspree (1998) suggested that learning uncontracted braille would especially aid students with multiple disabilities, since reading,

even at a functional level, facilitates independence and participation in community settings.

Method

Ponchillia and Durant (1995) noted that braille research has focused on the proficiency of braille readers, but few studies have been conducted on the instructional methods used by braille teachers. This pilot study interviewed four certified teachers of students with visual impairments (that is, those who are blind or have low vision) to examine the assessment and instructional strategies that they used with their students.

Sample

We used a purposive sampling strategy—a technique in which the researcher selects "a sample from which the most can be learned" (Merriam, 2001, p. 61). Two criteria were used in establishing eligibility for participation in this pilot study: three or more years of teaching braille and experience in teaching both contracted and uncontracted braille in a variety of instructional settings for students with visual impairments.

Martha. Martha, aged 48, had a total of 24 years of teaching experience. She began working with students who were visually impaired after her special education director noticed that she had taken two courses in college on teaching students who are visually impaired and asked if she would be interested in pursuing certification. Over the course of the next year, she completed her certification program. At the time of this study, she was completing her ninth year as a teacher of students with visual impairments for a large school district.

Lauren. Lauren, aged 44, spoke both English and Spanish. She began working in the field as a caseworker for the Texas Commission for the Blind. After two years, she completed her master's degree through a university outreach program. Since her husband relocated periodically, she had taught in a variety of school districts as a teacher of students with visual impairments. At the time of the study, she was completing her 12th year of teaching students with visual impairments and was an itinerant teacher in a mid-sized school district.

Debbie. Debbie, aged 52, had been teaching for 18 years. She completed her undergraduate degree in the education of students with visual impairments at a large university and began working as an early childhood teacher in a self-contained classroom for six years. She also worked as a reading teacher and a consultant for a regional education service center. Four years before the time of this study she had returned to the field as a teacher of students with visual impairments in an urban school district.

Sally. Sally, aged 50, had, at the time of the study, been teaching for 16 years. She became interested in working in this field after she completed volunteer work at the Texas School for the Blind and Visually Impaired. Sally also worked as a statewide consultant and as an administrator.

Data collection and analysis

Interviews, the primary method used to collect data for this study, were conducted by the first author over a four-week period and ranged in duration from 30 minutes to 75 minutes. These interviews were semistructured in that all the participants were asked the same questions (see Box 1, Questions 1–8), yet the interviewer added additional questions that were based on the participants' responses. Each interview was audiotaped and then transcribed. After transcription and an initial analysis of the responses were completed, two additional interview questions were written and e-mailed to the participants to obtain more information about their assessment procedures (see Box 1, Questions 9 and 10). Written responses to these questions were received from all four participants.

Data analysis was ongoing and used the constant comparative method. In this

Interview Questions

1. How did you initially become interested in working with students who are blind?
2. I know you have taught braille to students. Can you tell me about one experience that sticks out in your mind?
3. How do you teach braille, in particular uncontracted braille?
4. How do you assess the appropriateness of uncontracted braille as an instructional strategy?
5. During the assessment, what are the critical factors that you use in deciding to teach uncontracted braille?
6. What strategies, materials, and curricula do you use to teach uncontracted braille to students?
7. What are the keys to success in teaching uncontracted braille?
8. What do you tell parents about the different ways of teaching braille?
9. When deciding to use uncontracted or contracted braille, do you use any formal or informal assessment tools?
10. Do you include this information (regarding assessment tools) as part of the LMA?

Box 1.

method, the researcher compares a response from one interview to another response from another interview (Merriam, 2001). Each transcription was coded, and these coded responses were then grouped into categories. From these categories, themes emerged that formed the basis for the results. After completing the data analysis, the second author audited the data by listening to all the audiotapes, reading the transcripts, and examining the categories generated by the first author. This analysis thus served as a reliability check of the results. To increase the validity of the results, all the participants were mailed a copy of the results of the analysis and asked to comment on whether these results accurately represented their experience.

Results

Three primary findings emerged from this study, which represented a consensus on the themes expressed across the sample. These findings are elaborated next.

Factors in deciding the appropriateness of uncontracted braille

Although determining the appropriateness of uncontracted braille was a highly individualized process, there were some common factors that affected the participants' decisions. These factors were (1) the assessment process, (2) the presence of additional disabilities, (3) what the general education class was learning, and (4) what materials were commercially available.

The assessment process. Three participants used observation and informal measures during the process of determining the appropriateness of uncontracted braille. Lauren said:

> I think it is a one-on-one decision. You just have to consider all the different factors: the current level of the students, how much you think they will be able to pick up, the rate of their learning. You decide based on your assessment of how much and how quick. You gather all the information—[the student's] cognitive level, what kinds of classroom he or she is in, how he or she has functioned in the past—and you put it all together and decide. A lot of time, it is on a trial basis. It really is. Sometimes you take off with it . . . and sometimes you decide that is not working well, and then you have to backtrack.

Only one participant noted the use of formalized or standardized testing in the decision-

making process. Sally described the procedure that she used:

> It's more of a judgment call. For older students, I would use an assessment that would help determine an approximate functioning level in reading. I recommend an informal reading inventory or the Brigance. For younger students who are just beginning to read, it's a little tougher because they don't have any reading skills yet.

Additional disabilities. Although the participants used different methods, they agreed that additional disabilities played an important role in the assessment process. Martha said: "I don't know if there is a cut-and-dry reason to do it one way or the other. . . . I consider their ability level. What they need to know is really individualized." When Lauren decided to teach braille to a student in a self-contained classroom, she considered the classroom context:

> We would expect another student in his class to learn enough print to learn functional skills and learn the words *woman* and *man* on a bathroom door. Then I would teach him enough braille that he could learn enough to pick up on some of those functional skills and be able to adapt in his environment.

Sometimes teaching strategies changed when students with additional disabilities were unable to master contracted braille. Sally told the story of one student:

> He had been taught contracted braille for several years and was still not getting it. So we decided we would do just alphabetic, grade 1, braille. It made a big difference. He was able to pick it up. He was not cognitively able to remember all the contractions, but he could remember the alphabet.

What the general education class is learning. When the participants made a decision about the appropriateness of uncontracted braille, one factor that they consistently considered was what the students would be learning in their general education classrooms. For example, Lauren decided to begin teaching uncontracted braille to a young student this year. She explained, "His class is doing the letters, so he's doing the letters."

Materials commercially available. The lack of a curriculum and materials in uncontracted braille must be considered. Martha noted: "It's more difficult [to teach uncontracted braille] because there is not a textbook or any kind of format to use." If teachers decide to use uncontracted braille, they are often responsible for producing most, if not all, the materials. Debbie commented: "There is a big lack of grade 1 [uncontracted braille] materials. You have to make everything." The lack of materials affected a teacher's decision on the method used to teach reading; for example, Lauren stated:

> Most books are in grade 2 [braille]. My biggest concern has been about finding enough materials for her because she was smart enough that she ought to be able to pick up a book and read. I just thought I would be really limiting her if I did grade 1. But it was finally decided that because of today's technology, producing grade 1 books would not be a big deal. If she wanted to read a book, it would not be impossible to have it brailled in grade 1.

Teaching uncontracted braille

The second finding was that teaching uncontracted braille requires different strategies and materials than does teaching contracted braille. Many traditional yet optional braille curricula were not designed to teach uncon-

tracted braille. Debbie attempted to use a traditional curriculum with a student who was learning uncontracted braille. She reported: "I guess some kids can do a whole page of braille after braille, but it didn't happen with us. There was so much on each page. . . . So we made our own different tracking books." Martha liked the flexibility of teaching uncontracted braille and was not bothered by the lack of a formal curriculum:

> Because of the materials that were available, grade 2 [contracted braille] was pretty much "Here's the book; you read this. Here's this. You do this." It's very concise. It's very ordered, and it's designed to make it progressively harder for the kids. . . . But, it doesn't allow you the flexibility to include their surroundings and the things that they are doing [in class]. With grade 1 braille, you have a little more flexibility. . . . It's kind of up to you. . . . You don't have to start at the elementary level. If you have an adventitiously blinded child who already knows how to read and write, then you can use those words when teaching braille.

More than just the materials were different when teaching uncontracted braille. Lauren noted that with uncontracted braille, "Your approach is going to be very different. You use a lot more manipulatives, and your rate of teaching is going to be different."

Motivation, meaningfulness, and fun

As is the case with teaching other skills or content, these teachers thought that students were much more likely to be successful in learning uncontracted braille if they were interested, were having fun, and understood how braille will aid them in the future. Because of the limited availability of commercial materials, the participants often adapted or created materials that would interest their students. For her students who were having difficulty learning uncontracted braille, Lauren often adapted print books because sometimes just brailling the words to these books was motivating. She recalled:

> I had one little girl who had the hardest time until I really caught on to something that she loved. She just loved everything about Tigger and Pooh Bear. When we got into Tigger, I couldn't braille enough. I would read a book to her one time, and then she would follow me the second time. By the third time, she was reading those books. It was because she would recognize the words. She was familiar with Tigger and Pooh Bear and the stories. It really helped the braille reading immensely.

The participants also believed that fun was an important component of the learning process. When their students enjoyed learning braille, they seemed to look forward to braille lessons. Lauren explained: "It has to be fun. . . . [Learning braille] takes a lot of time and effort, but if we make it fun, the time goes by, and they look forward to it." Sally taught elementary and middle school students to read uncontracted braille and remembered brailling many baseball cards during one school year because "I had all boys in my class that year. They loved baseball, so we brailled a lot of baseball cards and brailled a lot of jokes and riddles. They thought those were fun, too."

Finally, for students to be successful in learning uncontracted braille, these teachers thought that their students must understand how the knowledge of braille would be of benefit to them. Sally believed that students are more successful if they understand that uncontracted braille can help them gain access to information that is of interest to them. She explained: "Tell them that this is going to open up all sorts of possibilities. Reading is really something that allows you to find out

about California or termites or whatever you are interested in."

Discussion

Although the results of this pilot study came from a small sample and thus should be interpreted with caution, the reflections of these experienced teachers are valuable when one considers current methods that are used in teaching braille. The teachers in this study were the sole decision makers in assessing whether they should teach uncontracted or contracted braille to their students. They reported that it was sometimes difficult to determine what method was most appropriate for their students. For some students, the participants could not determine which braille method was more appropriate until they had actually implemented the technique. Even after their initial decision had been made to begin with contracted braille, some of the participants continued to feel uncertain about their decision. Two participants reported that they decided to begin instruction in uncontracted braille after their students initially had been unable to master contractions. These reports mirror those of Miller and Rash (2001), who tested the use of alphabetic braille after they found that many students who were visually impaired were unable to learn contracted braille. The standardization of how to assess which type of braille might be most appropriate for a given student would be of great use to teachers in the field.

This study also examined the strategies and materials that the participants used to teach uncontracted braille. Initially, teaching uncontracted braille required these teachers to invent new strategies and to construct materials. Since the vast majority of traditional braille curricula were not designed to teach uncontracted braille, the participants created or adapted existing books and materials for their students. Constructing such materials required more time from these teachers. Other teachers may consider the use of uncontracted braille as an instructional strategy as new materials and curricula become available. Recently, the Texas School for the Blind and Visually Impaired developed a curriculum that focuses on uncontracted braille in the first 16 clusters that may be of assistance to teachers who are attempting to use uncontracted braille for the first time. The results of this study may also have implications for continuing education programs and in-service training. To meet the needs of students with visual impairments, teachers need to have a wide repertoire of instructional strategies to respond to the diverse learning needs of their students. The findings from this study suggest that uncontracted braille is a strategy that some teachers find effective. However, as Amato (1996) pointed out, merely knowing the braille code does not ensure that one will become a proficient braille teacher; instruction in braille methodology is thus an important part of teacher training. Given the increasing use of uncontracted braille by teachers in the classroom, training programs should consider including these instructional methodologies, so that those who instruct students with visual impairments are better prepared.

References

Amato, S. (2002). Standards for competence in braille literacy skills in teacher preparation programs. *Journal of Visual Impairment & Blindness, 96,* 143–153.

Ashcroft, S. C., Henderson, F., Sanford, L., & Koenig, A. (1994). *New programmed instruction in braille* (2nd ed.). Nashville, TN: SCALARS.

Craig, C. J., Hough, D. L., Churchwell, C., & Schmitt, V. (2002). A statewide study on the literacy of students with visual impairments. *Journal of Visual Impairment & Blindness, 96*, 452–455.

Knowlton M., & Wetzel, R. (1996). Braille reading rates as a function of reading rates. *Journal of Visual Impairment & Blindness, 90,* 227–236.

Mangold, S. S. (2000, October). Trends in the use of braille contractions in the United

States: Implications for UBC decisions. *Braille Monitor, 43,* 12–16.

Merriam, S. B. (2001). *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass.

Miller, C., & Rash A. (2001, Summer). Reading for everyone: Expanding literacy options. *See/Hear, 6,* 22–26.

Ponchillia, P. E., & Durant, P. A. (1995). Teaching behaviors and attitudes of braille instructors in adult rehabilitation centers. *Journal of Visual Impairment & Blindness, 89*, 432–439.

Sanspree, M. J. (1998, Summer). Early literacy: Braille and the young child. *See/Hear, 3,* 6–10.

Troughton, M. (1992). *One is fun: Guidelines for better braille literacy.* Brantford, Ontario: Dialatype.

Wittenstein, S. H., & Pardee, M.L. (1996). Teachers' voices: Comments on braille and literacy from the field. *Journal of Visual Impairment & Blindness, 90,* 201–209.

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