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Learning and Using Print and Braille: A Study of Dual-media Learners, Part 1

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Abstract: This is the first of a two-part report of a study on the instruction of children who were learning or using braille and print simultaneously (dual media). It explores the demographic characteristics of teachers and students, aspects of the decision-making process for providing instruction in dual media, and attitudes of students and parents toward learning dual media.

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Thirty years ago, when the second author was a teacher of students with visual impairments, the guiding philosophy regarding the teaching of braille and print was that only one medium should be chosen for a child. The idea of teaching braille and print simultaneously, more recently referred to as dual-media instruction, was not considered a viable option. The earlier a child was identified as one who reads print or one who reads braille, it was believed, the easier it would be for the child to acquire good literacy skills. In the 1980s, concern was expressed about the literacy skills of children who were reading print at slow rates, children who could read only for short periods, and children who were losing their vision. In addition, anecdotal accounts revealed that some adults who had learned braille at later ages thought that they had not acquired the braille skills that were necessary to be competitive in the workplace and that their literacy skills were

inefficient, even for personal tasks. Over the next few decades, several initiatives were undertaken to ensure that instruction in braille was provided to students who could benefit from it.

In the 1980s, the Braille Revival League, an affiliate of the American Council of the Blind, was formed to stress the importance of braille in the lives of people who are visually impaired (that is are blind or have low vision). The Committee on Joint Organizational Effort, founded in 1988 by major organizations in the field of visual impairment, agreed in 1989 on wording that described the need for braille instruction. Also, in the 1980s and the 1990s, legislation, commonly referred to as "braille bills," was passed in 32 states. All these bills ensured that children would have access to braille instruction, and some (such as the Texas braille bill) also required publishers to provide electronic files for the production of textbooks in braille.

Spungin (1996) described a long-standing concern that "braille illiteracy is a major symptom of larger problems" (p. 271), including such issues as "an emphasis on teaching children with residual vision to read print, negative attitudes toward blind people and the communication skills they need, and a lack of standardized braille teaching methods and of quality control to assure high standards of teaching" (pp. 271–272). Spungin also noted the concern that many teachers of students with visual impairments did not maintain proficient braille skills and therefore were reluctant to teach braille to children who could benefit from such instruction. In 1997, the Individuals with Disabilities Education Act (IDEA) was amended to require braille to be considered at each annual Individualized Education Program meeting for a child with a visual impairment.

During the 1980s and 1990s, efforts were made to create statewide programs to provide optical devices and instruction to students with low vision (for example, in Florida, Iowa, Tennessee, and West Virginia). For many students, the use of optical devices alone has facilitated visual independence and

improved reading speeds (Corn, Schwartz, Bell, Stewart, & Perez, 2000; Corn et al., 2002). For those who were dual-media readers, optical and electronic devices began to be used to provide enlarged text sized according to the assessed needs of the students.

The earlier philosophy of selecting one medium gave way to the idea that students with visual impairments could learn dual media. In research on the acquisition of a second language, evidence was found to support the theory that "second language proficiency does in fact decline with increasing age of initial exposure" (Hakuta, Bialystok, & Wiley, 2003). If learning braille can be compared to learning a new language, it could be reasoned that this task is also easier to learn earlier in life. This theory supported the philosophy of learning both media simultaneously and of learning a second medium at an early age if dual media were found to be the most appropriate means of reading and writing for a child.

However, some caution, drawn from the literature of other disciplines, was expressed about delivering dual-media instruction too early or too late. Although learning a second reading medium is only somewhat similar to learning a second language, as in bilingual instruction, for example, some authors (such as Ortiz, 1997) stated that for some students, one language and its literacy skills should be learned before a second language is added. Studies of the brain during active tactile braille reading have shown that there is greater activation in the visual cortex of those with congenital blindness than those with adventitious blindness (Melzer et al., 2001). Although these studies did not address young children or those with low vision who were trying to learn braille, there may be implications for considering the recruitment of the visual cortex for later braille instruction.

Koenig and Holbrook (1995) developed a formal learning media assessment (LMA) to assist teachers in determining which students would benefit from instruction in print, braille, or dual

media. An LMA can be administered to students of any age, even before formal instruction in reading begins. The use of an LMA was included in such documents as *Blind and Visually Impaired Students: Educational Service Guidelines* (Pugh & Erin, 1999), a publication prepared by a consortium of 13 organizations and 68 content specialists.

To date, data have not been gathered on the characteristics of children with low vision who are receiving dual-media instruction or on the number of children who are visually impaired (but not legally blind) who are learning only braille or are receiving instruction and materials in two media. However, Wall and Corn (2004) found that 67.2% of students with visual impairments in Texas were identified as legally blind, and the American Printing House for the Blind (APH, 2004) reported that for 9% of legally blind students, braille was their primary reading medium.

The purpose of the study reported here was to gather information on students who are learning and using dual media, the teachers who are teaching dual media, the instructional practices and curricula that are being used, and current levels of literacy skills. We were also interested in learning about the attitudes of students and parents toward dual-media instruction. Part 1 presents the results related to the demographic characteristics of the teachers and students, information on the decision to provide instruction in dual media, and the parents' and students' attitudes toward dual-media instruction. Part 2 will present the results related to instructional practices and materials and outcomes of acquisition of literacy skills by students.

The role of motivation and support to learn braille is often included in discussions of pedagogical issues in teaching literacy to students (see, for example, Koenig & Holbrook, 2000). In 2006, however, no data on the proportion of children with low vision and their parents who have been successful or who have had "false starts" in learning braille were found. There are anecdotal reports, however, of students who progressed slowly in

braille instruction during their early school years or rejected learning braille who then realized the importance of learning braille and tried to acquire braille skills in high school or college.

Motivation plays a similar role for the students with low vision who are learning to read print. Reading slowly, looking closely at print, and experiencing visual fatigue are among the visual difficulties that challenge the enthusiasm of these students. In this area, too, there is a dearth of data on how motivation contributes to a student's acquisition and enjoyment of print literacy skills. Koenig (1996, p. 246) illustrated this point when he described how a "curious and energetic boy … [seemed] more and more frustrated when asked to do reading and writing assignments in class." There have also been anecdotal reports of parents who have attempted to learn braille and have become frustrated in trying to do so. Books such as *Just Enough to Know Better: A Braille Primer* (Curran, 1988), have been written to encourage parents to learn to read braille.

Although a portion of students with low vision can and do learn to read efficiently and comfortably in print, braille, or a combination of print and braille, their successes have not been as readily shared as those who seem to struggle with single or dual media. This lack of success is certainly justified, since one of the major educational goals is to establish literacy for all students.

Method

INSTRUMENT

We developed a 66-item questionnaire, with input from several teachers of students with visual impairments and other professionals in the field of visual impairment. The questionnaire was then pilot-tested with three teachers, and further revisions were made. The questionnaire included six parts: students' demographic characteristics, students' visual functioning, decisions to teach dual media, curriculum, outcomes, and teachers' demographic characteristics. After the questionnaire was

developed, the print version was adapted into a web-based document, so responses could be received and recorded electronically.

RESPONDENTS

The respondents were teachers of students who were learning dual media—that is, three groups of students with visual impairments who were currently learning and using both print and braille: those who were initially dual-media learners, those who were initially print learners who added reading instruction in braille, and those who were initially braille learners who added reading instruction in print. The teachers were asked to complete questionnaires only about current students who were learning or using both print and braille during the 2004–05 school year, so that more than one teacher would not complete a questionnaire on the same student who had recently moved or been assigned to a different teacher's caseload.

PROCEDURES

Following the approval of the instrument and procedures by Vanderbilt University's Institutional Review Board, a brochure was sent as an e-mail attachment and circulated in print, when possible, in which directions were given for how to access the questionnaire electronically and how to receive a hard copy in braille or print. Flyers were sent to state vision consultants, school districts, 13 special schools for students with visual impairments, and individual teachers who were known to us. This convenience sample was identified to encourage persons from different educational delivery systems and different geographic regions to respond. All who received the flyer were encouraged to distribute it to anyone who might be interested in filling out the questionnaire.

The beginning of the questionnaire contained instructions for completing it and a statement regarding confidentiality. The teachers were asked to complete a separate questionnaire for each

student who met the criteria of being a dual-media learner. In other words, if a teacher had two students on his or her caseload who used dual media, the teacher would complete two questionnaires.

The completed questionnaires were sent to an administrative assistant at the university where we are located. The administrative assistant removed all names and other identifying information from the questionnaires and assigned each set of responses a unique teacher and student identification number (ID) (for example, questionnaire responses from Teacher 1 for Teacher 1's second student would be assigned the ID number 01–02). The administrative assistant assigned all students of any one teacher to the same overall Teacher ID number. Then the survey responses were sent to us for tabulation and further analysis.

Results

DEMOGRAPHIC CHARACTERISTICS OF THE TEACHERS

Questionnaires were received from 95 teachers in 20 U.S. states and 1 Canadian province. Because the questionnaires were distributed electronically, and comprised a convenience sample, a rate of return could not be calculated. If a teacher returned more than one questionnaire because he or she had more than one student who was learning dual media, the statistics on the teacher's demographic characteristics were calculated from the first questionnaire that was returned. Duplicate or partially completed questionnaires were not included in the data analysis.

The teachers who completed the questionnaire were predominantly Caucasian (n = 92, or 96.8%) and female (n = 89, or 93.7%). Furthermore, 87 (91.6%) of the teachers reported reading standard print as their primary reading medium, 5 (5.3%) reported using standard print with optical devices, and the remaining 3 (3.2%) reported using braille; no teacher reported using large print as his or her primary reading medium. With regard to the number of years of teaching experience, 51 (53.7%)

had more than 10 years of teaching experience, and 17 (17.9%) had less than 5 years of teaching experience.

The teachers rated their proficiency (proficient, somewhat proficient, or not proficient) in each of the four main braille codes: the literary braille code, the Nemeth mathematics braille code, the computer braille code, and the music braille code. Of the 95 teachers, 73 (76.8%) were proficient in literary braille, 31 (32.6%) were proficient in Nemeth braille, 23 (24.2%) were proficient in computer braille, and 2 (2.1%) were proficient in music braille. Only 1 teacher rated herself as proficient in all four braille codes, and only 2 teachers rated themselves as not proficient in any code. Of the 95 teachers, 10 (10.5%) rated themselves as proficient in three braille codes, 25 (26.3%) rated themselves as proficient in two codes, and 45 (47.4%) rated themselves as proficient in one code; for 37 (82.2%) of the latter teachers, the one code with which they were proficient was literary braille. A general profile of the typical teacher of students with visual impairments who responded to this questionnaire was a sighted Caucasian woman who had approximately 10 years of teaching experience and considered herself to be proficient in the literary braille code.

DEMOGRAPHIC CHARACTERISTICS OF THE STUDENTS

Data from the 108 completed surveys indicated that the students were aged 4–21 and were in prekindergarten (pre-K) to Grade 12 (see Table 1 for more detailed information). Of the 108 students, 96 (88.9%) were enrolled in local school systems, 3 (2.8%) were in special schools, 2 (1.8%) were in private schools, and 3 (2.8%) were receiving home schooling; the remaining 4 (3.7%) students were receiving other types of schooling. Of the 86 students for whom a response was given, 47 were reported to have only a visual impairment. Of the 39 students who had an additional disability, 4 had a physical disability involving their hands.

The teachers provided information on each student's clinical measures and level of visual functioning, including visual acuity

and field measures, etiology and prognosis, use of optical devices, reading media, and access to computers (see Figures 1 and 2 for more information). Of the 33 students with high visual acuities, ranging from 20/20 to 20/200, 10 had normal visual fields and 21 had restricted visual fields; the teachers did not know the extent of the visual fields for 2 students. Although exact visual fields were not given, 92 (85.2%) students would be identified as legally blind on the basis of acuity alone. This definition of legal blindness includes any student whose acuity was worse than 20/100 based on a Snellen chart, which does not have measures between 20/100 and 20/200.

With regard to the students' prognoses, 53 were reported to have a progressive condition, and 55 were reported not to have a progressive condition. Of the 53 (49.1%) students with a progressive condition, 5 (9.4%) were expected to progress to low vision, 21 (39.6%) were expected to progress to total blindness, and 27 (50.9%) were listed as having stable current visual functioning. Of those with a nonprogressive condition, 32 (58.2%) were listed as having stable conditions and 13 (23.6%) were listed as having unknown prognoses; other prognoses were given for 10 (18.2%) students.

Other areas of visual functioning that were reported were related to lighting conditions and the ability to see color. Of the students whose teachers knew their preference or difficulty with certain lighting conditions, such as dim lighting and photophobia, 78 (74.3%) of the 105 students for whom the teachers responded had difficulty working with dim light, and 52 (50.5%) of the 103 students for whom the teachers responded had problems with photophobia. With regard to color, 74 (69.8%) of the 106 students for whom the teachers responded had normal color vision.

In reporting the students' etiologies, the teachers could list multiple conditions. The results were tabulated and collapsed into groups of conditions for reporting purposes (see Table 1). Two teachers did not respond to this question. The three most

prevalent etiologies were glaucoma (*n* = 15), retinitis pigmentosa (*n* = 15), and nystagmus (*n* = 10). Other prevalent etiologies were detached retina (*n* = 9), retinopathy of prematurity (*n* = 8), rod-cone dystrophy (*n* = 6), myopia (*n* = 6), Leber's congenital amaurosis (*n* = 6), optic nerve hypoplasia (*n* = 5), coloboma (*n* = 5), and albinism (*n* = 5). Although some of these etiologies may be considered a student's primary condition, they also may be a secondary or tertiary condition.

With regard to the students' use of optical devices, 87 (81.0%) students had received a clinical low vision evaluation, and 90 (83.3%) students had been prescribed or given low vision devices with the past three years. Many students had been prescribed devices for near and distance viewing, as well as electronic devices and other devices, such as prisms or light-absorptive lenses. Although the majority of students had optical devices, only 16 (14.8%) used standard print with optical devices as their primary reading medium. In addition, 53 (49.1%) used large print, 20 (18.5%) used braille, and 19 (17.6%) used standard print without optical devices as their primary reading medium. On the basis of the eligibility criteria of this survey, all the students used at least one method of accessing print and were learning or using braille. Many students, however, used more than one method of accessing print, depending on the activity (such as reading textbooks, taking standardized tests, or working on a computer). These data include students who were both learning to use and had completed instruction in both media.

Of the 80 students who used large print as a reading medium, the most common large-print font size used was 20–40-point type (48 students), followed by 14–18-point type (23 students), and 42-point or larger type (10 students). Some teachers listed more than one point size for a student, two teachers gave responses other than point size, and one teacher did not answer this question. A further analysis of the data on the use of large print revealed that of the 80 students who used large print as a reading medium, 52 (65.0%) did not have normal visual fields. Of these students, 9

(11.3%) were reported to have less than 20 degrees of their central visual field.

The students accessed computers in multiple ways. The most popular way was to enlarge the image on the screen by using enlarging software (n = 51) or using the computer's settings to modify the font size (n = 42). Of the nonprint-based methods for accessing computers, 35 students used speech access and 4 used braille access. In addition, 21 students accessed computers using a standard screen, and 16 students used other methods; 9 students did not use computers.

DECISION TO TEACH DUAL MEDIA

The teachers knew when the decision was made for 95 (88%) of the 108 students to begin learning dual media. Of these students, the decision had been made for 25 (26.3%) students before age 5 and for 19 (20.0%) students at age 5. Another 32 (33.7%) had been identified by age 10, 15 (15.8%) by age 13, and 4 (4.2%) by age 16.

The teachers used various assessments in deciding to teach their students dual media. A formal LMA is a published procedure (see Koenig & Holbrook, 1995), whereas an informal LMA is a nonstandardized procedure that may include observations, subjective judgments, and consideration of concerns with the current literacy medium or media. Of the students who received an assessment or combination of assessments to help the teachers decide to teach dual media, 56 received an informal LMA, 39 received a formal LMA, and 16 received other assessments; no assessments were conducted for 4 students. Some students had a different teacher when the decision was made to teach dual media, and their teachers stated they did not know which assessments, if any, were conducted.

Sixty students were initially dual-media learners, but 43 students were not. Of these 43 students, 38 (88.4%) were initially print readers and 3 (7.0%) were initially braille readers; for 2 (4.7%)

students, other decisions had been made, and for 5 students, the initial reading medium was unknown (see Table 2 for more information).

CONCERNS OF TEACHERS, PARENTS, AND STUDENTS

The teachers were asked to identify whether one or more of six factors or concerns influenced their decision to teach dual media: print reading speed, print reading stamina, braille reading speed, braille reading stamina, a philosophical belief that all students who are visually impaired should learn braille, and the progressive nature of a student's visual impairment. Although these concerns may have been considered during the students' LMAs, this item specifically asked whether each item influenced the decision. The teachers could also expand on any other factors or concerns that were not covered in the six choices and could add their perceptions of the parents' concerns in these six areas. The most common concern of the parents and teachers was the progressive nature of the visual impairment (74 teachers and 59 parents), followed by print reading stamina (66 teachers and 44 parents) and print reading speed (55 teachers and 37 parents). Other concerns included braille reading stamina (9 teachers and 6 parents), braille reading speed (8 teachers and 5 parents), and the philosophical belief that all students with a visual impairments should learn braille (6 teachers and 4 parents).

The teachers also reported their perceptions of the students' concerns in four areas—print reading speed, print reading stamina, braille reading speed, and braille reading stamina—or indicated that the students were too young to express a concern when the decision to teach dual media was made. They also had the option of describing other concerns that were not covered by the four areas. The two most prominent concerns for the students were print reading stamina (n = 27) and print reading speed (n = 20). However, 30 students were too young at the time the decision was made to express their concerns.

ATTITUDES TOWARD PRINT AND BRAILLE OF PARENTS

AND STUDENTS

The teachers were asked to rate their students' attitudes toward print and braille using a 5-point Likert-type scale. For print, 83 (74.1%) students had at least a "usually positive" attitude and 55 (48.1%) had an "always positive" attitude. For braille, 73 students had at least a "usually positive" attitude and 47 (40.7%) had an "always positive" attitude. No student was reported to have an "always negative" attitude toward either print or braille.

Questions regarding the parents' involvement and attitudes were also included in this questionnaire. The topics included levels of parental support for teaching and learning dual media, how parental concerns factored into the decision to teach dual media, and how many families included someone in addition to the student who knew the braille code.

Of the 108 completed questionnaires, the parents of 69 students were listed as "very supportive" of a dual-media approach to literacy on a 5-point Likert-type scale. The parents of 21 students were listed as "somewhat supportive," the parents of 12 students were listed as "neither supportive nor unsupportive," the parents of 5 students were listed as "not opposed, but unsupportive," and the parents of 1 student were listed as "opposed and unsupportive." Thus, only 5.6% of the parents were characterized as "unsupportive (opposed or not opposed)" of their children learning dual media, and 83.3% were characterized as being at least "somewhat supportive." Furthermore, the teachers reported that in 92 families, no other members could read braille, and of the 16 families with a member who knew braille, only 2 members were proficient in contractions.

Discussion

This article has focused on the demographic characteristics of teachers and students, the decisions regarding the provision of instruction in dual media, and parents' and students' attitudes toward dual-media instruction. This discussion lays the

groundwork for a more in-depth examination of the practices used in dual-media instruction that is presented in Part 2.

DEMOGRAPHIC CHARACTERISTICS OF TEACHERS

With regard to the teachers' proficiency in the four basic braille codes, it is troubling that 23.2% of the respondents who were responsible for teaching dual media did not consider themselves proficient in the codes that their students needed to learn. Also, since this sample of teachers chose to respond to a questionnaire even if they were not proficient in the different braille codes, how many more teachers did not respond because they were uncomfortable revealing their level or lack of proficiency with braille?

DEMOGRAPHIC CHARACTERISTICS OF STUDENTS

The population of students who were represented by their teachers' responses was somewhat reflective of the U.S. population. According to the U.S. Census Bureau (2005), 60.3% of the students in public and private schools, nursery through high school level, in 2003 were Caucasian, 17.5% were Hispanic, 15.9% were African American, and 3.7% were Asian American. On the basis of these data, this study's sample seems to have had an overrepresentation of Caucasian students and an underrepresentation of African American and Hispanic students. One reason for the discrepancy between these two data sets is that the census data do not include categories for combined or other ethnicities. In this study's sample, 10.2% of the respondents reported a combined or other ethnicity.

Compared to the data in the APH annual report (2004), this study's data also show an underrepresentation of students in special schools—three in this study versus an estimated seven in the APH report, on the basis of the APH data that students at special schools make up 9% of the total population of students who are legally blind.

Another interesting finding was that although many students were prescribed optical devices, most were not using standard print with optical devices as their primary reading medium. Instead, almost half the students were using large print as their primary reading medium. Especially for students who are using large print in 14–18-point type, further study is needed to determine if they could be just as proficient with standard print and the use of optical devices for reading print.

Although several of the identified visual characteristics of the students would be expected among students who are learning dual media (such as a progressive eye condition, low visual acuity, or a restricted visual field), we found it surprising that students with relatively high levels of visual acuity and stable conditions were also learning dual media. Philosophical beliefs that are not supported by objective data about students' functioning may be the reason why such students are being taught braille.

DECISION TO TEACH DUAL MEDIA

Both formal and informal assessments, as well as multiple other factors and concerns, were used in the decision to teach dual media. Although many teachers seem to have used these assessments, further exploration of these variables is needed. Although a child's diagnosis and clinical measures are usually involved in this process, teachers' and parents' philosophies and the influence of factors such as reading speed and stamina can affect decision making. Also in need of examination are the benefits of formal and informal LMAs. Both types of LMAs involve the gathering of data, but with informal LMAs, judgments may be more subjective, in that a teacher may observe only the areas that seem to be affected or unaffected by the child's current learning medium or media and may fail to evaluate the child in other situations in which the need for a change of or additional media is more apparent.

The findings highlight the characteristics of students who are

learning dual media and the practices that their teachers use to decide to teach dual media. These decision-making practices set the stage for the instruction of the diverse population of dual-media learners who will require curricula and methods to enhance their development of literacy skills.

SUPPORT OF PARENTS AND TEACHERS FOR TEACHING DUAL MEDIA

The questionnaire produced a wide range of responses and attitudes toward the idea of teaching dual media. The finding that the students were reported to be positive about learning dual media may be attributed to the students' understanding that dual media may be beneficial for them or may reflect the teachers' and parents' support for this instructional approach to literacy.

We were alarmed to learn that only 16 families included another person who knew braille and that only 2 families included another person who was proficient in contractions. Although it is certainly not essential for family members to know braille, written communication between parents and children and among siblings is an important part of family life. If a student's visual impairment progresses to the point that braille is the student's primary reading medium, it will be frustrating to both the student and his or her family members not to be able to communicate with each other in writing in the student's preferred medium (without the aid of a computer). Also, for parents who check their children's homework assignments or like to read their children's compositions, these tasks will be more difficult (without the assistance of someone to interline print) for parents who do not know braille.

Although most of the parents were supportive of their children learning dual media, they did not demonstrate their support by learning braille themselves. The reasons for their failure to learn braille can only be conjectured. Perhaps there were no programs in their communities to help them learn to read and write braille, or perhaps the parents were not motivated to devote the time and

energy to learn braille. Other parents may not have known about correspondence courses, such as those offered by the Hadley School for the Blind, or perhaps learning braille was a painful reminder of their children's visual differences.

LIMITATIONS

This study was an initial survey of the thoughts, beliefs, and procedures involved in the decisions to teach dual media and the instructional methods that are used in teaching dual media. Because it is the first study on this topic, there were several limitations. Although these limitations by no means devalue the results, they give some direction and suggestions for future study.

The first limitation was that the questionnaires were returned electronically. Therefore, there was limited space in the questionnaires for further explanation or comments, and there was no way to calculate a rate of return. The second limitation was that the information was obtained entirely through teachers' self-reports. While every attempt was made to ensure the confidentiality of teachers and students, concerns about confidentiality could have caused some teachers not to respond or to respond inaccurately to certain questions. Also, misinterpretation of some questions could have led to inaccurate responses. Another possible reason why teachers did not participate may have been that they were asked about their own level of proficiency with braille codes.

The third limitation was the over- and underrepresentation of certain racial groups, as well as the underrepresentation of students in special schools. Even though several special schools were contacted and asked to distribute the flyer regarding the survey, apparently the strategies that were used in identifying potential respondents were flawed.

Finally, because this survey was geared specifically to teachers, there was no firsthand input from students or parents, and students' records were not reviewed for historical accuracy. This

limitation caused potential problems because the teachers could report only their perceptions of students' and parents' concerns that led to the decision to provide dual media instruction.

RECOMMENDATIONS

In light of the findings presented here, we offer the following recommendations:

1. Provide supports for teachers to gain and maintain proficiency in the various braille codes.
2. Encourage teachers to use LMAs or other assessments to determine the most appropriate reading medium or media for a student.
3. Encourage teachers to refer students for low vision evaluations and to help the students learn about, want to use, and use any prescribed devices.
4. Provide supports for parents to learn braille.

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