Distance Education and Special Needs Students

Joseph R. Harrison
Rapid City Area Schools
3517 Brookside Drive

Abstract

This article discusses the effect of Braille instruction for families of students who are blind or visually impaired. Families not instructed in the use of Braille have difficulty providing support at home for their children who read Braille. Family members benefit from knowledge and resources provided in innovative approaches to direct Braille instruction. Given training, families are able to assist their children with Braille. This study focuses on the opportunity and results of delivering a Braille class to parents, teaching assistants, and consumers across the State of South Dakota through a distance-learning network. The teaching process was designed to improve the Braille literacy of children through family Braille instruction. The family and other participant attitudes, reflections, and improvement in Braille reading at home are all reported in this study.

Introduction

Families of children with visual impairments often do not have the skills necessary to assist their children in Braille reading. Historically, teachers of visually impaired students have emphasized instruction of the student and not the parent. This study examined the effect of direct Braille instruction for families and other service providers for students with visual impairments. The following research reviews family and Braille literacy, family-teacher partnerships, and the need for Braille in the expanded core curriculum.

Families and Braille Literacy

Craig (1996) reaches several conclusions related to literacy and family support of children with visual impairment. Parents of children with visual impairments regard learning to read and write a priority in their child's development, but they may lack the knowledge and resources to facilitate this process. The findings of the study also suggest that special education programs have the responsibility to provide equipment and material for use at home. In addition, parents need a solid background in the type of reading and writing that is done at home. Craig notes statistical differences in the reading activities of print and Braille readers. Braille readers choose books less often to read or to read aloud to their parents. He also notes that reading and writing is less of a priority in the homes of children with visual impairments and children with additional disabilities. Given this research it is important to note that family knowledge and the right equipment to provide exposure to the Braille reading medium is imperative to foster development of appropriate and meaningful early emergent literacy experiences.

Milian's research (1999) states that teacher-training programs need to develop more courses that will improve teacher knowledge of issues relating to family involvement and the importance of families. Furthermore, teachers need to be truly

committed to working collaboratively with family members. Parents in this study rated themselves low in their ability to help their children who read Braille with reading and math.

Fellenius (1999) concentrated on the reading environments of Swedish students at home and demonstrated that reading does not just happen:

> Children who are visually impaired have less exposure to incidental reading that leads to reading development than do sighted children, especially at home. Increasing the opportunities for reading and creating or maintaining interest in reading without too great a physical effort is an important job of professionals, together with the children, in interaction with the home and school. (p. 222)

Fellenius states that there is a substantial risk of children with visual impairments becoming "reading evaders" throughout their early elementary experiences.

Family Teacher Partnerships

Bishop (1986) and Turnbull (1990) state that responsibilities need to be shared with families. The importance of communication with families is a key element of student achievement and family satisfaction.

Holbrook (1996) cites the idea that professionals are available to help families reach goals for their children and to look for advice. A parent statement in the book provides a reflection upon the importance of Braille for families.

> We started a Braille class for parents. We could meet once a week and the purpose of the class was to meet once a week to learn Braille but it turned into so much more. I couldn't believe how much support we all gave each other. At Christmas we Brailled the gift tags for the presents under the tree. It was great for our children to figure out which presents were theirs! (p. 156)

Conley (1997) suggests that parents play a critical role in their child's education. Conley goes on to say that parents are partners with teachers in successful schools.

Bjorck-Akesson (1995) indicates that collaboration with families requires a different set of skills than does working directly with the child. Professionals need strong communication skills, rapport, and an ability to determine family strengths and needs. Thompson (1997) states that empowerment happens when families are confident that they have the information and problem solving skills that are obligatory in their personal situations.

The Need for Braille and the Expanded Core Curriculum

Hatlen (1996) indicates that most professionals firmly believe that visually impaired students need supplementary curriculum that requires additional areas of learning. Corn, Hatlen, Huebner, Ryan, and Siller (1995) suggest that parent involvement is a desirable aspiration based on the goals of the National Agenda for the Education of Children and Youths with Visual Impairments Including Those with Multiple Disabilities.

Corn and Huebner (1998) indicate flexibility in service delivery and innovative partnerships with others may be a way to provide the time and resources that are

necessary to best serve learners with visual impairment. Family partnerships are cited in the article as one way to stretch the available school resources.

Koenig (2000) studied characteristics of high quality Braille literacy programs. The rationale for the study was to assure that students receive appropriate levels of support and service to ensure progress in Braille reading. Based on the research findings, an important student need is to have family support for Braille reading in the home.

Rex, Koenig, Wormsley, and Baker (1994) suggest daily Braille instruction for at least one and one half-hours to two hours per day is necessary to improve reading literacy. Given this research it is easy to see how a teacher with a large caseload of Braille readers may need assistance along the way.

Huebner (2000) outlines ideas for finding the time to teach the expanded core curriculum. Her findings suggest developing shared responsibilities with parents is a way to expand time commitment to Braille.

Family support of Braille literacy for their children may be one of the most important factors in developing readers with positive attitudes and a voracious need to gain information through the use Braille.

Method

Research Questions

What impact does Braille instruction for families and educational service providers via the statewide distance-learning network have on support of Braille reading for blind and low vision learners? Do the attitudes and perceived abilities of class participants' change as a result of direct instruction in reading and writing Braille via distance education?

Participants

The primary focus of this study was an investigation of the effect that Braille instruction had for families of students with visual impairments. Also included in the study were educational service providers and those taking the course on Braille instruction due to personal interest. Specifically, family and other participants' attitudes and perceived abilities in using Braille were researched. The rationale for this study was to promote collaboration between families, schools, and children. Participation in Braille reading through direct instruction was designed to improve confidence, attitude, and abilities in relationship to the Braille code so that those most directly involved with children are more capable of helping children with visual impairments.

Participants in the study included parents of young visually impaired or blind children who read Braille. Family members in the course and research project included four mothers and one father of preschool through upper elementary age children. Five female Special Education Instructional Assistants were either working directly with Braille readers or were expecting to be involved with incoming Braille students. One female took the course because of personal vision loss and one female participated because of personal interest. Four individuals from the sample are working toward Library of Congress Braillist certification.

Procedure

The course on Braille instruction was taught over a nine-week period providing participants with practice reading and writing Braille, using Braille resources, and viewing technology. Given the sparse population of South Dakota and elsewhere, the vast distances that must be traveled, and the low incidence of blindness, there is much to overcome if families truly have an aspiration to learn Braille for the sake of their children. Because of these factors distance education via the Dakota Digital Network (DDN) was employed to deliver the course instruction

The DDN is a state supported digital communication system that delivers high-speed data connectivity to virtually all public schools in South Dakota. The objectives of the DDN are to provide a statewide educational delivery system to share educational resources and remove geographic barriers to instruction.

Instrumentation

There were three primary approaches to collecting information to measure effectiveness of course instruction in changing participants' attitudes and perceived abilities in helping children read and write Braille. The first method was pre and post-course Likert Scales developed by the authors (Appendix A). The second method was teacher observation and recording of data collected from participants during Braille instruction. The final method of collecting information was participant's qualitative responses to survey questions developed by the authors (Appendices B and C).

Data Collection

Explanation of the study and permission to participate was obtained during the first class session. Each family member and all other participants who granted permission received stamped self-addressed envelopes in which to return permission forms and other survey data throughout the direct instruction portion of this study.

Recording of anecdotal data and surveys from the Braille course members assisted the instructor to gauge understanding, answer specific questions, and gain insight into member satisfaction and comfort with the Distance Delivery system and course content. Students were encouraged to write specific questions, observations, feelings, and suggestions for improvement of course delivery and content so that the course could be changed along the way using current and relevant student feedback. Given the vehicle of distance education, feedback must be structured and actively sought after by the instructor to be effective.

A pre-instruction Likert Scale (Appendix A) was distributed to all class members before the first class session. The post-class Likert Scale was again distributed and completed by participants' following the last class session. The scale concentrated on family and other service provider perceived skill level and attitude changes specific to Braille use and understanding, along with perceived ability to help children with Braille reading and writing. Pre and post Parent Surveys (Appendix B) were also completed using the same time lines with only the parents completing this activity. A course follow-up questionnaire (Appendix C) was sent to all respondents within two months of course completion.

Data Analysis and Interpretation

The Likert Scale measuring family and other participant attitudes toward Braille were compared using a pre-treatment and post-treatment method. Descriptive statistical analysis was used to describe on average the change in attitude given the survey results. The mean and standard deviation was calculated and compared.

Patterns that could be generalized among respondents' were analyzed and collected through coding, given the results of questionnaires and reflective writings.

The follow-up questionnaire was structured so that respondents had the opportunity to answer how and why questions, which were open-ended and conceptually based to challenge the thinking of the adults who received direct Braille instruction.

Results

The sum of the responses on the items of the Likert-scale survey was recorded for each participant. A t-test, conducted to compare the means of these sums for the pretest and posttest, was found to be significant
($a < 0.01$), indicating that there had been a substantial gain in participants' attitudes and perceived abilities in assisting children with reading and writing Braille. In addition, the mean of the responses for each item of the Likert-scale survey was computed and a separate t-test used to compare pre- and posttest results. On nine out of ten items there was a statistically significant change ($a < 0.01$) in the participants' level of responses. A summary of this information is found in *Table 1*.

Table 1

Item Number	Pretest Mean	Pretest Standard Deviation	Posttest Mean	Posttest Standard Deviation
1: Braille resources	3.00	1.61	5.70	0.67
2: Teaching Braille	2.64	1.86	5.10	0.88
3: Technology	4.82	1.25	5.40	0.52
4: Reading Braille	1.82	1.66	4.00	0.84
5: Writing Braille	1.82	1.66	4.60	0.84
6: Using Brailler	2.27	1.85	5.80	0.42
7: Certification standards	1.91	1.58	4.80	1.23
8: Braille in schools	3.00	1.84	5.25	0,92
9: Helping children	1.91	1.81	5.20	0.79
10:State/national resources	2.00	1.33	4.95	1.12
11: Total score	25.55	14.05	51.20	5.07

The following qualitative information from recording anecdotal data and surveys (Appendices B and C) is representative of responses provided by participants in the Braille instruction course:

"I am excited about a new door that is now opening in a new world of communication with my child. We are bonded and close already, but learning Braille opens a whole new world for learning and communication. We will be in the same world."

"Once I learn Braille, I will read with (name) on a daily basis."

"This class has helped me learn to help my child with Braille which is great! Before this, I was confused. It has been fun and I want to keep it up and learn more."

"I know now, how much there is to learn and how my child learns it at school."

Discussion

Many children who are blind or visually impaired use Braille throughout the school day, but when these children get home from school their parents might say, "Sorry, I can't help you. I don't know Braille". This type of parental response was the primary reason for developing this Braille course and teaching it statewide via the distance education system in the schools. It is clear from the results of the study that there was a feeling of triumph on the part of the parents and a pride in their new Braille skills.

The most pleasant surprise was the attitudinal change of the children of the families. During Braille sessions with these children it became evident that their motivational level had increased. The students would say, "Wow, my mom is learning Braille." "My dad has a Braille writer." The children were excited about their moms and dads learning Braille, which became an opportunity to reinforce the importance of Braille for these children. Some children said that they would like to continue to teach their parents Braille. The distance course for families became an opportunity to reinforce the significance of student achievement at school and to strengthen the emotional and academic bond between child and parents.

The success of this study suggests that professionals in the field of Braille instruction could consider using this approach to instructing families of children with visual impairments. It is further suggested that future research may center on the longitudinal impact of direct Braille instruction for families on the Braille literacy of children.

This study examined the provision of resources and the resulting positive effect on family and service-provider attitudes toward the use of Braille. Teaching families and others Braille to support children is an intelligent use of resources.

The limitations of the study included the small sample size of volunteer participants, lack of parent familiarity with the distance learning technology, and the availability of technology for replicating a similar study.

References

Bishop, V. E. (1986, November). Identifying the components of success in mainstreaming. Journal of Visual Impairment and Blindness 80, 939-945

Bjorck-Akesson, E. (1995, May). Family involvement in assessment and intervention: perceptions of professional and parents in Sweden. Exceptional Children 61, (6), Available http://proquest.umi.com/pdqweb [2001, July 22].

Conley, D. (1997), Roadmap to restructuring. Eugene, OR: ERIC Clearing House on Educational Management.

Corn, A. and Huebner, K. (1998) A report to the nation: the national agenda for the education of children and youths with visual impairments including those with multiple disabilities. New York: AFB Press.

Corn, A.L., Hatlen, P., Huebner, K.M., Ryan, F., & Siller, M.A. (1995) The national agenda for the education of children and youths with visual impairments, including those with multiple disabilities. New York: AFB Press.

Craig, C. J. (1996). Family support of the emergent literacy of children with visual impairments. Journal of Visual Impairment and Blindness, 90, 194-200.

Fellenius, K. (1999, April). Reading environment at home and at school of Swedish students with visual impairments. Journal of Visual Impairment and Blindness 93, (4), 211-223.

Hatlen, P. (1996). The core curriculum for blind and visually impaired students including those with additional disabilities. RE:view 28, 25-32.

Holbrook, M. (1996) Children with visual impairments: A parents guide. Bethesda, MD: Woodbine House.

Huebner, K. (2000). The expanded core curriculum: Finding the time. Retrieved from the World Wide Web: http://www.tsbvi.edu/agenda/core-ppt.htm.

Koenig A. And Holbrook, M.C. (2000, November). Ensuring high quality instruction for students in Braille literacy programs. Journal of Visual Impairment and Blindness 94 (11), 677-694.

Milian, M. (1999, May). School and family involvement: Attitudes among Latinos who have children with visual impairments. Journal of Visual Impairment and Blindness 93 (5), 277-290.

Rex, E. J., Koenig, A. J., Wormsley, D., & Baker, R. (1994). Foundations of Braille literacy. New York: American Foundation for the Blind.

Thompson, L. (1997, Fall). Pathways to family empowerment: Effects of family centered delivery of early intervention services. Exceptional Children 64, (1), Available http://proquest.umi.com/pdqweb [2001, July 22].

Turnbull, A. and Turnbull, H., (1990). Families professional and exceptionality: A special partnership 2nd ed. Columbus: Merrill

Wittenstein, S.H. (1996, May-June). Teachers' Voices: Comments on Braille and literacy from the field. Journal of Visual Impairment and Blindness 90, (3), 201-209.

Appendix A

Likert Scale
Braille for South Dakota Families, Teachers, and Students

1. I have the necessary resources to find information about Braille letters, contractions, words, and numbers.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

2. I could be helpful to a person learning Braille.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

3. Technology should be used to enhance not replace Braille

Strongly Disagree Strongly Agree
1 2 3 4 5 6

4. I feel confident in reading Braille exercises.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

5. I feel confident in writing Braille exercises.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

6. I could show a person how to use a Brailler.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

7. I am knowledgeable about how to become a state or nationally certified Braillist.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

8. I am aware of how Braille is taught in the schools.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

9. I am able to help my (son/daughter/student/friend) learn to read and write Braille.

Strongly Disagree Strongly Agree
1 2 3 4 5 6

10. I am informed regarding state and national resources for finding Braille materials.
Strongly Disagree Strongly Agree
1 2 3 4 5 6

Appendix B

Parent Survey

1. How much Braille reading does your child do at home? Please include the number of minutes per day at the present time and anything else that you can add about reading at home

2. Does your child read independently at home? Please include the number of minutes per day that your child reads independently at home and anything else that you may want to add about independent reading.

3. How much are you involved with your child's Braille reading at home?

Appendix C

Braille for South Dakota Families, Teachers, and Students
Final Survey

Please place your date of birth month and day in the upper right hand corner of this survey. Thanks so much for your effort in class and in providing complete research information. Please return this form in the enclosed self-addressed envelope by Friday, May 24, 2002. You may write your answers on the enclosed paper. Make sure to number your paper.

1. How did the resources about Braille letters, contractions, words, and numbers assist you as a result of your participation in the DDN class?
2. Why do you think you could be more helpful to a person learning Braille now?
3. How do you feel technology can be used to enhance Braille for readers?
4. Why do you feel more confident in reading Braille now?
5. Why do you feel more confident in writing Braille now?
6. How do you feel that your ability to show a person how to use a Brailler has been enhanced as a result of your membership in class?
7. Why did you become more knowledgeable about Braillist state and national certification standards?
8. How has your awareness of how Braille is taught in the schools been expanded?
9. How has your ability to help someone read Braille been improved as a result of this course? This could be you, a son, daughter, parent, client, or student.
10. How has your knowledge about how to locate Braille materials become better as a result of this course?