Access to Literacy Instruction for Students Who Are Blind or Visually Impaired

A Discussion Paper

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Introduction

There have been tremendous changes in the philosophy and practices associated with the education of students who are blind or visually impaired during the last few decades. Children with severe visual impairments who had few opportunities for academic success in the regular classrooms of the 1960's, now frequently attain their formal education in the public school setting. Students who rely on braille as their primary reading medium are commonly enrolled in the regular classroom for the majority of their instructional time. Previously limited opportunities for educational programming for children with multiple disabilities in addition to visual impairments have dramatically expanded with the provision of supports which allow these children to attend public schools with their age-appropriate peers. In the United States, 90% of students who are blind or visually impaired are educated in public schools (Corn, Bina, & DePriest, 1995). In Canada, with only one traditional residential school for the blind, the percentage is even higher.

As educational services evolve to accommodate the changes in philosophies and practice, there is always the potential for effective traditions, instructional strategies or programs to be lost in the reconstruction. Sometimes, the introduction of innovation creates discord or conflicts with established policies and efforts must be made to determine how best to maximize the benefits of both traditional and innovative practices. The Canadian National Institute for the Blind (CNIB) has expressed concerns about a perceived under utilization of braille by school age children in Canada. Braille literacy is of critical importance to the achievement of independence and employability of those who are blind or visually impaired (Ryles, 1996). With considerable attention being given to the issue of braille literacy in other English speaking countries, the CNIB is determined to be proactive in supporting the development of literacy for children and youth who are blind or visually impaired in Canada.

The CNIB wants to ensure that the literacy needs of students who are blind or visually impaired are given high priority within education. A

discussion paper presenting an overview of the issues will provide CNIB staff and others involved in the education of students who are blind or visually impaired with information upon which to base their work. Research findings, editorial comment, and interview data have been gathered, reviewed, and analysed for use in the development of this discussion paper. Recommendations from the discussion paper have been used to guide the development of a position statement that will set a standard for the delivery of literacy instruction to children who are blind or visually impaired in Canada and assist families and educators to advocate for students' rightful opportunity to develop literacy.

The Evolution of an Embossed Code

The beginning of organized education for those who were blind was marked by the founding of the first school for students who were blind in 1785 in Paris by Valentin Hauy (Lorimer, 2000). He believed if he could teach those who were blind to read they would have an opportunity for employment and self-sufficiency. At this time in history, those who were blind lived under deplorable conditions (MacDonald, 1925). Given that education was primarily a privilege of the rich and that the possibility of educating a person with a disability would have been a novel one, it is important to appreciate the valuable contribution Hauy made to society. After establishing his school, Hauy initiated the first efforts to develop a method of raised-character print to provide access to the written word for his students. Using his method of embossed letters, Hauy demonstrated the potential of those who were blind to learn to read--the first steps toward literacy.

The next significant event in the development of an embossed code for readers who were blind was the development of a tactile code designed by Charles Barbier for night use by military troops during battle after dark (Lorimer, 2000). Such a code would allow soldiers to read messages without using a light source, hence, would not attract attention to their location. Barbier's code used raised dots arranged in various configurations using a twelve dot cell. Although the military did not adopt Barbier's code, it was enthusiastically received by students at the school for the blind in Paris. A particularly valued contribution of Barbier's code was that it provided a means of writing as well as reading–the second major step toward literacy.

As fortune would have it, a student by the name of Louis Braille was enrolled at the school for the blind in Paris when Barbier demonstrated his code. Braille began to experiment with the code adapting it from a twelve to a six-dot cell system and creating most of the details of the code as we know it today (Rex, Koenig, Wormsley, & Baker, 1995). Louis Braille also developed separate codes for music and mathematics. While there were a

number of other embossed codes developed during the next few decades, braille became the code of preference in most countries. The next barrier to literacy for braille readers in English speaking countries was associated with creation and use of a uniform braille code. In the United States at least three different codes were being used while in Britain, eductors were experimenting with various levels of contracted braille which increased the reading speed of users. A committee formed by the American Association of Workers for the Blind (AAWB) was given the mandate to determine the most effective code for use in the United States (Rex, Koenig, Wormsley & Baker, 1994). They found that British braille readers read more slowly when using the American partially contracted braille. As well, Canadian braille readers using the fully contracted British system were better readers than American students. After much frustration and controversy, a revised English Braille Code became the standard literary code for English-speaking countries in 1932 (Irwin, 1970). This increased the availability of braille as some countries could then share material produced in the standard code. Now in 2002, representatives from English-speaking countries from around the world are working to create a Unified English Braille Code which will create new rules and practices anticipated to make learning and using the braille code even more efficient for readers.

Braille and the Evolution of Literacy for Those Who Are Blind

Braille provides users who are blind access to a method of both reading and writing. Just as the braille code underwent various stages in its evolution, the educational implementation of braille instruction for school-age children also evolved over time. Initially the instruction of braille to school age children was primarily the responsibility of schools for the blind. In 1900 day classes for students with visual impairments were introduced in Chicago and in 1913 the first classes for students described as "partially sighted" were established in Massachusetts and Ohio (Hatlen, 2000). Such classes were often known as "sight-saving" classes because it was believed that students risked losing their remaining vision if they made extensive demands on their already weakened vision by reading print (Viisola, 2001). These students were usually taught to read braille, although sometimes students had to be blindfolded, use aprons draped over the braille page, or required to wear high collars to prevent them from reading the code with their eyes. By the 1930s, ophthalmologists had determined that those with partial vision did not risk further vision loss by using their vision for normal activities such as reading. It was not until 1947 that the American Printing House for the Blind began producing large print books as it was believed larger print would provide easier assess for print readers with low vision (Hatlen, 2000).

Even though as early as 1930 the medical community had acknowledged that using remaining sight would not cause further deterioration, it was not until the 1960s that this practice changed. With the publication of Barraga's (1964) research on the benefits of teaching children with low vision to use their vision efficiently, eductors began to support the use of print with students with severe visual impairments. Although sight-saving classes were established in many of the larger cities throughout North America, children with low vision began to be accepted at schools for the blind in the early 1900s. For the most part, these students were instructed to read braille just as their counterparts in day school programs had been (Frampton, 1936). Thus, braille instruction was a compulsory component of instruction in most educational programs designed specifically for students who were blind or visually impaired.

Advances in technology during the past few decades have contributed to a tremendous expansion in access to information for those who are blind or visually impaired. In particular, the availability of braille and the capacity to produce braille have been significantly improved with the application of new technology. While there are ongoing struggles associated with such things as web page accessibility or the timely development of adaptive software, the ease of access and the breadth of information resources available to students who are blind or visually impaired has never been greater. For example, the once labourious task of using a braille version of an encyclopaedia has been dramatically simplified with access provided on CD-ROM, the search and speech options on a computer, and a braille embosser. A research task which may have taken several hours in the past can now be accomplished in minutes. Access to reading material which once required the assistance of a sighted reader can now frequently be completed independently by the student who is blind or has low vision by scanning the print document into a file and using translation software to produce a braille copy or speech software to read the document. Many career opportunities requiring access to visual information are now accessible to those who are blind or visually impaired through the application of appropriate technology. One can only dream of the myriad of possibilities technological advances may hold in the future.

Literacy for Students Who Are Blind or Visually Impaired

The importance of literacy in the lives of people today is obviously very different than it was in 1829 when Louis Braille first published the description of his embossed code. While the ability to read and write was a skill primarily associated with the aristocracy of the time, today, literacy is believed to be a prerequisite to independence and active participation in society. To provide a framework for the discussion of literacy for individuals

who are blind or visually impaired, Koenig (1992) suggested the following definitions for literacy:

> *Basic literacy* is the mastery of school-based reading and writing skills that provides the foundation for continued learning and expanded literacy skills. It is demonstrated when an individual achieves an eighth-grade reading level on an objective test that is presented in the preferred reading medium, with commensurate writing skills in the same medium.
>
> *Functional literacy* is the successful application of reading and writing skills to accomplish practical real-life tasks that are required in the home, school, community, and work environments. It is demonstrated when an individual with a visual impairment, when necessary, independently gains access to print, thereby allowing meaningful communication with others through written language. (p. 283)

In short, literacy for one who is visually impaired or blind entails the ability to use braille, print, and technology in addition to human readers and audio versions of printed material to access information and develop knowledge (Blake, 2001). For individuals who are blind or visually impaired, literacy has the additional prerequisite of skills for independently gaining access to print, a skill which is inherent to those who are fully sighted (Koenig, 1992).

Concerns Associated with Braille Literacy

In recent years, professionals and advocates working on behalf of individuals who are blind or visually impaired in several English speaking countries have expressed concerns about issues associated with braille literacy (Australian Braille Authority, 1999; Canadian National Institute for the Blind, 1990; Council of Executives of American Residential Schools for the Visually Handicapped, 1990; Johnson, 1996; Koenig, 1992; Royal National Institute for the Blind, 1999; Spungin, 1989). Concerns focus on the perceived decline in the use of braille by school-age children, the number of students actually using braille, and the deterioration of literacy skills in general among students who are blind or visually impaired. Spungin (1989) identified the following eight categories of explanations being used to account for the perceived decrease in literacy among those who are blind: (a) the increase in the number of children who are blind or visually impaired who have additional disabilities which frequently preclude them from formal literacy instruction; (b) response to the work of Dr. Natalie Barraga which promotes the utilization of vision where possible and the rejection of the

former practice of teaching braille to most students regardless of the visual abilities of a given student; (c) a perception that the use of braille is viewed negatively and that braille users suffer the consequences of a stigma associated with braille use; (d) university programs which prepare teachers for students who are blind or visually impaired are not emphasizing the importance of braille and are not providing adequate instruction in braille literacy; (e) the complexity of the braille code excludes many from acquiring an adequate level of literacy; (f) the necessity of using braille has been reduced by the increased student dependence on recorded materials and technology using speech; (g) growing acceptance and implementation of inclusion of students who are blind or visually impaired has dramatically increased the number of students served through the itinerant teacher model which is plagued with problems associated with large caseloads and limited time to work directly with students in such specialized areas as braille instruction; and (h) with school districts having much autonomy in the provision of specialized services for students who are blind or visually impaired and with a critical shortage of teachers of students who are blind or visually impaired, services provided are more likely to be associated with the goodwill of administrators and/or the resources available in the district than with the actual needs of the child.

Since the publication of Spungin's work (1989), there have been a number of responses to various concerns identified (e.g., development of braille refresher courses for teachers, research on the emphasis of braille literacy instruction provided in university programs, the development of a number of learning media assessment tools). The collection of information and the results of research have clarified some of the issues and provided support to both debate and confirm others. In Canada, many of the issues identified by Spungin have at least some relevance. As well, there are others which have a unique Canadian perspective which must be considered in the discussion of literacy for children who are blind or visually impaired in this country. Each of Spungin's categories will now be considered in relation to pertinent research and their relevance in Canada.

The Changing Demographics of the Population of Children Who Are Blind or Visually Impaired

Awareness of the increase in the number of children with additional disabilities in addition to blindness or visual impairment was documented as early as the 1970s in Canada when research by Jan, Freeman, and Scott (1977) found the majority of children with visual impairments in British Columbia has one or more additional disabilities. The percentage of nonreaders among legally blind students registered with the American Printing House for the Blind increased from 20% in 1985 to 31% in 1988 (American Printing House for the Blind, 1985, 1988). For the most part, the

category "nonreaders" is made up of children with multiple disabilities for whom reading print or braille might be difficult or impossible. In a study of the demographics of preschool children with visual impairments living in the United States, Bishop (1991) reported that 60% of children between the ages of three and five years were reported to have disabilities in addition to their visual impairments. A review of the research literature reporting statistics from most developed, English speaking, countries appears to add further support to a trend of increasing numbers of students with additional disabilities among the school age population of children and youth who are blind or visually impaired. Numbers reported vary from 35% to 60% of the population.

Spungin (1989) contends that children who are blind or visually impaired with additional disabilities are often not identified when numbers to substantiate funding are reported. This is because in most provinces school districts are instructed that students can be reported under only one category of disability, i.e., having multiple disabilities or being visually impaired. This results in under funding to support necessary services to children who are blind or visually impaired and limited access to services for those with multiple disabilities by qualified teachers of students who are blind or visually impaired. Students who are visually impaired who also have other disabilities tend to receive a more generic model of services with limited consultation by a qualified teacher of students with visual impairments. In Canada, the process for funding special education services is a provincial matter and factors affecting the amount of support provided vary from province to province (e.g., whether a student uses print or braille, degree of vision loss, categories of disability such as multiple disabilities or cognitive disability). In some provinces, teachers of students who are blind or visually impaired are not permitted to provide direct service to students who are blind or visually impaired with multiple disabilities. Yet, children who have visual impairments in addition to other disabilities have the same need for services from a qualified teacher of students who are blind or visually impaired as do those with the single disability of visual impairment (Smith & Levack, 1966). Without access to a specialist in the area of visual impairment and blindness, it is probable that exposure to braille or appropriately adapted visual materials may be overlooked. Thus, for some children who are blind or visually impaired with additional disabilities, access to basic literacy instruction may be impeded by both the generic teacher's lack of knowledge of the implications of vision loss on learning and development and not having access to braille instruction by a specialist in blindness and visual impairment.

Another potential factor contributing to the perceived decline in the number of school-age children using braille may be the improved treatment

for specific eye diseases. The dramatically improved visual outcomes for children with congenital cataracts is a good example. Thirty years ago children with congenital cataracts made up a significant proportion of the population with visual impairments. Typically their vision could not be improved beyond the "legally blind" or 20/200 acuity level. Today, with the early removal of congenital cataracts and improved refractive practices and treatment, many of these children now achieve normal to near-normal vision. Similar advances have been made in the refraction of those with high myopia and diseases where corneal scarring is prevalent. It is important to note that children with these types of eye conditions would have made up a significant number of the population who would have been braille readers twenty years ago. Therefore, it may be that in addition to an increase in the number of children with multiple disabilities who are unlikely candidates for braille literacy instruction there has also been a decrease in the number of children with eye disease associated with significant vision loss necessitating the learning of braille.

The Utilization of Vision by Students with Low Vision

In the early 1960s, Dr. Natalie Barraga published research supporting the benefits of teaching children with visual impairments to make efficient use of their remaining vision (Barraga, 1964). She went on to develop visual efficiency assessment and programming materials designed to promote the development of the use of the visual sense. Barraga's work initiated great interest and support for new approaches to the education of both students with low vision and those with visual impairments and additional disabilities. Numerous instructional materials and programs were developed to enhance visual efficiency as a source of information gathering and learning. As well, a new emphasis on the importance of functional vision assessment of children with visual impairments evolved. It became a critical part of the requisite assessment used for program planning and instruction for these children. Dr. Barraga's work will always be considered a milestone in the education of students with low vision.

Spungin (1989) contends that while Dr. Barraga never intended to promote a decrease in the use of braille or the use of vision to the detriment of the learning and development of the child, both these situations evolved as a direct response to her work. Having students learn to read print rather than braille, while providing a "quick fix" for administrators, educators and parents, has had significant, life-long, negative effects upon the literacy of thousands of American children with low vision according to Spungin. While it is difficult to support Spungin's contentions with empirical evidence, there can be little doubt that the practical implementation of Barraga's research resulted in fewer children receiving literacy instruction in braille between 1960 and the early 1980s. Like many new innovations in education,

teachers embraced the work of Barraga. The positive results associated with increased visual efficiency for most children was encouraging. Did the pendulum swing too far? In Canada, it is highly probable that it did. With well over ninety percent of students who are blind or visually impaired educated in the public school system, limited numbers of fully trained teachers of students with visual impairments, large rural geographic areas to serve, and a low incidence of blindness, the potential for error was high. When given a choice, having a student use print would sometimes have been an easier solution for school administrators than attempting to provide braille instruction and braille materials. The student would have access to many of the same visual materials as her/his peers, the classroom teacher could provide more immediate support for the literacy program than if the student used braille, and the itinerant teacher would spend less time adapting materials and teaching braille codes. The abundance of personal reports from adults who are visually impaired and feel they were short-changed by not having had the opportunity to learn braille (see National Federation for the Blind website) certainly attests to Spungin's contention that the "quick fix" was a disservice to many children with low vision.

Today in Canada, there is evidence that the pendulum is swinging back more to the middle in relation to the use of braille by students with low vision. As part of the research process for the development of this paper, the author contacted provincial resource centres providing alternate format materials to school age children and requested statistics on the use of braille. Representatives for all seven of the provinces responding reported an increase in the use of braille by school age children. It is encouraging to note that several of the respondents cited the availability of recently developed learning media assessment guidelines and instruments as a contributing factor to the increase in the number of students learning both braille and braille and print simultaneously. As well, interviews conducted with teachers of students who are blind or visually impaired in every province provided further evidence of the existence of a positive attitude toward teaching braille and the use of formal assessment procedures and multidisciplinary teams in determining the media to be used by children who are blind or visually impaired. It is critical that those in leadership positions in the education of children who are blind or visually impaired in Canada become advocates for the implementation of formal assessment procedures, routine monitoring, and resource support for literacy instruction for students across the country. This will help to ensure access to literacy for students who are blind or visually impaired regardless of where they live in Canada.

Braille As a Confirmation of Blindness

In the presentation of her explanations for the decrease in braille reading and writing, Spungin (1989) states "positive attitudes toward the

use of braille have diminished, and potential braille users are given second-class status and attention." (p. 3). She goes on to describe the negative attitudes towards those who are blind and the use of braille as being particularly insidious because they are unintended. Spungin argues that educators who value the use of print over braille unknowingly discourage students from wanting to learn braille, tolerate and promote print reading at unacceptable levels, and promote the use of print over braille because they feel incompetent to teach braille. There is ample research validating the existence of society's negative attitudes towards those who are blind or visually impaired (Allport, 1958, Monbeck, 1975; Scott, 1969). Undoubtedly, children and their families encounter such attitudes on a daily basis. As Nixon (1991) so aptly stated,

> the ideas parents learned about impairments and impaired people before their experience with their impaired children do not suddenly become transformed by the discovery of impairment in their own families. Indeed ... negative stereotypes of the stigma of impairment help create the nightmare that follows the news that a child is impaired. (p. 16)

Yet, teachers of students who are blind or visually impaired generally have extensive experience with negative attitudes towards those with a disability and are most often strong advocates for the children they teach. In a survey by Wittenstein and Pardee (1996), teachers of students who are blind or visually impaired were found to be confident in their braille skills and ardent supporters of braille instruction for their students. Furthermore, 73.7 % reported they enjoyed teaching braille while only 4.9% did not find it enjoyable. Of the fourteen Canadian teachers interviewed by this author, all but one expressed both personal and professional satisfaction in teaching braille. One teacher expressed concerns about having such a significant responsibility as the literacy instruction for a braille user. This teacher was a new graduate and was about to begin her first teaching assignment with a child beginning school and using braille. She did not express negative attitudes about blindness or about braille but had a healthy respect for the challenges facing an itinerant teacher in a rural area with a large caseload.

It is obvious that braille and blindness are inextricably linked. It is not unusual for those losing their vision to reject braille because it confirms their impending blindness. Schroeder (1969) argues that the "braille problem" is much more than a literacy issue but one that is intertwined with issues of self-esteem and self-acceptance. For him, educators carry a heavy responsibility to promote braille as an avenue to independence and as a statement that the user has pride in being blind rather than using print and viewing themselves as sighted with a vision problem. The difficulty with the

contentions raised by both Spungin and Schroeder is that they fail to consider the complexity of factors facing parents, teachers of students who are blind or visually impaired, and sometimes the student herself/himself when decisions about learning media are being addressed. While it is true that a less that positive attitude about blindness and hence, about braille may sometimes exist, most often there are dozens of other factors affecting the decision making process (e.g., unknown potential for reading success, strong parental support or rejection of a specific medium, tremendous cultural pressure to be similar to one's peers, different priorities for academic instruction). However, professionals and educators in the field of blindness are fighting the wrong battle when they become preoccupied with the braille versus print debate. As society has demonstrated tremendous advancements in the inclusion of those with disabilities during the past few decades, we must continue to promote and advance a belief in the positive acceptance of difference, particularly in our schools. Children who are blind or visually impaired must have an opportunity to achieve their potential for literacy. Braille is one part of a comprehensive literacy "tool box" that may include braille, print, materials on audio tape or e-text, live readers, etc. Children need to use the media which best support their development of literacy skills and must experience this process in an environment that values and supports the integrity of every student. This is where positive support and advocacy can make a real difference.

Inadequate Teacher Education for the Instruction of Braille

Spungin (1989), without citing empirical data, asserts that teachers of students who are blind or visually impaired are "less-than-proficient" braille instructors and this has contributed to the illiteracy among those who are blind or visually impaired. She does concede, however, that part of the blame for this situation lies with the university training programs for these teachers. According to Spungin, there are teacher preparation programs which incorporate the instruction of braille with the process of teaching reading and mathematics. Still, some teacher preparation programs present braille as a code, viewing the level of knowledge required by a transcriber as sufficient for teachers of literacy. Amato (2002) completed a descriptive study of standards and criteria for competency in braille literacy within teacher preparation programs. This study was one of the first to take a comprehensive look at the content of teacher preparation programs relevant to braille literacy. It served two important purposes. First, the study refuted many of the premises made by Spungin which have unfortunately been used as factual reports on the status of braille literacy preparation in teacher education programs. Second, recommendations relevant to braille literacy instruction were provided. for personnel preparation program administrators. Hopefully, such recommendations will assist program

administrators to develop teacher preparation courses which provide comprehensive knowledge and skill development in the area of literacy.

In 1993 in Canada, the Canadian Braille Authority (CBA) contracted a study to ascertain the status of braille literacy instruction in this country. The study concluded that there were no national standards for teachers of students who are blind or visually impaired. Provincial standards were available in some provinces but school districts or even individual schools had great autonomy in their implementation. Educational prerequisites for teachers working with students who used braille varied across the country. Possession of a university degree, braille certification from CNIB, braille competency tests, and completion of refresher courses in braille were examples of necessary qualifications cited but there was no standard for Canada. A committee of the Canadian Braille Authority was assigned the task of developing standards for teachers of braille reading and writing for children. Authored by Cay Holbrook (2001), the minimum standards for teachers of braille reading and writing are as follows: (a) hold at least a bachelor's degree, (b) have basic teacher certification in any area of education, (c) hold qualifications as a teacher of students with visual impairments, (d) have completed university coursework on basic methods of teaching reading, (e) have completed university coursework focusing on the literary braille code, and (f) have completed university coursework focusing on teaching braille reading and writing. In 2002 the Canadian Braille Authority distributed a presenter's manual for the standards and distributed it in every province in Canada in both French and English. Designated representatives will meet with eductors, parents, and school administrators in their respective provinces to outline the standards. The challenge will now be to have provincial Departments of Education accept and implement the CBA standards.

Meeting established standards of competency for the instruction of braille reading and writing is but one of the challenges facing educators in Canada. There are two equally important issues to consider. First, as noted in the Canadian Braille Authority study (1993), simply having fully qualified teachers of students who are blind or visually impaired without a service delivery model providing adequate instruction time will not result in the literacy of braille reading students. Koenig and Holbrook (2000) investigated the amount of time required for the literacy instruction of students who are blind or visually impaired at various school levels. A survey of forty experienced teachers in the field of blindness documented that highly experienced professionals agree that daily literacy instruction by a teacher of students who are blind or visually impaired is essential for effective braille literacy instruction–just as it is for students who are sighted using print. This study supports the earlier work done by Ryles (1997) who

demonstrated that high school students who received regular (i.e. four to six times per week) braille instruction performed at or above the level of their sighted peers. A group of braille users who received braille instruction once or twice a week performed 27% below the control group of sighted peers. Finally, a group of braille users who did not receive braille instruction performed 35% below their sighted peers. Thus, to ensure the literacy of students who are blind or visually impaired it is essential to have qualified teachers of students who are blind or visually impaired working within a service delivery model which supports direct and frequent instruction specifically focused on literacy.

The Complexity of the Braille Code

The correlation between the complexities of the braille code and illiteracy among those who are blind or visually impaired is one which is difficult to substantiate with empirical data. Spungin (1989) states that "no research has supported the notion that the braille code, in and of itself, causes illiteracy" (p. 6). However, a comprehensive examination of the causes of illiteracy must surely include some attention to the possibility that the braille code poses problems for learners. In fact, the Braille Authority of North America (BANA) has been working for many years to gain acceptance of a Unified English Braille Code which would be free of ambiguities, a claim which can not be made by the present braille code, and would create one braille code for all reading (e.g., cookbooks, mathematics, novels, manuals). Braille experts throughout the English-speaking world are working on this project. Troughton (1992), an experienced braille teacher and strong advocate of the use of uncontracted braille, reported an increase in the literacy level of many braille users when they had the opportunity to read using uncontracted as opposed to contracted braille. A consideration of Troughton's work lends additional credence to the argument that the complexity of the braille code can influence the literacy of readers who use braille. Another consideration associated with the complexity of the braille code is that it is not commonly used throughout society. A child who uses print is immersed in the printed world from birth. Typically parents and siblings use print routinely during their daily activities. Not only are children who learn braille across Canada the only student in the classroom learning braille but also usually the only person in the family who knows braille. The incidental exposure to the printed word experiences by the child who uses print is not the reality experienced by either the child who uses braille or her/his family members. Researchers have reported the critical importance of the parents' role in supporting the emergent literacy of children who are blind or visually impaired (Craig, 1996, Wormsley & D'Andrea, 1997). Yet, parents of children who use braille and who learn braille to support their child's developing literacy must make a significant commitment of time and effort to master the braille code and all its intricacies. Thus, the complexity

of the braille code does, sometimes in subtle ways, influence the probability that a student will achieve an acceptable level of literacy.

Another important point to be made in considering the complexity of the braille code is the acknowledgement of braille as one of several media which can contribute to the development of literacy for school age children who are blind or visually impaired. Koenig and Holbrook (1995) developed a learning media assessment process to assist parents and educators in determining the learning media to be used by the child who is blind or visually impaired. Amongst many factors for consideration are the functional ability of the child relative to use of vision, cognitive ability, tactual sensitivity, etc. A logical consideration of the learning strengths and needs of any group of children will reveal that some are primarily visual learners, others auditory learners, and yet others find a hands-on or tactual approach to be most effective (Gardner, 1993). Most experienced teachers of students who are blind or visually impaired will have worked with a child with a severe vision loss who demonstrates an incredible level of visual efficiency or a child who is totally blind who has great difficulties with tactual discrimination. Other things being equal (e.g., positive preschool emergent literacy experiences, in tact cognitive abilities, good expressive and receptive language skills and conceptual understanding), it is possible that for some children, the complexity of the braille code can be a barrier to their acquisition of reading competency. This is precisely why exposure to and mastery of a variety of media are critical to all children who are blind or visually impaired.

Just as the "war of the dots" resulted in the selection of a common braille code to be used in many English speaking countries, literacy instructional practices for students who are blind or visually impaired have evolved to incorporate new information and assessment tools. Holbrook and Koenig (1992) support the simultaneous instruction of braille and print literacy when comprehensive assessment results indicate this to be appropriate (e.g., assessment results do not provide strong support for instruction of one medium over another). Teachers interviewed prior to the writing of this discussion paper concur that the simultaneous teaching of braille and print is advantageous for some students. Frequently these students prefer to use braille for some activities (e.g., reading a novel) and print for others (e.g., mathematics). Thus, flexibility in choosing literacy media options is crucial to the realization of literacy for today's heterogeneous school-age population of students who are blind or visually impaired.

<u>Dependence On Technology</u>

There can be no question that the technological developments of the last few decades have dramatically increased access to information in all formats for students who are blind or visually impaired. While Spungin (1989) lists the dependence on taped materials and speech devices as a proposed category of explanations for the decline in braille use, she argues that this is not a valid explanation. She argues that technological advances have been particularly effective in further increasing the efficiency of proficient braille users. Information gathered from telephone interviews with teachers of students who are blind or visually impaired in provinces across Canada would certainly support Spungin's contention. These teachers who all reported a perceived increase in the instruction of braille to students with low vision specifically noted the positive role technology was having in making more braille available. Halliday (1998) wrote eloquently about the futility of aligning braille and speech use as incompatible:

> Braille is not fundamentally better than speech or visa versa. Even where styles and physical limitations affect a person's ability to use one medium or another, being open to combining any and all media to ensure deeper and broader comprehension is simply common sense. Regardless of whether Braille or speech is one's primary medium, using multiple sensory modalities can keep a person refreshed and reduce the amount of fatigue associated with the constant use of only one sense. Any blind person who has the tactile ability to learn Braille must learn braille if he or she wants to benefit from the brain's breadth of capacity. One does not need to be a fast Braille user in order to benefit from its spatial advantages or its unambiguous presentation. Verifying the spelling of a word, the accuracy of a number, the format of a document, or the label on a CD requires minimal Braille skills and can save vast amounts of time and frustration. By the same token, Braille users must avail themselves of the advantages of speech. (p. 13-14)

Spungin (1989) goes on to state the problem isn't really one of the over dependence on recorded material and speech devices but the ineffective system of cataloguing and accessing the titles currently available in braille. In provinces where students have braille production facilities on-site at their schools, it is highly probably that some braille titles are being produced that will only ever be available for that one student. Given that many other students receive their copies of braille textbooks too late in the school year to provide equal access to information, Spungin argues that this production, cataloguing, and distribution problem is a far greater deterrent of braille use than is that of dependence on speech output technology.

Yet, teachers of students who are blind or visually impaired are often faced with serious concerns about a student's reluctance to learn or use braille because of a preference for recorded materials and technology with speech output. In many situations, these students are those who have suffered a significant vision loss after having attained a level of literacy as print readers. Faced with the student's refusal to participate in meaningful braille instruction and/or practice, difficulties with the student's adjustment to vision loss, pressure to maintain levels of academic performance achieved prior to the vision loss, and any number of other detracting factors, these teachers struggle with how best to support students and their families. Several of the students interviewed by the author admitted that they were not receptive to learning braille until they were older and more mature or their vision had degenerated so they could no longer access print. While the inappropriate denial of braille instruction for students who require braille instruction is unconscionable, a thorough investigation of the perceived decline in braille use must consider the full array of complex factors inherent to the issue.

Service Delivery Models

Over the past few decades there has been a migration of students who are blind or visually impaired from residential schools or special classes to public schools in their local neighbourhoods. The model of service delivery which has been most widely implemented to provide for the needs of these students is the itinerant teacher model. An itinerant teacher, a teacher specifically trained in education of students who are blind or visually impaired, is assigned a caseload of students enrolled in various schools within a designated geographic area. In its original conceptualization, the itinerant model was deemed to be appropriate for use with students with few special needs associated with their vision loss, who were relatively independent in their classroom placement, and who could receive a significant part of their education from general education teachers (Lewis & Allman, 2000). Like many innovations in educational settings, the original intent of the model was soon modified. Today, itinerant teachers across North America are typically employed to accommodate all children in a given geographic area rather than those with the specific criteria outlined above. Itinerant teachers work with children of various ages, degrees of vision loss, ranges of need from those with multiple disabilities to those who are gifted, and, in some areas, from preschool through high school graduation. Their role involves such things as administrative duties (e.g., ordering alternate format materials), direct instruction of disability-specific skills (e.g., braille, visual efficiency skills, use of assistive technology, orientation and mobility), preparation of teaching materials (e.g., materials in large print or braille, tactile diagrams), tutoring in regular education subjects, consultation to parents

and educators, minimal to extensive travel from school to school, and participation in school meetings (Suvak, 1999).

According to Spungin (1989), the itinerant teacher model has evolved to meet the administrative needs of school districts and not those of the children it is intended to serve. She argues that a student requiring daily instruction (e.g., a beginning braille reader) cannot be addressed by a teacher who visits the school once a week. Indeed, there is little to argue in this case. The caseloads for itinerant teachers must be designed in direct response to the demands of the identified needs of the assigned students. As well, factors such as travel, resources available in a given school, or services accessible from other specialists (e.g., teachers of students with multiple disabilities) will all need to be considered in the development of a workable caseload assignment.

In Canada, there is tremendous variation in the way caseloads are assigned to itinerant teachers. In some areas, a braille student automatically qualifies for the services of a teacher of students who are blind or visually impaired for a half-day, five days a week. In other areas, caseload sizes are determined by a formula designed to incorporate factors such as the specific needs of students on the caseload, preparation time, travel conditions and times, etc. In still other provinces, the caseload is automatically comprised of every student in a given area, irrespective of the number or needs of the students. At a presentation on caseload analysis for itinerant teachers at the AER (Association for the Education and Rehabilitation of the Blind and Visually Impaired) International Conference held in Toronto this year, it was reported that Canadian caseload sizes ranged from two students to eighty-six! Obviously, the itinerant model was never envisioned to accommodate such a range. It is clear from these reports that students with instructional needs in braille reading and writing are at the mercy of where they live within Canada. It is unconscionable that the acquisition of literacy by a student can be affected by geographic location.

Failure of the Individual Education Plan (IEP) Process

The final category for explanation for the decline in literacy among those who are blind or visually impaired is related to the faulty implementation of the Individual Education Plan (IEP) as outlined by Public Law 94-142 (Spungin, 1989). The IEP process was designed to bring together professionals and parents of students with disabilities to formally outline the annual programs, goals, and objectives to address identified student needs. According to Spungin, the success of the IEP process depends upon the realization of the following assumptions: (a) all members of the IEP team are willing and able to develop a program based

on the assessed needs of the student; (b) all parents are willing and able to work with professionals in this pursuit; (c) school administrators are willing and able to hire qualified teachers of students who are blind or visually impaired and orientation and mobility instructors, as well as purchase necessary books and equipment; (d) disagreements among team members can be resolved using due process as a last resort; and (e) there is a consensus on the meaning of appropriate education in the least restrictive environment. The shortage of qualified teachers of students who are blind or visually impaired in conjunction with other unrealized assumptions of the IEP process (e.g., administrators will actually provide the resources necessary for program delivery) have resulted in the failure of a process which was intended to ensure an appropriate education for these students (Spungin, 1989).

Unfortunately, in Canada there is no national law outlining the educational programming process for children and youth with disabilities. Each province has developed its version of an individualized educational program planning process and the responsibility for implementing the process lies with school districts, although it may be monitored at the provincial level. In some provinces, if the student follows the regular curriculum, an IEP is not required by the school staff although the teacher of students who are blind or visually impaired will develop a program plan to address instruction in disability-specific areas (i.e., the expanded core curriculum). The infrequency of any type of evaluation of the inclusion process is another significant concern in many parts of the country (MacCuspie, 1996). Are IEP goals and objectives being met? Are IEP goals and objectives reflective of the disability-specific skills outlined in the expanded core curriculum for students who are blind or visually impaired? Are there appropriate expectations for the development of literacy for students who are blind or visually impaired? Another issue related to difficulties with IEPs is the practice of omitting appropriate goals on the IEP if the school district does not have the resources to address these goals (i.e., the IEP is designed around the resources of the school district and not the needs of the student).

Some American states have initiated laws which mandate specific assessment processes to determine the level of literacy being achieved by students who are blind of visually impaired. Canadian provinces need to initiate similar procedures. A national standard for the education of students who are blind or visually impaired is needed in Canada. This will help to ensure that wherever the child resides, the necessary programs and services will be provided in a timely manner by qualified teachers. Obviously, implementation of a national standard for education of students who are blind or visually impaired will require each provincial Department of

Education to work toward the achievement of this requirements. The critical importance of having a national standard is to ensure that the educational rights and unique needs of this low incidence population (i.e., students who are blind or visually impaired) are public knowledge. It will document the expectations for appropriate educational programs and services to support parents in their pursuit of high quality education for their children. Active and meaningful participation of parents is mandatory and needs to be nurtured by educators and administrators alike. The intended meaning and spirit of the American Public Law 94-142 is commendable and can be used to guide the creation of similar standards in Canada.

Literacy for Students Who Are Blind or Visually Impaired – A Canadian Perspective

In reviewing the research literature pertinent to literacy issues of students who are blind or visually impaired, it is evident that the majority of information is generated in response to circumstances in the United States. While articles written in Australia (Gale, 2001) and England (Franks, 1998) both expressed concerns pertinent to Canada and the United States, there were factors present in Canada that had the potential to create different scenarios. For example, the prevalence of residential schools for the blind in the United States is atypical of Canada where there is currently only one traditional, residential school. Hence, the majority of students who are blind or visually impaired have never had the option of attending a residential school for the blind. As mentioned earlier, Canada is without a national voice on education, nor does it have organizations which provide educational materials on a quota system for students who are blind or visually impaired such as the American Printing House for the Blind in the United States. Educational services for students who are blind or visually impaired have evolved separately in each province. They have been influenced by the predominate social, political, and cultural factors present in any given province at various points in the development of their educational philosophies and practices. Some provinces have maintained various educational options to meet the diverse needs of this heterogeneous population while other provinces have only ever had one educational solution. Yet, in interviewing representatives of organizations providing alternate format materials; professionals, teachers, and parents of students who are blind or visually impaired; and the students and young adults themselves, it is evident there are issues specific to Canada. In the next section, the comments and concerns representative of each of the above groups, will be reported. The interview guides used during interviews are included in the attached Appendix.

What the Students Said

Seven students, all from different provinces, ranging in age from ten years to twenty-seven years of age were interviewed by telephone. All of the students had started school as print readers and all but one had been exposed to braille during their school years. Visual acuities ranged from 20/200 to 20/600 and five of the students had progressive eye disease and had lost significant amounts of vision during their school years. Although all seven students had teachers of students who are blind or visually impaired, much of their literacy instruction had been provided by the classroom teacher until they had started learning braille. Although three of

the students were currently involved in learning braille during school hours, instruction time was limited to one to two hours per week and braille was not being used in the classroom. One student had completed an intensive four month training program with braille but was currently not using or practising reading braille in the regular classroom. Two of the three older students were enrolled in university and had extensive reading which was accomplished using e-text, audio materials or a CCTV. One of these university students used braille but reported limited access to material in braille (e.g., textbooks, handouts) as a major deterrent to its use.

For this group of students there was general agreement on the following issues relevant to the use of braille and the experience of being a student with low vision in the regular classroom: (a) coping with low vision in the regular classroom involved stress on a daily basis; (b) getting school work completed takes longer for students with low vision than it does for their sighted peers; (c) using print was preferable for students even when they were learning braille; (d) using braille was more effective for specific activities but for most activities print was more accessible and easier to use; (e) using braille was valuable in providing relief from the visual and physical strain of using print, particularly in relation to the reduction of headaches and increasing reading endurance; (f) using print complemented the spontaneous access to information in the regular classroom and was the same as what others were using; (g) using braille is a valuable tool but needs to be taught during the early grades so it is a natural part of the way students function and instruction provided every day so the student gains a level of mastery which will ensure it becomes an effective tool; (h) learning braille should be an option for students in addition to print; and (i) deciding to teach braille to a child should be based on the individual needs of the child and not mandated irrespective of a given child's visual abilities, learning style, or eye condition.

It is obvious that the learning media to be used by students who are blind or visually impaired is a complex issue interrelated with the individual's self-concept and sense of self-worth. For all children, there is both great pressure and value placed on being like classmates in the regular classroom (MacCuspie, 1996). The positive acceptance of difference is a concept which must be nurtured by parents and educators if children are to be encouraged to value different ways of working, reading, and writing. Schroeder (1995) contends that if individuals with low vision could accept themselves as blind and give up their self-concept of being a sighted person with a vision problem, they would experience a true sense of belonging to a definite group, i.e., those who are blind. The logical extension of this argument would be that a person with low vision can never be a member of the group defined as sighted. Corn (1987) on the

other hand, argues that there is a third, distinct group, i.e., those with low vision. For Corn, it is not a question of blind or sighted. Those with low vision have well defined characteristics and premises which should guide how they think about themselves. Some are common to those who are fully sighted, some are common to those who are blind, and some are unique factors inherent to those who have low vision. She believes children with low vision should be encouraged to develop and appreciate their own sense of individual visual beauty, value how they see the world, learn to use their vision effectively and learn to use other senses, such as touch, to enhance their performance in specific situations. In all likelihood, a learning environment which is accepting and supportive of a child using a CCTV, large print and other assistive devices to read print will be equally receptive to the use of braille. Perhaps the first step in determining the learning media for students who are blind or visually impaired is for educators and parents to focus on the creation of nurturing, supportive, learning environments for all children.

What the Parents Said

Ten parents from seven different provinces participated in telephone interviews. The thirteen children of these parents were from six to twenty-two years of age and with visual acuities ranging from 20/80 to total blindness. Three of the students had been diagnosed with progressive eye conditions in elementary school, two had developed a vision loss following head injury or surgery, and the others had congenital conditions. Four of the students were learning braille, five used braille as their primary medium, and eight used print as their primary medium. While several of these parents were strong advocates for their children, others were less well informed of the potential use of braille and the importance of learning braille as another literacy option. It is interesting to note that the only student who had not had an opportunity to learn braille had never received direct services from a teacher of students who are blind or visually impaired as he resided in a province where eligibility for services was based on visual acuity and not the assessed needs of the student.

For the most part, parents had positive attitudes about braille and were supportive of their children learning skills which would enhance their academic success and/or the ease with which they could access information. Four of the parents reported they had not originally considered their child a candidate for braille but when their child's vision deteriorated or when school progress was not acceptable, they were supportive of braille as a potential solution to developing learning difficulties. Three other parents reported that their children had not been receptive to braille although they had been supportive of the student

learning it. Yet, only two parents had actually learned braille and two others reported being in the learning process.

For this group of parents there was general agreement on the following issues relevant to the use of braille and/or print and their experience relevant to the learning media decisions for their children: (a) the use of print was believed to be the reasonable literacy medium choice for their child prior to school entry unless the child was obviously going to learn braille, i.e., the child was blind; (b) the increase in their awareness of learning media issues provided by informed professionals resulted in them becoming receptive to their child learning braille; (c) the decision making process relevant to literacy and educational matters in general, were those in which parents wanted to be involved; (d) the provision of more individualized instruction for children who are blind or visually impaired in the early years of literacy acquisition was believed to improve the literacy of these children; (e) the need to create a greater awareness of braille, print, the use of low vision aids, and other literacy matters among regular classroom teachers, teachers of students who are blind or visually impaired, and classmates of these students was ongoing; (f) the decision to teach braille to any child must be based on the assessed needs of the child and not on legislation or mandated practices; (g) the access to reading materials, both recreational and educational, needed to be improved to provide students who are blind or visually impaired timely provision and an adequate selection of materials in both print and braille; (h) the organizations and professionals mandated to serve and/or advocate for those who are blind or visually impaired need to develop more collaborative working relationships to improve the ease of access of services and create a more positive support network of services for parents and their children; and (i) the desire to have more information about the services their children required and the belief that they needed a "watchdog" to ensure they were receiving the appropriate type and frequency of instruction.

The information provided through discussion with these parents can be used to generate some observation about the literacy issues children face and the types of educational support being provided. Following are a number of observations which are believed to be pertinent to the literacy issue: (a) the amount of literacy instruction varies tremendously across Canada with some children being assigned a qualified teacher of students who are blind or visually impaired for 50% of the day, others receive infrequent visits from a consultant and are instructed by paraprofessionals, while still others, particularly those who use print, receive little if any specific literacy instruction beyond that provided by the classroom teacher; (b) in many parts of the country, students with low vision are not receiving direct service, particularly in relation to literacy instruction, from a qualified

teacher of students who are blind or visually impaired; (c) in several provinces there is limited effort to assess and identify the needs of children with low vision, many of whom are ineligible for assistance based on the visual acuity reported by the eye specialist; (d) Canada is in dire need of standards for the provision and delivery of services for children who are blind or visually impaired; and (e) the purpose and amount of instruction by qualified teachers of students who are blind or visually impaired needs to based solely on the assessed needs of the student, irrespective of budgetary concerns of the school district and/or the location of the student (e.g., rural or urban Canada). If students who are blind or visually impaired are to have the same access to a public school education as their peers who are fully sighted, provincial education legislation and school board/district policies must reflect the need for specialized instruction in the appropriate learning media.

What the Professionals in the Education of Students Who Are Blind Or Visually Impaired Said

Eight professionals with experience ranging from twelve to thirty-two years in the field of visual impairment and blindness were interviewed to determine their perceptions relevant to the use of braille by children with low vision and those with additional disabilities. This group had a broad range of experience (e.g., university teaching, deafblind education, education of children with multiple disabilities, orientation and mobility instruction, consultation, and administration) but all had several years of direct teaching with children who are blind or visually impaired. Several had taught in both residential and public school programs. All of these professionals had specialized degrees in education of students who are blind or visually impaired, four with doctorates and four at the masters level.

Although the professionals interviewed for this study expressed concern about many aspects of instruction for students who used braille, none believed that there was currently a crisis associated with the under utilization of braille by school-age children in Canada. The controversy surrounding this issue in the United States and the establishment of Braille Bills in many states was felt to have generated an increased awareness of the issue in Canada. They felt the severe shortage of teachers of students who are blind or visually impaired has forced parents in many parts of the United States to go to extreme measures to get braille instruction for their children. Also, across North America, students who had been encouraged to use print exclusively during the 1970s and 1980s following the publication of Barraga's research are now adults. Some who feel they have been ill served by this practice are commenting on the negative effect the exclusion of braille instruction and promotion of print at any cost has had upon their development of literacy. Two factors were identified which were

believed to have had significant influence upon the promotion of the use of braille by school age children in Canada. In Ontario, the funding process is highly supportive of children who use braille providing up to a half-day of direct service from a teacher of students who are blind or visually impaired, a paraprofessional in the classroom, transcription services, and orientation and mobility instruction. In British Columbia, the province-wide promotion by Dr. Cay Holbrook of the use of a formal learning media assessment process was reported by teachers and braille producers to have had a significant and positive effect upon the use of braille by students in that province. The professionals interviewed acknowledged the existence of serious literacy issues associated with the education of students who are blind or visually impaired in Canada but based on the lack of supporting empirical research and their experience within their respective areas (i.e. the Maritime Provinces, Ontario, Saskatchewan, and British Columbia), the under utilization of braille was not presumed to be a common problem.

Because of the responsibilities associated with their professional roles, professionals were well informed of the latest research literature and recommended procedures and practices associated with determining the learning media for children who are blind or visually impaired. There was agreement that over the past decade effective assessment instruments had been developed to assist educators and parents in gathering the extensive information required in the consideration of the appropriate learning media for a given child. Although these assessment tools are readily available, professionals interviewed expressed the following concerns: (a) the use of existing comprehensive learning media assessment instruments and procedures while adopted in many areas across Canada still need to be more widely implemented in all provinces; (b) children with visual impairments have a right to structured and routine assessment of their performance to ensure that the appropriate learning media are introduced in a timely manner (i.e., a learning media assessment is not a final decision made at one point in time but necessitates ongoing monitoring and reassessment in response to the child's changing competencies, environments, challenges and needs); (c) the current shortage of qualified teachers of students who are blind or visually impaired and the large caseloads carried by many of these teachers denies access to a comprehensive learning media assessment for many Canadian children; (d) in addition to access to a qualified teachers of students who are blind or visually impaired, school districts must be willing to commit to providing the level of service assessed to be needed by each student; and (d) in provinces where a designated visual acuity level (e.g., 20/200 or less) is used as the eligibility criteria for services or where children with low vision are not deemed to require intervention in developing literacy skills, many children have no access to essential learning media assessment services.

In general, professionals viewed the process of determining learning media as a fairly straight-forward, structured process involving observation, data and information gathering, diagnostic teaching, analysis of data and information, and clarification and discussion among the assessment team members (e.g., parents, educators, administrators, and students where appropriate).

All of the professionals interviewed had concerns about the literacy of Canadian children who are blind or visually impaired. For the most part these can be sorted into seven main categories. First, research (Koenig & Holbrook, 2002; Ryles, 1997) has suggested that the development of literacy among children who are blind or visually impaired is enhanced by the provision of daily instruction focused upon the unique learning needs of students. Given the large caseload sizes and extensive travel requirements of most itinerant teacher assignments, a minority of children who are blind or visually impaired receive the frequency of instruction to support normal literacy development.

Secondly, because of the large caseloads assigned to many itinerant teachers, the frequency and/or intensity (i.e., time spent during each school visit) of direct literacy instruction is sometimes limited or unavailable. Some school administrators attempt to resolve this shortcoming by hiring paraprofessionals who know the braille code but who are neither qualified regular educators with literacy training nor recipients of specialized training in the education of students who are blind or visually impaired. Obviously, neither parents nor educators would support the use of paraprofessionals for literacy instruction for students who are fully sighted. Students who are blind or visually impaired deserve no less than an equal opportunity to develop literacy skills through instruction by a qualified teacher. In the opinion of this author, paraprofessionals have an important role to play in the inclusive classroom setting, but this role is that of a classroom assistant. Examples of responsibilities of the paraprofessional would include such things as transcribing materials in braille, locating learning materials to support the day's lessons, providing assistance to the other students in the class as well as the student with a disability, adapting or modifying learning materials to ensure they are accessible to the student who is blind or visually impaired, tending to the personal care needs of the students, and working as part of the classroom team (i.e., classroom teacher, teacher of students who are blind or visually impaired, and paraprofessional) to address the learning needs of all students. This type of support provides a valuable resource to the classroom teacher and the other students in the class, while avoiding the possible social isolation of the student who is blind or visually impaired. Paraprofessionals require specific skills to perform this role in the inclusive

classroom and the mastery of specific competencies such as the braille code, material adaptation and preparation, observation skills, interpersonal communication skills, etc. are essential to their success. Across North America there is currently much controversy associated with the intended role of paraprofessionals, their training needs, policy vs. practical implementation of their role, and dilemmas inherent to the realities they face in any given classroom (Giangreco, Edelman, & MacFarland, 1997; Giangreco, Edelman, & Broer, 2001). While professionals interviewed clearly articulated the necessity of having literacy instruction provided by a qualified teacher of students who are blind or visually impaired, they also expressed much concern about the misuse of paraprofessionals in attempting to address literacy needs of these students.

The third category of concerns centred on the need to have teachers of the visually impaired who had formal education and experience in literacy instruction. With the various approaches to learning to read and write prevalent within the school system, the professionals noted the importance of having teachers of students who are blind or visually impaired knowledgeable about the approaches to reading, instructional methods, and implications of various approaches for students with visual impairments. Routine professional development for current teachers of students who are blind or visually impaired must provide awareness of literacy issues, assessment and programming information, braille refresher courses, and presentation of new information generated from current research both literacy education and braille instruction.

The four and fifth categories of concerns focused on two groups of children identified as particularly vulnerable in relation to literacy development–those with low vision and those who have one or more disabilities in addition to a visual impairment. Children with low vision who use print as their primary medium are frequently expected to be able to benefit from the literacy instruction provided in the group setting of the regular classroom. Recent research and research in progress contends that these children require intensive, direct instruction to address their unique, disability-specific learning needs relevant to literacy acquisition (Corn & Koenig, 2002; Douglas, Kellami, Long, & Hodgetts, 2001; Smith, Huebner, & Leigh, 2002;). The terms "low vision" or "visual impairment" encompass a vast array of conditions and differing implications inherent to the etiology of the impairment. This makes generalizations of learning and instructional needs across this population impossible. The professionals interviewed reported that children with low vision generally received limited and inadequate direct literacy instruction from appropriate, qualified professionals. From their perspective, the country's most important literacy issue for children who are blind or visually impaired was not one of the

chosen medium. Braille and print were viewed as equally effective media in which to develop literacy skills. The real challenge is the provision of services by qualified teachers to all children who require them and with the frequency needed to support the development of the literacy skills required to fulfill students' potential to become fully literate adults.

Literacy considerations associated with children who are blind or visually impaired with additional disabilities comprised the fifth category of concerns identified by professionals. The number of children with additional disabilities has grown to make up approximately half of the childhood population who are blind or visually impaired. Several members of the group of professionals identified a need to broaden the view of literacy for people with multiple disabilities and to provide more access to instruction in literacy--not as an "add-on" to programming but as an integral part of their educational instruction. While they perceived that attitudes of educators were becoming more supportive of literacy instruction for children with multiple disabilities, they felt that a formal statement of expectations for exposure to relevant literacy activities should be developed within the profession. Again, the issue was not whether the child was to use braille or print but that a broader definition of literacy be created incorporating the value of functional literacy skills for students with multiple disabilities.

The sixth concern for professionals was the critical need for early intervention to support emergent literacy and to provide intervention to stimulate and develop the sensory skills (i.e., visual, tactual, auditory) inherent to literacy development. The value and life-long benefit of early intervention with children who are blind or visually impaired is well documented (Ferrell, 2000). Furthermore, it was felt that preschool services needed to be provided by professionals who had expertise in the field of blindness and visual impairment. Professionals with this expertise have a broad understanding of the implications of vision loss on learning and development and emergent literacy in particular. As noted by one professional, "if we don't prepare children for formal literacy instruction before they enter school then we are already way behind the starting point of their peers who are sighted."

Finally, the seventh area of concerns associated with literacy was the complex relationship between the use of assistive technology and the development of literacy. Much research is needed immediately to help educators and parent make decisions about when to introduce various assistive devices and to determine the effect of the introduction of certain devices (e.g., refreshable braille or speech output on braille devices) on developing literacy. For print users as well, with all the advances in technology, there are many more options available (e.g., computers used

to generate learning materials in the student's most comfortable print size). For braille and print users alike, the advances in the accessibility of e-text in audio, print, and/or braille raises questions about designing the most efficient approach to access information while simultaneously promoting the development of literacy. There are obviously many issues to consider when examining the literacy of children who are blind or visually impaired. It appears the professionals across Canada, while each having favourite topics relevant to literacy, all share a commitment to improve the quality and access to literacy instruction for all children who are blind or visually impaired.

What the Representatives From Organizations/Agencies Said

There were five interviews completed with this group, three representatives working in some capacity associated with braille production and distribution or administration with the Canadian National Institute for the Blind (CNIB) and two representatives of the membership of the Canadian Association of Resource Centres (CAER). The staff of these resource centres are responsible for the provision of alternate format materials for students who are blind or visually impaired in most provinces. Three other CAER representatives forwarded written information on the increase/decrease in the use of various alternate formats (i.e., braille, large print, audio).

Typical of other groups interviewed for this discussion paper, there was much agreement on issues relevant to the use of braille by school age children and great commitment to the importance of braille literacy. This group of professionals reported the following: (a) all organizations/agencies use a data base to keep track of alternate format production but because of the design of the data base, there are difficulties comparing the use of braille with the visual acuities of the users; (b) only one provincial agency keeps track of statistics for children with low vision but all could report on the number of school age braille users; (c) there is an array of alternate format production mandates and arrangements in provinces across Canada as well as a number of locations where braille is produced for the sole use of one student (i.e., does not comply with North American formatting standards); (d) for the most part, all organizations/agencies report that the use of braille is stable or has increased over the last few years with British Columbia reporting a 15- 20 % increase; (e) the use of large print has shown a slight decrease or remained stable in most provinces; (f) with responses from six providers (i.e. those formally interviewed and those who submitted written responses to specific questions), the use of recorded materials has decreased in half the provinces reporting and increased in half the provinces reporting; (g) while there are no empirical data to support a contention that there is

under utilization of braille by school-age children, most participants expressed concern that there was a desperate need to support and promote the development of braille literacy among students; (h) respondents were not generally in support of the compulsory instruction of braille for all students with a visual acuity of 20/200 or less but they all felt it was important for all children who are blind or visually impaired and their parents to be knowledgeable about braille and its potential use as a literacy option; (i) there was total agreement and support for improved access to current, popular literature for young readers of braille as well as timely provision of book collections in school libraries, facilities to produce classroom materials distributed at the last minute and those materials which routinely come into schools; and (j) the recent advancements in technology have improved both the access to materials in braille (e.g., students have instant braille production technology on site at their schools) and the literacy of students who use braille (e.g., students have access to refreshable braille in conjunction with speech technology).

Information provided during the interviews with organization/agency representatives and specific comments and suggestions from them contributed to the following observations by the author: (a) there is a perception by some people who are blind that those who are sighted do not sufficiently value braille and its importance to those who have low vision; (b) the inconsistency of practices associated with the literacy instruction of students who are blind or visually impaired across Canada makes it difficult to accurately determine literacy needs; (c) Canada needs a national statement and standards of practice for the assessment and provision of literacy instruction for all children and youth who are blind or visually impaired which is generated collaboratively among the relevant organizations/agencies and provincial Departments of Education; (d) the difficulty in obtaining learning materials in braille at the post-secondary level may have a significant, negative effect upon the decisions students, teachers and parents make in choosing learning learning media to be used, particularly for students who lose vision toward the end of their high school years; and (e) because some provinces provide limited service (e.g., assessment, direct instruction) for students with low vision and few keep statistics on the number of children with low vision and their specific eye conditions and associated learning needs, there seems to be a significant flaw in how the education system identifies children with low vision who might benefit from learning braille.

<u>What the Practising Teachers Of Students Who Are Blind Or Visually Impaired Said</u>

Fourteen teachers of students who are blind or visually impaired, currently providing direct instruction to children who are blind or visually

impaired enrolled in the public school system, were interviewed by telephone. Teachers participated from every province in Canada with the larger provinces having several representatives. All were itinerant teachers (i.e., they travelled to various schools within a specified geographic area), but several had different titles and/or assignments. For example, some had direct service caseloads in addition to such things as consultation for preschool and/or children with multiple disabilities or orientation and mobility assignments. Seven had Masters degrees specializing in the education of student who are blind or visually impaired, four had Masters degrees in education in combination with courses in visual impairment, and three had a BEd with specialist courses in education of students who are blind. With the exception of one novice teacher who had never worked with a student who used braille, all the others had extensive experience with braille readers and students using print and braille simultaneously. The average number of years teaching students who are blind or visually impaired was seventeen with experience ranging from three to twenty-eight years. Without exception, these teachers were strong advocates of braille use by children who are blind or visually impaired and for the need for intensive and direct instruction by a teacher of students who are blind or visually impaired in the development of student literacy.

As the comments from teachers of students who are blind or visually impaired were collated and examined, eleven themes evolved . They are as follows: (a) assessment, (b) caseload factors, (c) issues pertinent to itinerant teachers, (d) children with low vision who use print, (e) support for the development of literacy, (f) literacy instruction for students with multiple disabilities, (g) parent involvement, (h) availability of literacy resources, (i) assistive technology, (j) need for the development of partnerships and collaboration, and (k) need for national standards and a common voice. Many of these themes are interrelated, some are significant concerns in all provinces, while others have particular relevance to specific regions. All are important to the creation of a national standard for quality services for students who are blind or visually impaired.

Assessment. The process of determining the learning media for students who are blind or visually impaired, while usually guided by the use of common criteria, was not mandated provincially or implicit in the educational procedures of school districts where the interviewed teachers were employed. In most instances, the teacher of students who are blind or visually impaired took a leadership role in determining the learning media, monitoring the performance with the media being used, and deciding when a reassessment was warranted. Most often parents were involved in the discussion of the media to be used as were other educators and those involved in the educational programming for the student.

During the past decade, professionals have developed numerous assessment procedures and tools specifically designed to assist in determining the most appropriate learning media for students who are blind or visually impaired (Caton, 1994; Koenig & Holbrook, 1995; Mangold & Mangold, 1989; Sanford & Burnett, 1997; Sharpe, McNear, & Boursma, 1995; South Carolina Department of Education, 1993). The Learning Media Assessment developed by Koenig and Holbrook (1995) was reported as the assessment process used by ten of the fourteen teachers interviewed. Two of the teachers interviewed relied on professional judgement and past experience to address questions of the most appropriate learning media for each student. Two others used a combination of assessment tools, observation, and reading tests. Furthermore, while most teachers perceived the learning media assessment process as an ongoing one requiring routine monitoring, several of the teachers did not routinely reconsider the initial choice of medium to be used after the initial decision was made. From this authors perspective, the preponderance of learning media assessment tools and procedures which are well supported by both research and practice should ensure that students who are blind or visually impaired have access to learning media assessment as a routine part of their educational programming. Such assessment should be ongoing and learning media decisions should be re-evaluated on a yearly basis or more frequently if decisions are tentative or problems arise. Professional development opportunities for teachers who have not incorporated such assessment practices need to be made available on a national basis.

During the interviews, teachers discussed other issues relevant to the assessment of literacy for students who are blind or visually impaired. Teachers had concerns associated with assessing the implications on literacy of the use of speech output technology, using uncontracted or contracted braille with students, and separating the teaching of the braille code from reading instruction (i.e., approach literacy instruction through drilling the braille code rather than integrating learning the code with reading instruction). They expressed a desire to have more research and information relevant to having guidelines to signify acceptable reading speeds, standardized testing of braille literacy, implications of the absence of binocular vision on reading achievement, and how to measure visual fatigue in students with low vision. Teachers of students who are blind or visually impaired work with a heterogeneous group of students with complex needs, particularly those associated with developing literacy skills.

Caseload factors. There was tremendous variability in the caseloads of the fourteen teachers who were interviewed. It became apparent that the number of students on a given caseload was not necessarily a reliable

factor to use in comparing services from one area to another. The caseload sizes reported ranged from ten to eighty-four students. Some teachers had one student who received 50% of their time while the other students, usually those with low vision, received only consultation or limited direct instruction. One teacher had a caseload of seventeen students with six braille users and eleven low vision students who were "monitored." A third teacher had a caseload of fourteen students with two braille readers, six students with low vision, and six with multiple disabilities who were receiving instruction based on assessed need. This teacher felt over-extended with the many demands of the job and the extensive travel. Still another teacher had eighty-four students spread over an extensive geographic area and provided limited direct instruction to any of the children. The factor common among these teachers was the title "itinerant teacher."

The majority of teachers interviewed reported caseloads were too large to adequately address the multiplicity of needs of their students. Teachers reported limitations on the time available to provide instruction in all areas of the expanded core curriculum (i.e., disability-specific skill areas such as communication, assistive technology, orientation and mobility, independent living skills, social skills) in addition to those associated with literacy development. Teachers described how the emphasis on academics in the inclusive setting created challenges for them as they attempted to schedule in time to address disability-specific skils.

The eligibility of students to receive direct instruction from a teacher of students who are blind or visually impaired varies across the country. In one province a student with a visual acuity of 20/180 might be ineligible for any service, while in another, a student with a similar acuity level and needs might be receiving literacy instruction using both print and braille and be receiving 50% of a teacher's caseload time. In yet another province, this same student might be provided services and instruction based on assessed needs. Hence, eligibility criteria influenced the make up of caseload assignments.

Another variable in relation to caseloads is the support itinerant teachers receive in providing both programs and services. Some students who used braille had the services of a part-time transcriber enabling the teacher to focus on instruction rather than brailling materials for the students. Other itinerant teachers spent significant amounts of time either preparing materials, finding a source for needed resources, and/or writing orders or proposals to obtain materials. Some teachers provided services to any child who was blind or visually impaired, others were not permitted to assist with students with multiple disabilities. Several teachers reported

having to advocate for essential services for some of the children currently on their caseload or known to them through their travels from school to school. Hence, many factors influenced the possibility that students might receive a learning media assessment. Caseload size, time availability, and the eligibility of students for service were all factors contributing to the quality and effectiveness of the assistance an itinerant teacher could be expected to provide.

Issues pertinent to itinerant teachers. The education of students who are blind or visually impaired is both a specialized and a complex one. Not only is the teacher required to have a good grounding in the learning theory and instructional methods and strategies associated with the regular curriculum (e.g., mathematics, science, language arts) but must also have special skills and information relevant to students who are blind or visually impaired (e.g., eye disease and their functional implications, adaptation of learning materials to provide access to those who are blind or visually impaired, braille, use of optical aids and assistive technology, orientation and mobility). Because of the low incidence of blindness and visual impairment in the school age population, itinerant teachers are frequently the only teachers with these specialized skills in a given geographic area. The teachers interviewed commented on the need for: (a) ongoing professional development to address the literacy needs of students who are blind or visually impaired; (b) more qualified itinerant teachers to be available, particularly in rural areas; (c) opportunities to meet with other teachers to exchange ideas and information; and (d) access to a mentor during their first years working with students who are blind or visually impaired.

Children with low vision who use print. Twelve of the teachers interviewed believed there has been an increase both in the number of students using braille and braille and print simultaneously. The other two teachers noted they did not have statistics to support either an increase or a decline in the use of braille. However, all of these teachers raised concerns about the need for greater support of literacy instruction for students with low vision who use print. They felt that insufficient time was being committed to literacy instruction for students with low vision who use print. Many felt the most critical issue relevant to the literacy of students who are blind or visually impaired was not the under utilization of braille but the limited and, in some provinces, the absolute lack of direct service provided to children with low vision by teachers of students who are blind or visually impaired. Teachers concurred that students with low vision who use print need frequent and direct instruction from teachers of students who are blind or visually impaired to support their development of literacy skills. Several reported an increase in the incidence of behaviour problems

among these children and believed it to be related to their frustration in trying to cope with their visual impairment in the classroom setting. Recent research supports the assertions these teachers are making for direct involvement in the literacy instruction of students with low vision who use print (Corn and Koenig, 2002). These researchers recommended that:

> Students with low vision should be afforded the opportunity to receive direct instruction in literacy skills, especially during the early school years when basic academic skills are being established. Since the needs of students with low vision may seem less immediately demanding than those of students who are blind, educational teams may tend to provide direct instruction only when a problem is found. Direct instruction during the early years will ameliorate the frustration and decreased self-esteem that students experience when they begin to struggle with literacy skills that are often tied to low vision, such as low reading speed. (p. 319)

Corn and Koenig (2002) elaborated on the instructional needs of students with low vision beyond what is offered to print readers who are not visually impaired. The provision of instruction in the use of near and distance optical and nonoptical devices prescribed by qualified low vision clinicians, in the development of effective reading speeds, and in the development of visual efficiency were highlighted. Such services were rarely mentioned during the telephone discussions with teachers. This finding points to the need to have parents, teachers of students who are blind or visually impaired, and administrators more aware of the unique learning needs of students with low vision. Perhaps the higher employment rate among adults who use braille in comparison to those with low vision who use print (Ryles, 2000) is more reflective of the educational support provided for braille users during their school years and the limited intervention associated with students with low vision.

In the interview questionnaire, teachers were asked about the amount of time they devoted to literacy instruction for students who used braille, students who used both print and braille, and students who used print as their primary learning media. For students who used braille, literacy instruction times reported varied from three hours a day, five days a week to three hours twice a week. Instruction was provided both in the classroom but also outside the regular classroom. In provinces where a paraprofessional taught braille under the direction of the itinerant teacher, the service was consultative rather than direct instruction, i.e., the teacher of students who are blind or visually impaired met with the paraprofessional and/or the classroom teacher and provided direction relevant to the literacy

activities being provided and the student's progress. The paraprofessional would then provide direct instruction to the student relevant to the use or the braille code and/or the student would participate in literacy instruction provided to classmates with the paraprofessional assisting as necessary. The majority of teachers reported the same amount of time devoted to literacy instruction for braille users was also scheduled for students who used both braille and print. For students with low vision, the amount of time reported for literacy instruction ranged from none to a maximum of one to two hours a week. In some provinces students with low vision who use print may not be eligible to receive any services at all from a teacher of students who are blind or visually impaired. One teacher reported access to service for students with low vision in her school board was contingent upon the willingness of the board to go beyond the requirements of the provincial mandate. If a parent or an itinerant teacher could build a strong case in support of service, the board might agree to provide service but this was beyond their required responsibility. Given the current financial cutbacks to education in provinces, it can be assumed that many children with low vision may not even be identified as having low vision because they do not meet the visual acuity criteria which dictates eligibility. Obviously, these children would not receive a learning media assessment, thus, their need to have specialized instruction or expanded learning media options (e.g., braille, audiotape) would not be identified. It is an unconscionable situation when a child is denied necessary assistance based on her/his ability to read a row of letters presented at a distance of six metres.

The situation for students with low vision who use print in several provinces outlined above raises many questions about the perception of illiteracy among those who are blind or visually impaired. Schroeder (1989) contends that large number of individuals who are legally blind do not know braille so find themselves functionally illiterate. From his perspective, parents and educators view the use of braille as less desirable than print for students because of their beliefs about blindness (i.e., it is better to be sighted than to be blind). Is the illiteracy rate among the visually impaired population correlated with lack of opportunity, insufficient support in the development of literacy skills, or practice of promoting the use of print rather than braille? What will be the consequences for students with low vision residing in provinces who do not have a mandate to provide services to these children because they do not meet an arbitrarily chosen measurement of visual acuity? After investigating the reading and spelling competence of Dutch children with low vision, Gompel, van Bon, Schreuder, & Adriaasen (2002) concluded that the heterogeneity within the low vision population (e.g., eye conditions and functional visual consequences are diverse) necessitated special attention be given for reading instruction. All

of the teachers of students who are blind or visually impaired who participated in the interviews strongly supported the provision of direct instruction and services to children based on assessment of their individual needs. Most of the teachers who had many years experience working with children with low vision recommended a proactive literacy program such as "Reading Recovery" be compulsory for all children with low vision. Such programs provide intensive, structured programming for children during the early school years for any child considered at risk for developing literacy skills. Children with visual impairments which interfere with the quality and quantity of visual information accessed are surely to be considered at risk.

Support for the development of literacy. Teachers outlined a number of suggestions to improve the literacy of students who are blind or visually impaired. Ensuring literacy instruction was provided by qualified teachers of students who are blind or visually impaired who have specific training in literacy instruction was of top priority. Although several of these teachers worked in provinces where students received braille instruction from paraprofessionals, they did not condone this practice. Seven teachers commented on the use of paraprofessionals in teaching braille. In fact, in most provinces where this practice occurred it was officially prohibited but known to happening when qualified teachers of students who are blind or visually impaired were not available or not allowed to provide the acceptable frequency of instruction. Another group playing a prominent role in the development of literacy for these students was classroom teachers. Since most students who are blind or visually impaired are being educated in the regular classroom, the classroom teacher's role in supporting the development of literacy is of critical importance. Twelve of the teachers interviewed reported that classroom teachers were either directly responsible for teaching literacy skills, particularly in the case of children with low vision who used print, or were expected to support and reinforce the literacy instruction provided by the itinerant teacher. Resource teachers were identified by six of the teachers interviewed as another group providing literacy instruction to these students. The involvement of these various professionals lends support to the itinerant teachers' recommendations for increased awareness and professional development for classroom teachers.

The need for appropriate levels of funding to support the provision of literacy instruction by qualified teachers of students who are blind or visually impaired was another common recommendation outlined. References were made to the importance of having caseloads designed around the needs of children as opposed to the number of children who happened to reside in a given geographic area. Teachers were frequently frustrated when they had to allocate their time to provide equitable services

to an assigned caseload rather than being able to schedule the time justified by the needs of each student. Koenig and Holbrook (2000) determined that daily braille literacy instruction by a qualified teacher of students who are blind or visually impaired was a critical component of quality braille literacy programs. This criteria is also supported by the Canadian Braille Authority (2002). The teachers interviewed for this discussion paper reported that limited funding and inequitable access based on arbitrary eligibility criteria created significant frustrations for teachers. While some teachers tried to find loopholes in the system to allow them to provide the necessary services (e.g., seeking a medical doctor's recommendation for increased service), for the most part, they had limited avenues for improving the service model approved and funded by their employer.

Literacy instruction for students who are blind or visually impaired with multiple disabilities. Teachers interviewed had different experiences with literacy instruction for students with multiple disabilities depending upon the policies and eligibility criteria of their given provinces. In some provinces, these students were not placed on itinerant teacher caseloads. In other provinces, the itinerant teacher might provide some consultation as part of the school team or could be actively involved in the direct instruction of the student, particularly if braille was the medium of choice. Many of the teachers interviewed called for the development of guidelines for literacy instruction for students who are blind or visually impaired with additional disabilities. They emphasized that these students needed increased access to the expertise of professionals in the field of visual impairment and blindness to promote the development of literacy skills.

Who are the students who are blind or visually impaired with multiple disabilities? Given the array of disability categories used by provinces and the eligibility criteria for services, this is sometimes difficult to determine. A student with a severe visual impairment and a learning disability will have different learning needs that a student with cerebral palsy, a cognitive disability and a visual impairment. Consider the literacy needs of a student who is deafblind. Literacy programming for students with additional disabilities must not only take into account the most appropriate learning media options but also instructional strategies which are most likely to use the student's learning strengths and style. There is very limited research on the selection of the appropriate reading and writing media for students who are blind or visually impaired and have additional disabilities (Heller, D'Andrea, & Forney, 1998). The obvious commonality among the students is the existence of blindness or a visual impairment. This is precisely why all children, regardless of degree or numbers of disabilities, must have

access to the specialized knowledge and expertise of a teacher of students who are blind or visually impaired.

Educators and parents have learned much about the potential for literacy development of students with additional disabilities. Children, such as those with Down syndrome, who were once believed to be incapable of learning or using formal communication skills, today are expected to receive literacy instruction as part of their educational programming. Today, educators are challenged with the instruction of children who have traditionally been excluded from educational opportunities. Since some students will acquire a level of functional literacy which meets their individualized needs but may not achieve the standards used to define basic literacy (i.e., Grade 8 level reading and writing skills), it is critical that all students have the opportunity to be exposed to literacy instruction on their own terms. McCall and McLinden (1997) propose the creation of a more inclusive model of literacy for those with multiple disabilities. They suggest such a model would accommodate a greater number of symbolic forms (e.g., Moon and other tactile codes, objects), move beyond simple labelling of objects, be useable in a variety of settings, and increase the expectations of parents, teachers, and students themselves that they are capable of literacy. All students are different, neither one approach to literacy nor one specific learning medium will be appropriate for all students who are blind or visually impaired. In relation to students who are blind or visually impaired with additional disabilities, a broadened concept of literacy must be adopted. The importance of literacy instruction for these students must be promoted and understood among parents, educators and administrators. It is only then that access to literacy instruction will become an expectation for educational programming for students who are blind or visually impaired with additional disabilities.

Parent involvement. Parent involvement in the determination of the student's learning media was alluded to by half of the teachers interviewed. Because a formal assessment process is not always followed in the determination of learning media, parents may not have the opportunity to be as involved or as well informed as they need to be. One teacher noted that parents were sometimes too willing to accept the recommendations of the teacher of students who are blind or visually impaired. Other teachers called for the implementation of practices which would promote the involvement of parents. These included such things as frequent exposure in the preschool years to activities and materials designed to develop all senses, as well as discussion of parenting practices which promote the development of emergent literacy. The need for parents to have greater access to a wider number of books for their children was outlined as a significant factor in improving the literacy of students who are blind or

visually impaired. Parents often expended considerable time and expense trying to locate literature of interest to their children. Teachers expressed a desire to be involved in early intervention to promote emergent literacy, assist parents in accessing appropriate materials, and providing direct instruction to enhance readiness for formal instruction. Parent involvement in the development of literacy is known to be highly correlated with children who achieve literacy. This can be no less the case with children who are blind or visually impaired.

Availability of literacy resources. Eight of the teachers interviewed commented on problems associated with access to instructional materials and resources used in teaching literacy skills. Commercially available materials were often described as lacking student appeal. Reading programs in most public school classrooms use a wealth of literature on topics of interest for the specific age group involved. Students who are blind or visually impaired frequently had limited access to the vast number of choices of literature available to their classmates. Instructional software and educational programs are often inaccessible to these students. Teachers recommended that a system be developed to provide access to materials with improved formatting so beginning braille readers would be more successful. The addition of embossed, colourful pictures and diagrams would add enjoyment for the student and greater appeal to classmates. Access to a greater variety of materials in uncontracted braille was suggested for children who were having difficulty mastering phonics. In general, teachers seemed to be looking for materials which would promote the joy of reading as an essential starting point for their students.

Assistive technology. The use of today's technology was perceived by teachers to enhance the use of braille. With school-based braille production technology students were more apt to have class materials made available in braille. Teachers themselves were grateful for the increased efficiency of producing braille using available technology. Yet, there were a number of concerns expressed in relation to assistive technology. They were: (a) students frequently do not have access to their assistive technology at both school and home to ensure adequate practice time and access to efficient homework tools; (b) it was a challenge for teachers to keep up with all the technology and associated skills needed to instruct students using various assistive devices; (c) in isolated areas or when there was only one itinerant teacher employed by a board, there were sometimes difficulties determining the most appropriate technology for the student, getting training in the use of the technology, and/or getting technology set up and working; and (d) much research is needed to assist teachers in making decisions about the best application of technology to support the developing literacy of students.

The use of assistive technology to support developing literacy skills with students who are blind or visually impaired can be a double-edged sword. For those making good progress, technology can be used to increase efficiency and access, as well as to provide a way to practice skills independently while receiving immediate feedback. For students who are struggling with the development of literacy skills (e.g., print literate teenagers who have lost their vision or those who are just learning to read and write), the technology available can sometimes offer solutions which decrease the likelihood of the student mastering the use of braille. Unfortunately, this leaves such a student dependent upon speech technology which has limitations relative to reading and writing (e.g., ability to read for oneself rather than be read to, less efficient portability of literacy devices, limited literacy options when equipment fails). Literacy acquisition is a critical concern for students. While technology adds to the complexity of concerns inherent in literacy instruction, it is today an essential component of literacy program design and implementation. Research to guide effective instructional practice is urgently needed.

Partnerships and collaboration. Teachers indicated they were sometimes frustrated by the lack of coordination and collaboration among various groups interested in the education of students who are blind or visually impaired. Canadian organizations include such groups as the provincial Departments of Education, the Canadian National Institute for the Blind, the Atlantic Provinces Special Education Authority, the Montreal Association for the Blind, W. Ross McDonald School for the Blind, the provincial Resource Centres (i.e., CAER members), the National Federation for the Blind, the Canadian Helen Keller Centre, preschools for children who are blind or visually impaired, and special education departments associated with school districts in any given province. Many of these organizations are involved in activities which have both a direct and indirect effect upon the work of others (e.g., development and distribution of assistive technology, alternate format production, direct instruction, provision of early intervention services). Teachers alluded to the need to increase the awareness, improve communication, and develop collaborative working relationships among staff of the various groups. The recent establishment of the Canadian Association for Families of Children with Visual Impairments marks the availability of national parent expertise and advocacy. With the vast geography, scarce resources, and low incidence of blindness and visual impairment in children, teachers felt it was essential to build partnerships and work collaboratively on behalf of the children being served.

National standards and a Canadian voice. Every teacher interviewed expressed appreciation for the current interest in literacy being generated on behalf of the students with whom they work. There is much enthusiasm across Canada in sharing knowledge and expertise in the education of students who are blind or visually impaired. Teachers reported having had very positive and productive professional development opportunities when they had attended such events as the Canadian Vision Teachers' Conferences. While teachers have much in common with their colleagues in the United States, the politics, administrative structures, and to some degree, the culture, are different. Teachers believed that students across Canada would benefit from having a National body speaking on behalf of the educational needs of children and youth who are blind or visually impaired. They also expressed a desire to have Canadian educational standards or guidelines to assist in addressing the significant inequalities in services and access to services which exist across this country.

Recommendations

In preparation for writing this discussion paper a vast quantity of research relevant to the literacy of students who are blind or visually impaired was gathered and reviewed. Forty-four representatives from students, parents, organizations/agencies producing braille, professionals in the field, and teachers were interviewed by telephone. This information has been carefully examined by the author and the following recommendations have been generated:

1. **Each student's educational team, including parents and teachers, should base the decision to use braille, print, or both braille and print on the documented needs of each individual students.** Braille provides access to literacy and its ensuing benefits for many children who are blind or visually impaired. The option of learning braille to access literacy skills should be available to all children who are blind or visually impaired when assessment results indicate a potential benefit. Braille and print must be considered as equally effective media in supporting the acquisition of literacy skills. The decision to choose to use either or both these media should be based on the assessed needs of the student.

1. **Students with visual impairments at every age level should receive a comprehensive examination of their literacy needs and skills through a yearly learning media assessment.** Given the preponderance of learning media assessment tools and procedures which are well supported by both research and practice, students who are blind or visually impaired should have access to learning media assessments as a routine part of their educational programming. All children with a visual impairment should receive a learning media assessment prior to the initiation of formal literacy instruction. The multidisciplinary team established to design, implement and evaluate the student's individualized education plan should examine and analyse assessment results to make an informed decision of the learning media to be used. Assessment should be ongoing and learning media decisions should be re-evaluated on a yearly basis or more frequently if decisions are tentative or problems arise.

1. **Children with visual impairments who use print as their primary learning medium should receive the same individualized instruction from a qualified teacher of students who are blind or visually impaired to address the skills of the expanded core curriculum, including literacy instruction, as do students who use braille or braille and print simultaneously.** The type of services and the frequency of direct instruction should be determined through assessment of the student's learning needs and performance.

1. **Adopt a broadened concept of literacy to address the assessed needs of students who are blind or visually impaired with additional disabilities.** The importance of literacy instruction for these students must be promoted and understood among parents, educators and administrators. Literacy instruction designed to support the development of basic and/or functional literacy of students who are blind or visually impaired with additional disabilities must become an expectation for educational programming for these students. Children who are blind or visually impaired with additional disabilities must be included in the count for statistics, funding, and access to specialized services, including literacy instruction, from teachers of students who are blind or visually impaired.

1. **Provide intense, direct, ongoing, individualized instruction to all children who are blind or visually**

impaired during the early elementary years through a qualified teacher of students with visual impairments. All children who are blind or visually impaired should be considered to be at risk in relation to their development of literacy skills. In light of such considerations, these children and their families should receive support to promote emergent literacy and the development of all sensory channels from a qualified teacher of students who are blind or visually impaired. Intensive, individualized literacy instruction should be provided during the early elementary grades for all students who are blind or visually impaired. The need for continuing support and instruction focused on the development of literacy skills should be determined through annual assessment of the student's performance.

1. **Programming for literacy instruction for all children who are blind or visually impaired should be designed and provided by a qualified teacher of students who are blind or visually impaired.** Direct instruction should be provided by the teacher of students who are blind or visually impaired unless the assessed needs of the child indicate greater benefit to literacy development through alternate instructional arrangements.

1. **Children who use braille as their primary learning medium and those who use braille in addition to print, should have access to the same literacy programs, materials and resources as do their classmates who are sighted and this access should be at the same time as that of their peers.** Classrooms and libraries in schools where students who are blind or visually are enrolled should maintain a broad selection of age-appropriate literature and selections at the reading level of the student. Literacy materials used with beginning readers need to be more interesting, varied, and formatted to accommodate the physical and intellectual interests of the young child. Provinces must approve legislative mandates requiring publishers to provide assess to electronic versions of all materials sold to schools to ensure students who use braille have access to resources at the same time as their classmates who are sighted.

1. **Parents must be involved in both supporting their child's development of literacy and in the identification and choice of learning media.** As an integral member of the

multidisciplinary team formed to design, implement, and evaluate the student's individualized education plan, parents must be provided with access to information and training which will encourage their active and meaningful participation in educational decisions.

1. **Provincial Ministries of Education should develop and maintain statistics reflecting the incidence of blindness and visual impairment among their school-age population.** These statistics should identify and provide demographics for all students who have a visual acuity of less than 20/70 in the better eye after correction, a visual field of less than twenty degrees, and/or a visual disability which interferes with the student's efficient access to visual information and learning.

1. **People who are in leadership positions in the education of children who are blind or visually impaired in Canada must become advocates for the implementation of formal assessment procedures, routine monitoring, and resource support for literacy instruction for students across the country.** They must support and promote the implementation of high-quality standards of practice such as those for teachers of braille established by the Canadian Braille Authority. Given the low incidence and complex needs of students who are blind or visually impaired, those in leadership roles must be committed to establishing appropriate services in both their areas of supervision and throughout the country.

1. **The caseloads assigned to teachers of students who are blind or visually impaired should be determined by using a formal caseload analysis which considers the needs of the students, the direct instruction required for each student, preparation time, travel time, related duties such as classroom teacher and parent consultation, organizational and administrative responsibilities, and time for participation in continuing professional development.** School districts must employ an adequate number of teachers to address the assessed needs of the students in a given area.

1. **The number of qualified teachers of students who are blind or visually impaired should be increased through government support of preservice programs designed to**

prepare these professionals. Preservice programs across the country need to follow a similar curriculum with similar emphasis and quality of presentation. New graduates should be provided with an experienced mentor to support them during their beginning years of teaching. There is an urgent need to increase the number of qualified teachers of students who are blind or visually impaired in Canada. It is unconscionable to continue to ignore the needs of children in rural areas, those with low vision who received limited, if any services, and braille readers who must receive their literacy instruction from paraprofessionals.

1. **Children who are blind or visually impaired should receive assistive technology that meets their individual literacy needs as determined by an assistive technology assessment.** The use of assistive technology should be monitored and reassessed on an annual basis. Assistive technology recommended to support the students access to literacy development should be available both in the home and at school.

1. **Teachers of students who are blind or visually impaired should meet the criteria for certification of regular education teachers in addition to the completion of a recognized teacher preparation program for teachers of students who are blind or visually impaired.** Course work addressing literacy instruction should be a compulsory part of teacher education programs at both levels.

1. **Participation in professional development must be considered compulsory for teachers of students who are blind or visually impaired.** Continuing education to acquire expertise in the use of learning media assessment tools and procedures, the implications of various approaches to literacy instruction for students who are blind or visually impaired, the most effective use of assistive technology in developing literacy skills, and the complex literacy needs of students with additional disabilities must be mandatory. Teachers must also participate in routine refresher courses to maintain and upgrade skills in areas such as braille, Nemeth code, assistive technology, and the use of optical devices. As well, classroom teachers and paraprofessionals involved in the education of students who are blind or visually impaired must participate in professional development to increase their awareness of the needs of

students who are blind or visually impaired and develop skills essential to their responsibilities with these students.

1. **Provincial Ministries of Education should develop a process to routinely assess the development of literacy skills for students who are blind or visually impaired.** The evolution of the practice of inclusion of students who are blind or visually impaired in their neighbourhood schools is in its infancy in Canada. Issues associated with positive acceptance of difference among learners, the valuing of students with disabilities, and creation of learning environments which support literacy development regardless of the medium/media being used need to be examined. The ability of programs to promote the development of both literacy and high self-esteem needs to be evaluated. Provinces need to establish a process to routinely assess the literacy development of students who are blind or visually impaired so that problems can be identified and addressed in a timely fashion. This is the same approach taken for the evaluation of students who are sighted.

1. Organizations and agencies involved in the learning and development of children and youth who are blind or visually impaired must make a commitment to work collaboratively and in partnership with one another to ensure services available are comprehensive, timely, of high quality, and provided by those qualified in the education of students who are blind or visually impaired.

1. **Canadian researchers should be encouraged and supported to conduct research designed to answer key questions related to the development of literacy skills and the efficacy of service delivery options.** Research findings to guide teachers in the delivery of literacy instruction for students who are blind or visually impaired are urgently needed. There is a critical need to be better informed about literacy acquisition for students who are blind or visually impaired enrolled in the regular classroom, the role of assistive technology in enhancing or inhibiting the development of literacy skills, the most effective use of contracted and uncontracted braille, the use of low vision aids to enhance the reading performance of students who use print, the development of standardized literacy tests for students who use braille, and best practices in relation to the literacy instruction of

students with additional disabilities. Best practices must be based on sound research.

1. **Guidelines and standards of practice for the delivery of appropriate, high-quality preschool and educational programs to all children and youth who are blind or visually impaired, including those with additional disabilities, need to be established across Canada. Canada needs a national voice to speak on behalf of the education of children who are blind or visually impaired.** In collaboration with the relevant organizations/agencies and provincial Departments of Education, terminology which is consistent and common to all provinces and territories needs to be developed. A national perspective on education could promote the establishment of teacher preparation facilities to ensure an adequate number of qualified teachers, share information and expertise relevant to the field, advocate for equality of educational opportunity for students who are blind or visually impaired, identify important research needs, establish a process to catalogue and distribute all materials being produced in braille for educational use, and monitor the provision of equitable services throughout the country.

Conclusion

Determining the learning media for children who are blind or visually impaired needs to be a process which is formalized and considered an integral part of educational planning. From one perspective, the process is a straight forward one involving assessment, observation, and discussion among school team members. From another perspective, the decision is fraught with emotion. There are those in society who are frightened by what they perceive as the symbols of disability and those who struggle with acceptance of difference. Furthermore, the implications of blindness and visual impairment on learning and development are frequently misunderstood. One does not remedy the learning difficulties of a student who cannot see the printed page by providing a copy in large print or braille. The story on the page may contain concepts foreign to one who has never seen (e.g., twinkling stars) or may require skills which develop later in those with a visual impairment (e.g., understanding the perspective of others). The child may need specific instruction relevant to the most effective positioning of his hands to read braille or to visual efficiency skills to maintain her position on the printed page. Blindness and visual impairment create complex learning and instructional issues for the student. Knowledgeable,

insightful teachers must take what is known from theory, integrate this information with what is known of the individual student's learning strengths and needs, accommodate the demands of the given learning environment, and identify the most effective instructional strategies for the student. Knowledge of blindness and visual impairment and their implications for learning and development are paramount to the provision of effective instruction to students who are blind or visually impaired.

Some aspects of Spungin's theory for the under utilization of braille by school-age children are in evidence across Canada. Teachers reported having concerns about large caseloads, time constraints on direct instruction with children, and administrative decisions which were not in the best interest of children. Yet, there were also many positive aspects associated with the use of braille in the integrated setting. Hundreds of classmates of braille users are being exposed to competent braille readers and being shown the value and importance of braille in the lives of braille users. Technology is increasing the use of braille by making it more accessible, easier to learn, and more efficient to produce. Most importantly, the application of excellent learning media assessment tools and procedures are becoming more widely used in making critical decisions about the media to be used by students.

Spungin (1989) published her statement of issues relevant to braille use well over a decade ago. Significant improvements have occurred in Canada in both the promotion of braille literacy instruction and the knowledge available to guide educational programming. Undoubtedly, with the advent of new technology every day, the evolution of braille literacy will continue. Educators and parent will be challenged by new questions and dilemmas. Mayor work has yet to be done to address the severe shortage in qualified teachers of students who are blind or visually impaired across the country. A vow must be taken to examine these and each new issue critically and compassionately. Working with an open-minded and collaborative attitude, problems can be resolved to enhance the opportunities for effective literacy instruction for the children and youth to whom we are all committed.

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