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### ABSTRACT

Key Objectives of the Paper

This paper will Outline the benefits of braille as powerful tool of literacy and highlight the importance of braille alongside technology as key to independence, employment and participation; and outline challenges faced by Educators and braille instructors when teaching braille; Outline empowerment of blind braille using professionals in various vocations since the adoption of the Unified Braille Code.

The paper will outline ways in which blind learners and professionals benefit from braille in countries with limited access to technology.

### TEXT

Braille: A Key to Literacy:

In order to comprehend the relevance of braille in the lives of the young child who is blind and the adult who is blind, we need to comprehend general principles of literacy and furthermore, that the definition of literacy has changed and is considered to incorporate a wider range of skills, skills often achieved by way of learning to read.

As we examine the role of braille, it is important to consider that when a young child learns to read and gathers meaning from their environment braille they are in fact learning to read, as they attain competency in a skill which will be the foundation for the rest of their life, as they progress and grasp phonemic and sentence structure, and spelling of words, sentence structure, spatial concepts such as lines and columns, paragraphs, and subsequently ideas! For the rest of their life meaning will be gathered by the process of reading braille, much as the seeing child will read and gathers meaning through the process of reading.

The above thoughts are perhaps succinctly contained in the following definitions of literacy, among which that of The Literacy Development Council of Newfoundland and Labrador (www.nald.ca/PROVINCE/NFLD/NFLITCOU/litinfo.htm)

Who defines the term “literacy”, to be the following:

"Literacy not only involves competency in reading and writing, but goes beyond this to include the critical and effective use of these in peoples' lives, and the use of language (oral and written) for all purposes."

This definition involves critical thinking about what one reads, as well as expanding the term to encompass oral forms of literacy.

The Workforce Investment Act of 1998 defines literacy as 'an individual's ability to read, write, speak in English, compute and solve problems at levels of proficiency necessary to function on the job, in the family of the individual.

According to Dubin and Kuhlman the word literacy itself has come to mean competence, knowledge and skills.

Other authors have also pondered the complexity of applying definitions of literacy, whether traditional or evolving, to individuals with disabilities. While most authors in this area have recognized literacy as "interactive, constructive, strategic, and

meaning-based" (Steelman, Pierce, & Koppenhaver, 1994, p. 201), they also typically maintain the notion that comprehension and use of

written text is central to literacy. Steelman, Pierce and Koppenhaver's definition is a good example: "To be literate is to be able to gather and to construct meaning using written language" (p 201).

From the above definitions it is clear that different situations on all levels of life require certain competencies. It is with the above in mind that I wish to suggest that braille is and will continue to be an invaluable component in the integrated process of unlocking the door of young minds with unique learning requirements, and leading them to literacy: reading, writing, gathering meaning and on to development of further skills. This is because the very process of teaching braille addresses aspects relating to gathering of meaning, interaction with the text, ultimately leading to competence in skills other than meaning, and comprehension.

And I wish to suggest that braille as a key component in the attainment of literacy will become of greater significance alongside technology as definitions of literacy change along with world economies. As we teach braille, the foundation of reading, that is reading readiness: that is to say development of motor and auditory skills, language, and reading awareness.

In language development, concepts are addressed through the introduction of texture, locating objects on a page and the labeling of spatial concepts, “up, down”, etc.

And reading awareness , comprehension and the like are addressed. It should therefore be considered that “listening to lessons as these are read, or via other audio devices would perhaps address only one component of literacy.”

Thus, by the very nature of learning pre-braille skills and braille we are in fact in the process of facilitating a child’s readiness to read and reading awareness as the child is exposed to words, sentences, paragraphs and the layout of a page. From the list of skills required to learn to read it is clear that listening to information is merely a component of literacy. This fact was possibly realized by the bright young Louis Braille as he sat listening to lessons in class, which, ultimately lead up to the elegant design of the six dot system many know as braille, which, has, contributed to literacy for many over the past 202 years.

Though reading braille is different to reading print, there are similarities between teaching reading skills to the braille and print user. As the ability of the print user to read empowers, so does braille empower those who learn to read it. This is due to the fact that interaction with text is possible through skills such as tracking a particular word or thought on a page, speed reading and while studying the ability to mark a particular place with a paper wait or other tactile label.

Braille reading skills lead the young child who is blind to competency, which is observed as other skills are learned. It is important to consider that further skills are developed by the young child who learns braille, such as the use of computers, the mastery of music notation, and a musical instrument of choice, and leads on to fun activities such as playing a game of cards, etc. leading to independence for the child and, later employment and equal participation and dignity for the adult.

Furthermore, It should be considered that braille remains important as a learning medium to the child who is deafblind, often unable to benefit from speech programmes and materials in audio format.

While fulfilling an important component in the attainment of literacy, braille will be of equal significance alongside technology as it represents print more faithfully, through the Unified Braille Code, allowing for ease of mastery of one braille code, with fewer braille rules and contractions to master, and represents print more faithfully as it opens up the digital world by giving learners and readers who are blind access to print symbols such as different diacritics, significant when learning a foreign language, different typeforms, symbols such as registered trade mark and trademark, copyright symbol and symbols required for technical subjects such as maths, science and computer studies. The latter codes easier to teach as educators find less confusion with signs in the literary braille code and find the fact that different brackets do not have to be taught to different codes easier to teach and learners find maths notation in braille easier to master.

The learning needs of blind learners are unique, a challenge often raised by Educators is the fact that the teacher learner ratio is problematic in classes where the child who is blind has unique learning needs, often not affording sufficient attention to the young learner. . Educators also find that insufficient time to teach braille poses a serious challenge.

While it was believed in the past many believed that braille was difficult to learn. With an logical, unambiguous braille code, with fewer contractions and less rules to master, and abolition of contractions, particularly lower contractions that present reading difficulty for some learners, the Unified Braille Code facilitates learning braille.

A further challenge faced by educators is a lack of resources to create a braille-rich learning environment for young beginners, especially learning material. It is my belief that through the implementation of the Unified Braille Code we will be able to address this need as it facilitates greater ease when teaching and producing braille. The fact that only one code containing fewer contractions and no ambiguity when mastering contracted braille can be mastered will facilitate the teaching and learning of braille.

Furthermore, a braille-rich learning environment can be attained by way of the exchange of learning and reading material, in turn reinforcing the habit of reading and learning.

It should also be considered that the rate of braille production will increase, with fewer rules production time and cost can be saved by way of less human intervention, allowing increased volume in braille production.

It must be considered that The learning of braille is facilitated as braille can be produced in accordance with the learners level of knowledge of braille.

Another challenge faced by educators is insufficient learning and reading material in the official languages of South Africa, a problem addressed by the Unified Braille Code as braille systems are reviewed and modiefied with as few changes as possible to create an unambiguous braille code that is easy to teach and in which learning material produced.

Braille: A Key to Independence

For the child who has learnt to read comes the joy of developing other skills relating to daily living such as mobility, and favored pastimes, such as e.g. playing a musical instrument, a game of chess or bridge, following a pattern for some arts and craft pattern for the threading of a piece of beadwork jewelry.

In the case of adults blinded later in life, braille has allowed many to resume their careers and daily lives as they are again capable of performing basic and complex tasks and fun activities around the home such as the simple task of labeling an object such as a CD, marking a date on a calendar, the buttons on a microwave touchpad, and in activities such as participating in a rally as a navigator and the preparation of a favourite ice-cream recipe, the attentive reading of a knitting or beading pattern.

All of the above tasks would be somewhat impractical to perform when listening to them only, as a braille hard copy is flexible and allows for quick reference when learning to play a minuette or following a recipe.

Braille is a source of empowerment on all levels such as voting process, where a tactile template with a braille page of names of candidates can be used effectively and is most effective for braille users, allowing for secrecy and the independence when casting a vote.

Braille: A key to employment:

In the South African place of employment, braille has, despite the access to digital devices and associative networks retained its place and will, in the future of professionals who are blind play an important role alongside technology to enable professionals who are blind to compete as equals included and participating alongside seeing colleagues. This was revealed in a survey in South Africa conducted among professionals who are blind in an aray of occupations, who alongside technology and associative networks use braille for specific tasks where effective communication, management of the environment and internalization of complex material are required.

The survey, conducted among braille professionals outside of code development explored themes such as who used braille, when braille was used, when technology was used and which tasks braille was employed for. Will greater access afforded by digitalisation and associative networks impact upon braille usage in the workplace negatively?

Perhaps we should answer the question by considering the fact that it is not so much whether braille can be replaced by digitalisation and associative networks, however, it is about the way in which an employee whether using braille or print identifies with their blindness and chooses to interact with information, whether read and written, or edited and organised, as do seeing colleagues at times use a pen, or hard copy and in some cases there is preference for the electronic and digital information.

What remains evident is that even avid professionals of technology require braille for certain tasks in the workplace and feel empowered by its availability. It was found that these professionals, who often learnt braille early, or immediately after onset of blindness, take advantage of both braille and speech and associative networks to obtain information, with both being of equal significance as they assisted with certain taks.

It was cited that braille was often needed for tasks of communication such as presentation of strategic documents, papers and the like; the taking of notes, and work requiring accuracy (the proofreading and fine editing of reports, financial statements, etc.)

Braille is still the medium of choice for those following a wide range of occupations ranging From music teachers, physiotherapists, journalists, radio announcers, lawyers, attorneys, designers, advocates, programme coordinators and computer programmers and journalists, radio programme producers, etc.

These professionals found braille invaluable for certain tasks. To these professionals who are blind, braille hard copies afforded quick reference in meetings and proved to be a reliable source of access to study and work related materials when power outages render electronic devices such as computers useless.

It was found that these professionals benefited from braille on all levels of their professional life.

For these professionals access to digital material and associative networks served as a secondary medium of communication, however, a welcome addition to the use of braille in the workplace, with the main benefit the instant access to more information. For these professionals braille alongside access to digital media and associative networks provided the edge in their professions.

These professionals found braille useful for tasks such as the taking of notes, drafting reports; editing of documents, organising information and detailed study of information, especially that of a more complex nature and preparing and giving presentations.

The accuracy and independence afforded through the use of braille is preferred especially in cases where detailed study of documents is required, particularly when studying financial and strategic documents, statistics, and complex technical material as often found in the legal profession.

It is noteworthy that professionals in the legal field also stated that braille afforded them privacy when referring to braille notes in the courtroom, a benefit not enjoyed by seeing colleagues as they needed to first look down to consult notes, a benefit which often allowed these professionals the advantage over their colleagues. As they found their memory to be free to argue a case, while still possible to read and take notes simultaneously.

A further benefit experienced by braille using professionals in South Africa is the importance of braille in organising the working environment through the marking of compact discs, print documents, books, writing of reminders, marking documents requiring corrections, marking dates on a calendar using a slate and stylus.

It has been cited anecdotally, that braille contributes to better retention of complex material. Perhaps a topic requiring further research in the near future.

Despite the fact that the synthetic voice affords a high reading rate, it is significant that professionals who are blind also highlighted an efficiency factor with regard to the use of braille, because braille allows for greater interaction with the text and reading could be interrupted and resumed with ease, because reading and speaking simultaneously proved easier than listening and speaking simultaneously when providing input and/or presenting information.

Professionals also stated that studying a hardcopy document in braille provides flexibility as marks can be made with a stylus to underline a document or a specific paragraph for ease of reference. Much like the pen used by a sighted colleague.

Professionals who are blind also stated that it is easier to use braille than synthetic voice when making presentations. It was found that it is easier to make a presentation off braille pages than off a source of notes consisting of synthetic voice text. However, if the digital presentation is one of very basic material which is dependent on access to keywords only, then synthetic text seemed to suffice, as listening to the prompt is similar to briefly looking down at notes scribbled on the back of an index card.

However, it was found that in the case of complex material, involving facts, figures, arguments, columns and tables containing statistics, often requiring comparison, it was cited that access to the page is preferable for two reasons. The first is that talking and listening is much more impractical than talking and reading. The second is that layout is as useful a guide to the presenter as is the contents of the notes.

Professionals following PowerPoint presentations containing slides, preferred the page with braille, as it proved easier listening and reading than listening and listening, that is to say, listening in two places simultaneously, especially when moving backwards and forwards within the presentation.

It must be considered that despite the fact that a high reading rate can be achieved by way of synthetic voice braille remains superior as a medium when editing and proofreading documentation, as rrors such as in layout, omitted letters, incorrectly capitalized words are spotted much easier.

Braille does not only empower the user, but has a direct impact on the rate of employment, as revealed in a study by Dr Ruby Ryles in 1996. However, though braille did not guarantee employment it was found that a correlation existed between higher rates of those gainfully employed who were braille literate.

The effect of braille on employment in the United states highlighted in a study conducted by Dr. Ruby Ryles which cited the importance of braille among those employed in the United States remains significant. The study suggested that, though braille in itself does not guarantee employment it has an effect on the rate of employment and the success of gainfully employed blind professionals, which is perhaps in itself, a testimony of the contribution of braille in the lives of independent employed blind people.

CONCLUSION:

Training, monitoring and implementation is important. We need wise and well-trained educators who can bring the message of braille and subsequently literacy to the young child progressing into adulthood.

These educators need to comprehend the significance of braille in the attainment of literacy and comprehend the important role they play in fostering positive attitudes towards learning to read.

We know that literacy is a basic human right. We do not ask whether educators at mainstream schools can teach seeing children to read and write. In light of this we need to ensure that teachers teaching children and adults who are blind know braille.

We need policy to monitor educators who teach blind learners to ensure that braille is taught correctly and of equal importance, we need implementation of policy and strategy around the teaching of braille.

As a powerful testimony to the relevance of braille, we need to consider the history and observe the contribution of braille in the lives of generations of highly functional adults worldwide.

We need to continue to create awareness of the role of braille in the attainment of literacy for the child who is blind.

It is necessary to do all we can to ensure a braille rich environment from foundation phase up to adults braille professionals, and access to a variety of information. For this reason we need to facilitate the implementation of the Unified Braille Code so that greater access to a wide variety of learning and reading materials for children who are blind can be achieved through the exchange of material and through increased rate of production.

We need to continue to ensure that utility of braille materials is increased and accessible to all, and serves the need of readers, as an example, books for children are small and light. Perhaps

consideration is needed for an affordable pocket sized refreshable braille diary and of course, we all know the joy of a file for that special briefcase or special bookshelf for a collection of well loved braille books.

all should be done to achieve greater accessibility of braille devices and access to electronic braille by way of refreshable braille displays. Braille devices such as refreshable braille displays should become available by way of more affordable prices.

Some find braille difficult to read, especially in colder climates or on cold mornings. Perhaps designers should consider methods to warm a braille page, such as a pad to warm a page.

All in the blindness and braille sector should work to influence the market by working on factors that make braille more attractive as we know it can be. That includes enhancing access to braille music notation, chess notation, financial information, braille menus, information in braille on labels, and a wider range of material in braille to ensure that the medium of braille continues to be used as widely as many would like.

Finally, we need to accept that there are changing trends in the way people access information. professionals have a choice of which medium to use for specific tasks, whether in the place of employ or around the home. A choice that braille allows the user. We need to consider that it may very well not be a case of braille versus technology, but how the two mediums may be synergized to provide the golden mean, the best of both worlds for young learners who are blind and in so doing afford greater access to the young child and facilitate the attainment of literacy, develop further skills and become participating and contributing adults in an inclusive society.

Thank you.

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