**Challenges Faced by Developing Countries in the Production and Teaching of Braille**

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**PAPER OUTLINE**

1. Introduction

This outlines the situation known to prevail in the braille production and teaching in developing countries, mostly as it relates to challenges, prospects and perfect opportunities for excellence.

2. Developing countries

A brief description is given on common problems in developing countries and their most pressing economic and political engagements.

3. Production of braille

The thrust here is on showing how braille is produced in developing countries, particularly in Southern African countries where this paper originates.

4. Teaching of braille

Here there is need to show factors which affect teachers in the teaching of braille.

5. Technological Advancement and the Production and Teaching of Braille

Here the focus is on how technological advancement has impacted the production and teaching of braille.

6. Recommendations

This outlines major concerns raised in the paper and shows the most Important areas of concern to be addressed.

7. Conclusion

This section summarises what has been engaged in, and points towards the way forward.

**Objectives**

By the end of this presentation the presenter would have:

1. Highlighted developing countries’ challenges in capitalising on and harnessing the benefits of emerging global change, such as re-skilling or re-teaching in the face of new braille technological advancement;

2. Brought to the attention of manufacturers/suppliers of high-tech braille machines the fact that late availability of trainers who in-service end-user clients on care, maintenance and use of the machines impacts negatively braille production and teaching of much needed braille materials;

3. Highlighted the challenges faced by teachers in the teaching and training of braille users in developing countries;

4. Shed some light on the attitudes of teachers to braille production and teaching in developing countries, and

5. Created a strong awareness among all stakeholders in the education of learners with visual impairments, and particularly those with adequate back-up systems for braille technologies in less resourced countries on production and teaching problems that need to be addressed urgently.

**Abstract**

Developing countries face several new challenges in addition to old problems with regards to the production and teaching of braille. Old challenges are those that were reported even during the twentieth century, when there was less technological progress than today. Newer problems relate to human response to technological progress in light of the production and teaching of braille. Traditionally, people who discussed challenges around the teaching of braille mostly cited lack of knowledgeable manpower and the lengthy process of acquiring orders for various material resources required for the teaching process. Very similar points were raised but more poignantly on the production of braille. With improvements in technology came a strong belief in the adequacy of screen-readers among erstwhile passionate braille users, robbing the world of the gains attained through reading for oneself. This is despite the fact that advancement in technology also brought with it the faster production of more intelligible braille through the introduction of the Universal Braille Code (UBC) and all its variants in the English-speaking world. The dawn of free-ware screen readers helped many print-disabled to access digital text, but presented the illusion that listening is reading among many. The mystery of loss that surrounds this is part of the discussions in the current presentation.

Key Words

Global change. Listening. Print-disabled. Reading. Screen-reader.

**1. Factors influencing demand and supply dynamics of braille equipment in developing countries**

The reasons behind the novelty of sustainable production and teaching of braille in developing countries are not new. It is about the overall definition of ‘developing countries’. It is about the capacity of individual countries within this category, firstly and foremost to source the means of production (land, labour, capital and entrepreneurial skills) to run printing initiatives. Secondly, it is also about political will to undertake such production, regardless of the pressures of internal conflicts resulting from bread and butter issues which constantly terrorise this group of countries.

Developing countries also have a constant purge resulting from failure to capitalise on, and harness the effects of emerging global change, such as re-skilling or re-tooling in the face of new technological advancement. The result is that with the rapid change in the functions and capacity of braille machines (even those provided by the same old manufacturers/suppliers), obsolescence strikes tonnes of brand new machines (manual and automatic alike) mostly because retailers do not have follow-up training which informs end users on how to use such equipment. Some equipment becomes obsolete while still little used because service clients do not know how to maintain their machines. By the time the ‘informed’ sales-support agent comes, there would be new models of equipment on the market, and stationery for use with the old equipment would be the first to go out of stock before replacement parts for repairing damaged machines also become a problem.

There may probably be hundreds of braille machines which need to be repaired in schools, particularly in special schools in developing countries, yet perhaps they need very minor repairs. Schools require back-up systems for braille technologies in less resourced countries which do not produce such machines. So far, this presentation has dwelt on capacity for machine maintenance and acquisition of stationery for continued braille production in institutions of learning in developing countries. The next section examines matters around braille production.

**2. Barriers to the production and teaching of braille in developing countries**

Braille production is meant to support the literacy needs of blind and partially sighted persons, yet visual impairment is a low-incidence phenomenon, making braille production a service targeted for a relatively small fraction of the population in every country. Apart from the blind and partially-sighted, braille is preferred by other categories of people with print disabilities, as long as they have an acute sense of touch. It should be cautioned though that the small population is still a significant one, thereby making for strong reason for braille production. The reason why braille production suffers some glitches at school and national level is that the process is costly. Braille Printing Houses are few in developing countries, and the demand for their services is low, not because schools do not need books or that government departments do not need braille literature for patients in hospitals or other public offices. Demand for the production of such literature is mostly prohibited by the cost of production of required materials, bearing in mind that developing countries struggle to ensure the availability of food on the tables of all citizens.

International support for the provision of braille production materials is obfuscated by the differences which exist between ‘developing countries’ of which some are more well to do than others. This leaves the more needy countries without aid while those which can supply for their most critical needs progressing! As an example, South Africa is a ‘developing country’ yet it has one of the largest economies on the entire African continent. The country has large braille Printing Houses which can supply the needs of all 22 schools for the blind, within the course of a year, and with the help of smaller scale braille producers (which already exist). On the contrary, there are smaller economies which are (like it) also called ‘developing countries’ which have very low per capita ratings on their GDP, meaning that it would be unlikely for them to prioritise braille production if it were to be provided at a cost beyond distribution. Thus, the concept of ‘developing countries’ applies to the group as if it had the same level of development, yet reality shows them as a variegated leaf.

Another problem with support for braille production and teaching in developing countries is that they do not manufacture braille machines, so that they need help from traditional donor countries. In more recent years, it has emerged that developing countries where national governments do not fully observe certain internationally recognised traditions which are necessary for the creation of a ‘sane’ and intelligible world, (such as ‘the rule of law’), restrictions are applied which indirectly sanction the provision of the necessary braille production equipment, among other things. In the process, there is further marginalisation of persons with visual impairment who need braille for better chances of being employed and satisfactory use of leisure time.

**3. Processes that constitute best braille Teaching practices in developing countries**

Teaching follows a curriculum, which is a description of a community’s lived experiences (Slattery, 2006:63). The teaching of braille is now a discussion topic around many school offices. Discussions centre on the curriculum as a description of important schooling experiences, and the relevance of braille in light of the development and availability of screen-reader software and other non-braille user-interfaces for the blind and partially sighted. Some simply argue that it is possible for one to learn by simply listening to the text one wants to learn and understand, then if they want to write anything, computers are there for typing word documents. If such texts need to be transcribed into braille, the same individuals simply need to command the braille embosser via the computer and the job is done. It sounds that easy! Yet the person who would be doing all that would not be in a position to read what they emboss. Teachers of the visually impaired (TVIs) know that for those who were born blind, braille creates the concept of spelling since it is introduced through alphabetical braille before saving space by using literal braille. It is only after introducing letter by letter braille that a learner can participate in spelling and dictation practice, which in turn enable them to gain independence as proactive learners and professional writers.

Those who evade braille and entirely depend on screen readers are generally known to be awful spellers, and they have been observed to have fewer chances for employment than those who would have been taught braille. A thorough appreciation of the benefits of learning braille goes beyond spelling and covers the creation of conceptual structure which helps the individual student to arrange written text meaningfully. Braille text is concrete (dots are felt by touch), so the writer can appreciate personal presentation as they compare with the work of classmates.

Additional to the creational of ‘pattern’ through the teaching of braille, many pre-braille activities help children acquire important skills relevant to the understanding of other domains of knowledge, such as mathematics and science. The teaching of braille always makes use of the development of spatial concepts which include left to right orientation and the other way round, the development of texture appreciation from rough to smooth and size from very big to very small (down to the size of the braille dot). The same concepts are taught to the sighted but perhaps with different need for emphasis and repetition. The need for these skills does not disappear simply because one has been taught listening skills which are used for “screen-reading”, which one could argue is not at all a way of reading. Many words read the same if one is not a first language speaker of the language of instruction, which is the case in many developing countries. It is only those who have learnt spelling who would know the difference in spelling once they have inspected the context of the material being read. The one who has not learnt braille may experience problems with spelling words correctly because the auditory channel alone does not offer the student a multisensory experience afforded by both listening and letter by letter transcription of words into braille symbols.

The above paragraph only highlighted some technical matters known to the teacher of braille but for a discussion such as the present presentation, it is necessary to note that attitudes to braille held by teachers who should teach it and attitudes of learners have a strong bearing on the success of braille teaching in schools. Learners are more ready to partake in the braille activities if there is enthusiasm among teachers, as an African saying reads ‘love is a teacher’. If the more vocal at a school or in a curriculum planning office are those who do not specialise in the teaching of the visually impaired, but perhaps once worked in special schools, their voice could carry the decisions of the day, but it does not necessarily mean that they would be carrying the best interests of the child in the going decision. In developing countries, specialists are few in specific areas of knowledge such as ‘visual impairments’ so that the timely availability of expert knowledge to influence important curriculum decisions may be difficult to come by, leaving many decisions to be implemented with regrets.

A specific problem which commonly affects the teaching of braille in developing countries is the scarcity of teachers with well-grounded braille skills. In many cases more than half of teachers in a school for the blind may have done rudimentary braille training themselves, perhaps with only the alphabet and some punctuation. They might not have strong theoretical foundations which enable them to impart adequately structured knowledge to the children they teach. Another problem experienced in schools in the developing world is that a teacher who specialises in an area of knowledge and excels in it is promoted to serve in a capacity that does not help improve their specialist subject, for example one is promoted into a position of administrative responsibility in the school system. Positions of promotion in developing countries do not make one a ‘greater practitioner in the classroom’ who earns as much as the one who opts out of the classroom and accepts a post of administrative responsibility. The experienced teacher therefore dreams of moving out of the classroom, leaving the less experienced to teach ‘what they do not know’. Indeed, research in other disciplines of education confirms that more experienced teachers often bear negative attitudes towards the teaching practices they should profess in. If teachers could be promoted within their classroom niche, for example by establishing a promotional ‘senior teacher’, ‘vice principal teacher’, ‘principal teacher’ and other ‘creative’ titles which go with privilege and financial benefits, it would mean that many teachers with specialist knowledge would linger longer in their classrooms with satisfaction. The purpose of the present presentation is to amplify the voice in support for the teaching of braille in schools with students with visual impairment so that there would be enough decisional support to sustain braille production.

In the developing world, one persistent problem is training. It is well known that the training of specialists is cheaper than in the developed world, other things remaining constant. Knowing as we do that other things never remain constant, we find a plethora of communication and logistical problems. Courses which are available in one country are not well known in a neighbouring country. Even if well advertised, the course is sometimes misunderstood (usually as inferior), or perhaps too expensive or just suitable for individuals who dare apply. Few countries in the developing world send groups of students to neighbouring countries for staff development courses on a sustainable basis. Even fewer initiate courses which develop staff to serve in humanitarian capacities. Many developing countries are tempted to put the infrastructure development budget at the top of their priority lists, preferring to construct a solar power plant, a national grain silo or a dam, but not a national braille printing press. The difference between the old capabilities of a school for the blind in yester-years and today’s schools is realised through reading old school magazines to understand erstwhile braille production and teaching practices.

**4. Exploring teacher attitudes to braille production and teaching in developing countries**

Braille production and teaching is influenced by the attitudes of teachers. Braille, as explained above, is facing many affronts due to misinformation on the part of generalist professionals who purport to speak for all, overwhelmed by new discoveries and developments in screen-reader interfaces. Some teachers cannot read braille, so they evade it by ensuring that learners use other ways of learning and understanding. Teachers who specialise in the education of the visually impaired may not pursue the teaching of braille due to the fact that in developing countries, the training of specialist teachers is advanced education which prepares such teachers for promotion. The promotion of these cadres leaves schools with fewer dedicated specialist teachers, more teachers who are not dedicated to their work and more learners who cannot read braille.

**5. Suggesting theoretical solutions to the production and teaching of braille in developing countries.**

The most desirable outlook is that with the advantages offered by braille in the education and employment of persons with visual impairments across the world, technological advancement should be seen as a tool for the production and teaching of braille. As an example, screen readers guide blind and partially sighted workers to produce braille on small and large electronic braille embossers, informing with certainty on the pages to print and the progress they would be making in the printing process. The simple example indicates that screen-reading technology eases up the process of braille production, instead of complicating it. Thus, the meteoric breakthrough in technology has worked miracles for both those who need braille and those who depend solely on screen-reader interfaces. There is no telling then, that the technological explosion that gave rise to screen reading spells the end of the braille era. Learners who are supposed to learn braille should not be resigned to “a fate” whereby they only ‘listen’ to texts read by electronic screen readers.

On the contrary, learners should continue to benefit from ‘reading’ what is “embossed” in braille, and produce their own braille. This paper is meant to illuminate the braille production and reading situation in developing countries. The audience here comprises inhabitants of both the developing and the developed world – all the better to inform both the regular recipients and the usual donors on the importance of braille to the former, and to suggest practices that matter most and to solicit for more insights on sustainable provision of braille literacy materials for the blind and partially sighted.

**6. Recommendations**

In light of the present presentation, it is necessary to consider the following possibilities:

* That small groups of countries set up special needs education hubs which ensure the provision of otherwise expensive services such as braille printing houses, audiological assessment laboratories and prosthetic device workshops. Such centres could be jointly funded so that they attract the lowest fees for the services they render.
* The training of specialist teachers remains an expensive undertaking for which individual countries labour to establish and run. Information should be shared on existing training institutions so that several countries could send their students for specialist training in those institutions.
* Countries in specific regions could make an annual budget allocation for the maintenance of established centres and ensure sustainable operation through consistent support.

**7. Conclusion**

This presentation has shown that although developing countries are not on a uniform growth path or the same level of development, there are some common trends in the way they set their budgetary value systems, which in many cases place educational welfare below defence and food security, among other things! This trend means educational costs such as the importation of braille equipment and stationery becomes a luxury, among other choices. Equally, the training of teachers to teach braille to students in need of such skills becomes a luxury.

The procurement of braille machinery and training of teachers are not the only important things in sustainable special need provision. There is need for the training of workers who repair braille production equipment as well. These provisions are made possible by the policy planning functions of governments in developing countries.