Availability and Access of Braille in Inclusive Education: A Case Study of High Schools in Masvingo Urban, Zimbabwe.

Farisai Mlambo

Great Zimbabwe University

fmlambo@gzu.ac.zw

ABSTRACT

The objectives of this study were to find out if the inclusive education policy is being adhered to in high school education in Zimbabwe, to determine the percentage of high schools in Masvingo with Braille learning materials, and to investigate the factors influencing access to Braille resources for visually-impaired students in inclusive high schools. The study was hinged on the Resource-Based Learning theory by the Nuffield Foundation (1966). The use of the qualitative research approach compelled the study to adopt the case study research design, of which Masvingo urban was used as the case study, using the purposive sampling technique. The researcher found out that, today, an attempt at the implementation of inclusive education, especially for the visually-impaired learners, manifests a pathetic situation which leaves the learners in a desperate situation of trying to cope in the inclusive context. The researcher also found out that the availability and access to braille in high schools is very limited. The researcher also concluded that there is unavailability of braille at inclusive high schools, resulting in learners with visual impairments finding it difficult to learn in an inclusive set-up. Recommendations were made for policy makers, school administrators and parents.

Key Words: Availability, Access, Braille, Inclusive Education, High Schools

INTRODUCTION

The concept of inclusive education has been hailed in many different corners of the world. However, in Zimbabwe, for visually-impaired learners of school going age, inclusivity has had a highly positive interpretation for them. They assumed that the ability to go to the nearest government school close to one's residence at an affordable school fees was another advantage. However, those ostracized into expensive institutions of special education, saw an end to an age-old system that marginalized them into a society that identified them as a different unit from a regular society.

joiip.rcu.ac.zw

Haegele (2019) suggests that globally, for those learners with visual impairment, inclusion is interpreted as a chance to be part of the mainstream education and participate equally in the society with those who are gifted with sight. In some developed states, this interpretation can be measurably correct. However, in some developing nations like those in Africa and Asia, inclusion for those learners with visual impairment is still an illusion.

Teke and Sozbilir (2019) state that in Africa, for achieving success in inclusive education, especially in countries like Zimbabwe, there are several obstacles and challenges. Many problems, such as lack of well-educated and inclusion-sensitive teachers, curriculum, resources, good infrastructural facilities, awareness, positive attitude, plans, and policies, is creating hurdles for implementing the concept of inclusive education in Zimbabwe.

Klingenberg, Holkesvik and Augestad (2020) argue that in South Africa, braille, being the language medium between the educator and the learner in the learning process, has always been a challenge where implementation of inclusive education lacks, especially in high schools. The burning questions stem from where the challenges stem from: Is it the society rejecting inclusivity? Is it the high school institutions? Is it the government policing that is failing? Are they higher and tertiary institutions that are not producing inclusive sensitive educators? Are the specialist educators being produced enough to handle inclusive education? Are they the resources like braille that are the stumbling block for learners and teachers?

Teke and Sozbilir (2019) says in Zimbabwe, for a visually-impaired high school learner, there are many unanswered questions championed by mostly the availability of Braille or access to Braille, if and when it is available. The Nziramasanga Commission (1991) from which the inclusive education policy was derived, states that resources for inclusivity should be adequately availed in high schools for implementation of the policy. When inclusive education was mooted for implementation, there seemed to be good policies and guidelines at least for all high schools. Today, an attempt at the implementation of inclusive education, especially for the visually-impaired learners, manifests a pathetic situation which leaves the learners in a desperate situation of trying to cope in the inclusive context. Thus, this study seeks to interrogate the availability of, and access to, one aspect of inclusive education in high schools, that is, the availability of, and access to, Braille as a language medium between the learner and the educator in high schools in Zimbabwe.

PROBLEM STATEMENT

The major problem in the implementation of inclusive education, especially for learners with visual impairment in high schools, has always been the inadequacy and non-availability of resources and equipment (Lieberman, Robinson & Rollheiser, 2016). Despite the inclusive education policy, Braille availability and accessibility remain a

significant barrier for visually-impaired learners in Zimbabwean high schools. However, now that inclusivity means mainstream schools' adoption of those from special schools, for those with visual impairments, the biggest question would be: Do the schools have the Braille? Therefore, while inclusive education policies in Zimbabwe aim to integrate students with disabilities into mainstream schools, a significant challenge exists for visually-impaired students - the availability of, and access to, Braille resources. This research investigates the extent of this problem in high schools in Masvingo urban, Zimbabwe.

OBJECTIVES

The main objective of this research paper would be: To assess the availability and accessibility of Braille materials in high schools implementing inclusive education in Masvingo urban, Zimbabwe.

Sub-Research Objectives

1. To find out if the inclusive education policy is being adhered to in high school education in Zimbabwe.
2. To determine the percentage of high schools in Masvingo with Braille learning materials.
3. To investigate the factors influencing access to Braille resources for visually-impaired students in inclusive high schools.

SIGNIFICANCE

Chindanya (2019) views significance of the study as the benefits of the study. This section spells out the beneficiaries and how

they may benefit from the study. Though being done in Masvingo Province, this study will raise awareness nationally, regionally and internationally, about the availability of Braille in high schools in Zimbabwe.

Academia

Other researchers will also gain a lot from this study. They will make this study a reference point in terms of knowledge gaps and methodology. They may also avoid the setbacks and pitfalls that may be associated with this study.

Policy Makers

Targeted policy makers are officials from the government who are involved in policy making processes in respect of education, like availing Braille at all schools in Zimbabwe. Their contribution has the potential to bring about an equitable system in every part of the country, one in which there is a recommended body of braille availability strategies, to be adopted by teachers in all schools.

Administrators

It is hoped that the issue of availability of, and access to, Braille in high schools be addressed in respect of the backgrounds of the schools, how they operate, and how Braille can be positively adopted for students in high schools.

Learners

The research is significant to learners, especially regarding availability of, and access to, Braille in the teaching and learning at secondary school level. Change of policy

and availability of, and access to, Braille will benefit learners.

LITERATURE REVIEW

Bamu, de Putte and Van Hove (2020) say that the inclusion of the visually-impaired in regular schools necessitates that Braille be provided to them. Nonetheless, there is a likelihood or possibility, in reality, for the visually-impaired not being included in the learning that goes on in the regular secondary schools unless appropriate measures are taken to ensure their inclusion.

An examination of the Braille and the appropriate measures to fully include the visually- impaired leaves the conclusion that there is a prospect and likelihood for the visually- impaired to be educated in regular secondary schools and that it is important for the regular schools to build on the existing provisioning of the Braille. This is due to the fact that this resource is what is currently available and also the working initiative in the education of the visually-impaired.

Theoretical Underpinnings

As a pen is to a writer, so is Braille to the visually-impaired. Implementation of the inclusive education policy, especially regarding the visually-impaired in high school education in Zimbabwe has always been having theoretical relevance. This study is hinged on the Resources-Based Learning Theory.

Resource-Based Learning Theory (Nuffield Foundation, 1966)

In 1966, the Nuffield Foundation introduced the Resources for Learning

project. This involved the teacher introducing a Problem, the pupils formulating a hypothesis and then the pupils designing and carrying out an experiment. Kim Taylor, an ex-headmaster, soon took over as director of the project. However, experience soon showed that a more instructional approach would be more effective.

Kim Taylor propounded Resources for Learning (1971), which predicted significant changes if resource-based methods were to be effectively deployed. One of the issues he highlighted was that as a modern economy created pressure for a universalised education, which would require a shift away from "teacher as Craftsman" as the situation would generate a significant short-fall in teachers. The "Nuffield solution" involved a transition from a craft-based model of teaching to a more industrial approach where greater attention was paid to the managerial effectiveness and the quality of the educational resources.

Relating to this study, a paradigm shift is imminent in all high schools, necessitated by the updated curriculum that requires student-based heritage education. The requirement for Braille as a language medium through which an educator can use to communicate with an impaired learner is necessary. The contemporary learning environment in an inclusive society requires Braille in high schools for learner use.

Empirical Review

The empirical literature review of this study shall follow themes formed from the research objectives stated earlier, as follows:

Inclusive Education Policy Adherence in High Schools in Zimbabwe

Although students with visual impairment are capable of studying all academic subjects like their sighted peers, they are known to be excluded from participating in all subject-related activities, particularly in Mathematics, Science, and Physical Education classes (Brydges & Mkandawire, 2017). The situation is more worrisome at the upper secondary level, as the focus of education shifts to more academic content. Thus, it is imperative that the inclusive education policy be adhered to at high schools in Zimbabwe, but this is not fully implemented due to some difficulties encountered in each learning area (Brydges & Mkandawire, 2017).

Lieberman, Robinson and Rollheiser (2006) say that there is a substantial number of studies indicating that students with visual impairment and learning in inclusive settings are not receiving adequate instruction in the area of the Expanded Core Curriculum (ECC). ECC, which is also known as a disability-specific curriculum for students with visual impairment, includes skills in social interactions and independent living, and is known to have a strong link to positive post-school outcomes (Hatlen, 2013; Sapp & Hatlen, 2010). Equal attention should be given to academic subjects in higher-level academics. Thus, the existence of ECC itself means adherence to inclusive education policy in high schools in Zimbabwe, but the situation when learners cannot have specific resources or access to such a resource like Braille makes the learners not attend some specific learning areas where, without Braille, it serves little purpose attending.

The Percentage of High Schools with Braille Learning Materials in Masvingo

According to George and Duquette (2006), literature review entails identifying and synthesizing the existing literature with your study. In this case, existing literature is reviewed on the availability and accessibility of Braille at high school level. In high schools that are implementing or adhering to the inclusive education policy, resources supporting such a policy should be available and accessible, to which extend this study endeavours to ascertain.

According to De Verdier and Ek (2014) and Koehler and Wild (2019), regardless of the level and quality of support received in high schools with regards to inclusive education, more than half of the students with visual impairment performed at the grade level or above. Students were learning in inclusive classrooms, receiving standard-based education, and performing at average level. According to De Verdier and Ek (2014) and Koehler and Wild (2019), this was attributed to the availability of resources like Braille. In their study, Koehler and Wild (2019) established that less than 50% of learners with visual impairment had Braille textbooks for themselves in some subjects, while sharing meant one textbook to five or six learners.

However, alarming situations were also highlighted in these studies. Koehler and Wild (2019) clarified, through a survey of 51 specialist teachers for the visually-impaired, how instructional practices are delivered to

students with visual impairment in general Science classrooms. The study indicated that although most of these students were physically in the same environment as their non-disabled peers, participation in Science experiments was low because they did not have Braille textbooks to interpret what neede to be done in these experiments. Along with Science, Physical Education was another subject with a similar challenge.

Klingenbert et al. (2019) systematically reviewed and synthesized peer-reviewed articles on Mathematics education for students with visual impairment, and on e-learning in Mathematics. Based on their findings, learning aids based on audios were popularly used, and interactive e-learning tools that allow auditory and tactile learning seem to be a useful resource. However, the availability of Braille in such a subject was a huge problem. There was one textbook for the whole class.

The Factors Influencing Access to Braille Resources for Visually-Impaired Students in Inclusive High Schools

De Verdier and Ek (2014) revealed that the level of accessibility of a course for the visually-impaired depends heavily on the subject teacher's knowledge, willingness and, most importantly, availability of Braille in that subject, causing students with visual impairment to choose courses based not on their ability and interest, but on accessibility of resources like Braille in that subject. Jessup, Bundy, Broom and Hancock (2017) say that this implies that the students are losing out on opportunities to study higher-level subjects, which may be hindering young

individuals with visual impairment from pursuing a particular major in college, as well as potentially working in that field.

However, the researchers De Verdier and Ek (2014) also refer to the weaknesses in scientific evidence among many of the studies reviewed, and warn that the results should be viewed with some caution. The study by Teke and Sozbilir (2019), which had a single case study design, developed learning materials in Science that consisted of two-dimensional drawing and three-dimensional models, which proved effective in deepening the understanding of students with visual impairment.

Abrahamson et al. (2019), on the other hand, illustrated strategies and tools that facilitate inclusive learning by utilizing enactivism, Ethnomethodological Conversation Analysis (EMCA) and the concept of Universal Design Learning (UDL). This particular study focused on Mathematics and stemmed from the ideology that contents, such as spatial relationships constituting mathematical structures, can be apprehended adequately, if not superiorly, through non-visual sensory modalities, such as auditory, kinetic, tactile, and haptic modalities. Abrahamson et al. (2019) argue that though Braille may be available, access to it may be difficult for learners. The argument was that Braille-copying machines are not easily available in high schools even, privately. In Zimbabwe, there are very few Braille-copying machines and, therefore, access to Braille in high schools with inclusive education is still difficult.

METHODOLOGY

Qualitative research was chosen for this study. It seeks the insider's view, as opposed to its quantitative counterpart, which is etic, or detached. When information is finally gathered, the qualitative paradigm demands a detailed descriptive account of what was observed before inductive conclusions are made. The goal of qualitative research is "to portray the complex pattern of what is being studied in sufficient depth of detail so that one who has not experienced it can understand it" (Ary, Jacobs & Razaciek, 2019). The main data gathering technique were interviews, which ensured that as much detail as possible was supplied.

Research Design

Qualitative research procedures were mainly used to collect and analyze data. In particular the case study was used as the research design. In a case study, the investigator attempts to examine an individual or unit in depth. The investigator tries to discover all the variables that are important in the history or development of the subject (Ary, Jacobs & Razaciek, 1990).

This research design, like any other belonging to the qualitative approach, is concerned primarily with the process rather than the product, looks at meaning, that is, how people interpret their experiences, views the researcher as the main data-gathering instrument in the field (the researcher(s) physically go to the people or site to observe behavior in its natural setting) and is descriptive as well as inductive (Merriam, 1988; Glesne & Peshkin, 1992; Creswell, 1994). The qualitative paradigm is concerned mainly with the process, hence the detailed descriptions characteristic of write-ups of researches done with such a philosophical position in mind, the current one included.

Sample and Sampling Technique

A sample is a small proportion of a population for observation and analysis, selected from the target population (Best & Khan, 1993). In this research, the sample consisted of 4 high school learners with visual impairments from each of the five high schools, 2 inclusive educators from each school, and one administrator from each school, making a total of 35 participants. The researcher sampled high school learners with visual impairment since they have first-hand experience of use of Braille in inclusive settings, inclusive educators know and have statistics on Braille and its availability and accessibility. Educators and administrators were selected because they are key informants with rich information on availability of Braille and its accessibility.

This study, being qualitative in nature, made use of non-probabilistic sampling methods, which are purposive and convenience sampling methods. Purposive and convenience sampling are two qualitative sampling techniques which for this study have been opted for because they select participants specifically for the purpose they are selected for.

Research Instruments

This qualitative research made use of qualitative research instruments. Interviews were held with the educators and administrators, whereby interviews sessions

of not more than 20 minutes were booked for the free time of the participants. Focus group discussions were held with two groups of 10 each of learners with visual impairments from five selected schools. Groups A and B were formed for focus group discussions.

Research Ethics

Cohen, Manion and Morrison (2011) describe ethics as a consideration which should be addressed to safeguard the good of the profession and the participants of the study. Serious ethical considerations were taken in order to minimize any immediate discomfort or risk, as well as the need to protect the participants from long term harm. Ethical responsibilities entail the rights of participants and reporting results fairly and accurately. In this study, ethical considerations included informed consent, confidentiality, absence of deception, debriefing, non-hoaxing and non-maleficence.

FINDINGS

The study findings followed themes formed from the research objectives stated earlier as follows:

Inclusive Education Policy Adherence in High Schools in Zimbabwe

Learners

Responding to the above research item, the learners expressed that they did not know much about the Inclusive Education policy, they are just aware that they were now able to learn in regular schools like other children of their age.

Learner 6 from Focus Discussion Group B stated that,

"I do not know of any policy but I am now learning in the regular school with others in same classes."

Learner 1 from FDG A stated:

"It is now easy going to a nearby school like other children and learning in the same class at the nearest school from our home."

Educators

Responding to the same research item, the educators were in agreement that they are aware of the inclusive education policy. They also mentioned that they understand the policy both from their pedagogical requirements and from their practical requirements. Educator 4 stressed that,

"We have inclusive learning even when we are still at college, when it is emphasized that we are going to have inclusive classroom as we also learn in inclusive classes."

Educator 9 raised the point that,

"We learnt in inclusive classes and fortunately we had a fellow student with Visual Impairment, which makes it easy for me to work with an inclusive class especially with a learner with visual impairment."

Administrators

On the above research item, the majority of the administrators indicated that the inclusive education policy was well-received and is being implemented in high

schools in Masvingo. School Head 1 (Administrator) stated that;

"We were well informed about Inclusive Education and understand very well what it entails".

School Head 4 also mentioned that,

"Inclusive Education is now part and parcel of the Educator pedagogy at Higher and Tertiary Education, therefore both Administrators and Educators are now aware of Inclusive Education and its easy implementing the policy."

The Percentage of High Schools with Braille Learning Materials in Masvingo

Learners

Learners were in agreement that most of the high schools in Masvingo urban did not have Braille in most learning areas/subjects. Learners stressed that the problem is worse on science subjects which require specific braille for learners. Learners also stressed that if available, Braille is in so small quantities that it is difficult to share.

Learner 5 FDGA stated:

"Braille is very difficult to find at our school, when available it is even more difficult accessing it."

Educators

Responding on the same research item, educators revealed that Braille is not available at schools for the visually-impaired students. The educators stressed that Braille is one of the resources in inclusive education that is very scarce. Educator 6 said,

"Most learners with visual impairment find it difficult to be part of the inclusive fraternity because they do not have available resources like Braille."

Educator 2 also mentioned that,

"Some learning areas do not have Braille at all like sciences learning areas."

Administrators

The majority of the administrators were in agreement that there is scarcity of Inclusive Education resources like Braille at high school, while at some schools there are no Braille textbooks at all, while at other schools students are required to avail Braille textbooks on their own. School Head 3 stated that,

"While the policy on inclusive education required implementation, it did not come with resources to enable the implementation process."

School Head 1 stated that,

"There is no Braille for the visually impaired learners and at some point we have to ask parents to provide that for their children."

The Factors Influencing Access to Braille Resources for Visually-Impaired Students in Inclusive High Schools

Learners

Responding on the above research item, learners from focus group discussions were in agreement that because of the low level availability of Braille in schools, accessibility was almost impossible,

joiip@rcu.ac.zw

especially in some subjects. Learner 1 FGD A stated that,

"There are very few copies of braille in schools and accessing them is almost impossible."

Learner 8 FGD B said,

"Low availability of braille in schools means limited access to braille".

Educators

Responding on the above research item, the majority of the educators stated that there were no Braille copies for various learning areas at their schools. One of the educators also stressed that,

"The inaccessibility of braille at high school has put some parents at a position where they have to source it for their children."

Another Educator had the view that,

"There are not many Braille making machines nationally and they are overwhelmed with demand, thus, the production of Braille is limited."

Administrators

Responding on the above research item, the majority of the administrator participants stated that Braille is not easy to access at high school level. They stressed that where there is Braille, the ratio of sharing that copy is too high. The school administrators advised that schools do not have financial resources to fund the availability of Braille at high schools and therefore, where possible, a

limited number of copies are sourced for the use. School Heads 5 stated that,

"Schools cannot afford all needed copies of Braille and they can only resort to source just a limited number and try and consult parents to assist".

The results above were in line with Jessup, Bundy, Broom and Hancock (2017), who state that there is high unavailability of Braille in high schools, which would result in non-accessibility of such texts if ever they are available, because of the book-to-learner ratio. Teke and Sozbilir (2019), also state that the accessibility of a few Braille texts that are available in high schools is very difficult considering the ratio of learners to the textbooks.

Summary of Findings

Adherence to Inclusive Education Policy in High Schools in Zimbabwe

The researcher found out that inclusive Education has been received in high schools and it is being implemented well.

Percentage of High Schools with Available Braille in Zimbabwe

The researcher found out that there is scarcity of Braille in high schools in Zimbabwe. There is a very small percentage of schools with braille in certain learning areas but not all learning areas.

Accessibility of Braille in High Schools in Zimbabwe

The researcher found out that the ratio of sharing Braille texts is very high. The researcher also found out that access to

braille at high schools is limited to those with enough financial resources to buy Braille for their children.

CONCLUSIONS

Adherence to Inclusive Education Policy in High School in Zimbabwe

The researcher concluded that if well resourced, implementation of inclusive education could be smooth, especially for the visually-impaired.

Percentage of Schools with Availability of Braille in Zimbabwe

The researcher concluded that to a large extent there is unavailability of Braille in high schools in Zimbabwe.

Accessibility of Braille in High Schools in Zimbabwe

Based on the results presented above, the researcher concluded that there is no accessibility of Braille at high school level where inclusive education is being implemented.

RECOMMENDATIONS

Implementation of Inclusive Education Policy in High School Education in Zimbabwe

It is recommended that the policy makers should ensure that resources are available first before recommending implementation of such a policy.

The government is invoked to ensure that there are enough Braille-making machines nationally, which would enable availability of Braille in schools.

Availability of Braille in High Schools in Zimbabwe

The researcher recommends that schools should ensure availability of Braille for the visually- impaired students.

The researcher also recommends that parents should play a role in assisting availability of Braille at high school level.

Accessibility of Braille in High Schools in Zimbabwe

It is highly recommended that the government should ensure that Braille is easily accessible in high schools in Zimbabwe.

It is also recommended that students at high school should make an effort to access Braille and push their parents as well as schools to avail Braille for them.

REFERENCES

Abrahamson, D., Flood, V.J., Miele, J.A. & Siu, Y.T. (2019). Enactivism and ethnomethodological conversation analysis as tools for expanding Universal Design for Learning: The case of visually impaired mathematics students. *ZDM Math. Educ.,* 51, 291–303.

Bandura, A. (1978). Self-efficacy: Toward a unifying theory of behavioral change. *Adv. Behav. Res. Ther.,* 1, 139–161.

Brydges, C. & Mkandawire, P. (2017). Perceptions and concerns about inclusive education among students with visual impairments in Lagos, Nigeria. *Int. J. Disabil. Dev. Educ.,* 64, 211–225.

Chang, S.C.H. & Schaller, J. (2012). The views of students with visual impairments on the support they received from teachers. *J. Vis. Impair. Blind.,* 96, 558–575.

de Verdier, K. & E.KU. (2014). A longitudinal study of reading development, academic achievement, and support in Swedish inclusive education for students with blindness or severe visual impairment. *J. Vis. Impair. Blind*., 108, 461–472.

Esch, E. (2016). *"Resource-based learning" LLAS.* Centre for Languages, Linguistics and Area Studies.

George, A.L. & Duquette, C. (2006). The psychosocial experiences of a student with low vision. *J. Vis. Impair. Blind.,* 100, 152–163.

Haegele, J.A. (2019). Inclusion illusion: Questioning the inclusiveness of integrated physical education. *Quest,* 71, 387–397.

Hatlen, P. (2013). A personal odyssey on schools for blind children. *J. Vis. Impair. Blind.,* 87, 171–173.

Jessup, G., Bundy, A.C., Broom, A. & Hancock, N. (2017). The social experiences of high school students with visual impairments. *J. Vis. Impair. Blind.,* 111, 5–19.

Jessup, G.M., Bundy, A.C., Hancock, N. & Broom, A. (2018). Being noticed for the way you are: Social inclusion and high school students with vision impairment. *Br. J. Vis. Impair.,* 36, 90–103.

Klingenberg, O.G., Holkesvik, A.H., Augestad, L.B. & Erdem, E. (2019). Research evidence for mathematics education for students with visual impairment: A systematic review. *Cogent Educ.,* 6.

Klingenberg, O.G., Holkesvik, A.H. & Augestad, L.B. (2020). Digital learning in mathematics for students with severe visual impairment: A systematic review. *Br. J. Vis. Impair.,* 38, 38–57.

Koehler, K. & Wild, T. (2019). Students with visual impairments' access and participation in the science curriculum: Views of teachers of students with visual ompairments. *J. Sci. Educ. Stud. Disabil.,* 22, 1–17.

Latchem, C. (2013). Whatever became of educational technology? The implications for teacher education. *World Journal on Educational Technology,* 5(3), 371-388.

Lieberman, L.J., Robinson, B.L. & Rollheiser, H. (2016). Youth with visual impairments: Experiences in general physical education. *Review,* 38, 152–163.

Nuffield Resources for Learning 1966 *(http://www.nuffieldfoundation.org/nuffie ld-resources learning-1966)* . Nuffield Foundation.

Sapp, W . & Hatlen, P. (2010). The expanded core curriculum: Where we have been, where we are going, and how we can get there. *J. Vis. Impair. Blind.,* 104, 338–348.

Teke, D. & Sozbilir, M. (2019). Teaching energy in living systems to a blind student

in an inclusive classroom environment. *Chem. Educ. Res. Pract.,* 20, 890–901.