

Teachers` perceptions on communicating with students who are deaf-blind in a regular primary school class

Phillimon Mahanya

Great Zimbabwe University, School of Education, Department of Special Needs Education,

pmahanya@gzu.ac.zw.

Abstract

Learners with deaf-blindness use touch to communicate. However, some teachers in Zimbabwe are not well versed with tactile communication technicalities. Lack of technical knowhow is compounded with lack of standardisation of the tactile signs the world over. Thus, this study arose from the need to have efficient and effective tactile sign communication for learners who are deaf-blind. A qualitative approach that adopted a case study design was used. A sample of 10 participants comprising school administrators and teachers was purposively drawn from the institutions that enrolled learners who were deaf-blind. Data generated using semi-structured interviews, non-participant observations and document analysis were thematically analysed. It emerged that administrators and teachers used mammoth and solo touches that were not standardised to communicate with learners who are deaf-blind. It was recommended that there should be a standardised tactile sign manual in Zimbabwe to promote inclusion of learners who are deaf-blind.

Key words: tactile, signing, deaf-blind, communication.

Introduction

Education for individuals who are deaf-blind began in developed countries in the last few decades. The concept was implemented in Western countries in the 1980s and has become an issue on the global agenda (UNICEF, 2006). Article 24 of the United Nations Convention on the Rights of Persons with Disability (UNCRPD) adopted in 2006 protects the right to education of persons who are deaf-blind. It compels all state parties to take appropriate measures to ensure that children who are deaf-blind receive the most appropriate communication. Interesting evidence gathered by Special Rapporteur on the Rights of Persons with Disabilities (SRRPD) (2020), firmly demonstrates that learners who are deaf-blind encounter communication barriers in accessing appropriate education. In 1946, the International Organisation for Standardisation (IOS referred to as ISO) was found to develop international academic standards and circumvent the gap. Its primary concern is “quality academic development of the learners,” which refers to what an organisation does to ensure academic compliance in education. Learners who are deaf-blind, cannot hear, talk and see. Such learners are viewed as customers in education and ISO focuses on customer satisfaction and efficiency in education (UNCRPD, 2006).

Background and review of related literature

The education of learners with deaf-blindness is believed to have started in the 19th century when the first home for the deaf-blind was established in Europe. It has since spread to African countries with the aim of observing their educational rights.(National Consortium on Deaf-blindness in the United States of America, 2008). The United Nations` Universal Declaration of Human Rights (United Nations, 1948) and International Conventions on Human Rights(United Nations,1983) offered an opportunity for educational movements to primarily focus on learners who were deaf-blind. In 1990 the International Community in Jomtien,

Thailand, made a historic commitment on Education For All (EFA). In April 2000, at The World Education Forum in Dakar, Senegal, and in 2006 at the United Nations Conference, in New York (The United Nations International Children`s Emergency Fund (UNICEF, 2006), the world made a commitment that all children, young people and adults had the human right to benefit from an education that would meet their basic learning needs in the fullest sense (UNCRPD, 2006, Article 24; 2a and b). The article propounds how the United Nations Educational, Scientific and Cultural Organization (UNESCO), through the International Conference of Education (ICE), (Geneva, 2008; UNESCO, 2005) backed the Basic Education in Africa Programme (BEAP) through its key concepts and activities that have helped in the improvement of the education of learners who are deaf-blind in Africa.

The United Kingdom took major strides to safeguard the dictates of the UNCRPD Article 24. It became a crime not to send a child to school on account of deaf-blindness (Gwitima, 2008). In the United States of America, Public Law (PL) (94-142), that was passed in 1975, was a landmark piece of legislation that changed the perceptions of primary school teachers towards learners who are deaf-blind in inclusive education. A concern was, however, noted where communicating meaningfully with learners with deaf-blindness was seen as one of the most significant challenges facing teachers of such learners (National Consortium on Deaf-blindness in the United States of America (NCDBUSA), 2018). The school system in the United States of America and the United Kingdom encourages teachers of inclusive primary schools to adopt tactile sign communication so as to accommodate learners with deaf-blindness (Hart, 2006; Johnson, 2013). Their training incorporates disability awareness and the use of appropriate augmentative and alternative modes, means and formats of communicating, and materials to support primary school learners who are deaf-blind.

In the United States of America and France, specialised tactile sign communication services are provided to cater for all ages of persons who are deaf-blind (IDEA, 2004). Teachers in American and British schools use the Tele Braille displays to communicate with learners who are deaf-blind. The system provides the type back for the sighted persons to read the texts on the digital screen displays (Deaf-blind Children, 2018; Rowland, 2010). Biesecke (2015) found that in Quebec City, the training of teachers in tactile sign communication was a very big challenge. In contrast, the United States Individuals with Disabilities Education Act (IDEA) promulgated a statutory preference for the education of people with deaf-blindness in the least restrictive environment (National Federation of the Blind-NFB 2020; World Federation for the Deaf-blind (WFDB), 2018). The legal test, known as the bright-line test, clarifies the types of communication services required in tactile signing.

In Denmark, the standardised tactile body sign language and key word signing techniques have been developed, adopted and encouraged in most schools (Bunning, 2019). Teachers receive training in tactile sign language in order to be able to communicate with learners who are deaf-blind. The standardised tactile sign communication systems immensely support interactions and conversations (Dammeyer, Nielsen, Strom, Hendar & Eiriksdouttir, 2015; NFB, 2020). The use of selected standardised tactile sign communication modes is preferred to meet the communication needs of deaf-blind learners.

In sub-Saharan African countries, the education of learners with deaf-blindness started in the early 1950s in South Africa (NFB, 2020). In Burkina Faso, Cameroon, Côte d'Ivoire, Madagascar and Senegal, there is academic development of students with deaf-blindness (UNESCO, 2008; UN, 2020). These countries followed the motto of the United Nations' Convention on the Rights of Persons with Disabilities (2006) that: "Nothing about us, without

us all.” However, primary school teachers in most sub-Saharan Africa, Zimbabwe included, lack knowledge on new approaches to tactile sign language (Deaf-blind Association, 2008). A research by Cote and Clouteir (2015) shows that in Uganda, primary school learners who have deaf-blindness and are in inclusive schools lack techniques such as finger spelling, hand-over/under-hand guidance or adapted tactile sign communication. In Zimbabwe, according to the Special Rapporteur on the Rights of Persons with Disabilities (SRRPD) (2020), learners who are deaf-blind encounter communication barriers in accessing education. Policy making and legislation in Zimbabwe have failed to bring about fundamental changes in structures and practices (NFB, 2020; UN, 2020; WFDB, 2018; NBCS, 2015). Zimbabwe has failed to make it illegal to deny deaf-blind learners access to inclusive education on the reason of failing to communicate in tactile sign language.

The effects of deaf-blindness on the learner`s communication

According to the International Development Education Agency (IDEA) (2004), deaf-blindness has an equally serious influence on the quality of life of persons with it, both in academic and social activities. Deaf-blindness causes extreme difficulty in attaining independence in education, daily life activities and in achieving psychosocial adjustment (Raanes, 2006; Miranda, 2016; Larsen, 2013; Mesch, 2013). Keyton (2011) defines tactile sign communication as a process of transmitting information and common understanding from one person to another. Tactile sign communication has different versions depending on the regions (Watters, Owen & Muroe, 2005; Buelund, 2013; Bunning, 2019). These include British tactile sign language, American tactile sign language and many others (Hart, 2006). Locally, in Zimbabwe there is lack of standardisation of tactile sign communication as the versions can be interchanged which can complicate tactile communication (Mahanya & Chabaya, 2016).

Zimbabwean learners who are deaf-blind are systematically disadvantaged although they are educationally enrolled in institutions that cater for their disability (Mavundukure, 2005). According to Bohram (2007) teachers and other stakeholders find the use of tactile sign language as a complicated process, hence the need to have standardised tactile signs.

Variations in tactile sign communication provide a lot of challenges to regular class teachers (Hart, 2006). Tactile sign language has become the most difficult modern standard of institutional instruction mode for those with deaf-blindness (IDEA, 2004). A learner who is deaf-blind has no option in terms of socialisation except through meaningful body contact (Hooper, 2010). Several researches by Mirenda (2016), Mahanya (2019), UN (2020) and WFDB (2018) show that teachers are not comfortable in using tactile signs such as tracking, tactile finger-spelling, print on palm, Tadoma, Braille, lip reading and speech. Merrian, Caffarella, and Baumgartner (2007) note that tactile sign misinterpretations put the learners who are deaf-blind in possible danger of poor language and skills acquisition. Hence, necessary precautions need be taken so as not to expose them to improper tactile signs that are not standardized and relevant in effective communication.

Teachers` experiences in using tactile sign language

Learners who are deaf-blind`s right to communication needs to be given preferential treatment and followed with adequate time to respond (Florian, 2010). Mahanya and Chabaya (2016) note that mainstream teachers feel unprepared and unequipped to teach learners with deaf-blindness while Rule and Ruth (2012) argue that most educators are still confused on tactile sign language. This shows that although tactile sign communication is an instructional way of imparting knowledge and skills to learners who are deaf-blind most teachers are not conversant with it. Legally, the Zimbabwe competence-based curriculum framework, 2015-2022

advocates for the policy on inclusive education to consider the presence of learners with deaf-blindness (Mahanya, 2016). In Zimbabwe, the essence of teacher capacity development programs, professional standards, infrastructure development and centres for educational research, innovation and development are all educational milestones that spell good will to primary school learners who are deaf-blind and enrolled in regular classes. However, such provisions seem to be a pipe dream given the time needed to accomplish such programs in a developing economy.

In order to effectively communicate with learners who are deaf-blind, teachers need to partner with other specialist service providers who may be available (Hart, 2006). Where the team members are not available, it means the teacher should possess skills of braille, sign language, tactile signing, tactile sign intervening, tactile orientation and mobility (NBF, 2020; NFBD, 2018). The teacher-learner ratios remain a challenge in Zimbabwe (Mahanya, 2018). This makes it very difficult for the teacher to do tactile signing as it requires individual attention. Besides high teacher-learner ratio, teachers also fear transmission of contagious infections (Mavundukure, 2010; NFB, 2020) hence, both the teacher and learner risk skin contaminable diseases such as measles and COVID-19. Furthermore, language barriers are not easily cracked through (Mesch, 2013), for example, a Tonga speaker interpreting tactilely to a Shona speaker. More so, in tactile sign communication like letter blocking, both the teacher and learner may have painful experiences (Larsen, 2013). Despite all the challenges, tactile signing communication is the only major communication link between the teacher and learners with deaf-blindness in education. In the modern 21st century learning, universal instruction has no place for a learner who is deaf-blind who needs tactile sign communication.

Statement of the problem

Research carried out by Mirenda (2016) in inclusive and regular schools shows that inclusive regular class teachers are not well-versed with the educational needs of learners with deaf-blindness. Most teachers are not knowledgeable in tactile sign language for communication with learners who are deaf-blind (Bodsworth, 2011; Mesch, 2013; Mahanya, 2019). Although the implementation of competence-based curriculum, 2015-2022 in Zimbabwe includes learners who are deaf-blind, such arrangements do not benefit them as most teachers find tactile sign communication very difficult to implement. It was, therefore, appropriate to find out teachers' perceptions on the use of tactile signs to interact with learners who are deaf-blind enrolled in their regular primary school classes.

Research questions

The study was guided by the following research questions:

- How do teachers communicate with learners who are deaf-blind enrolled in regular classes?
- What knowledge do teachers who teach learners with deaf-blindness possess?
- How can teachers' tactile sign communication with learners who are deaf-blind be enhanced?

Theoretical framework

The inspiration on tactile sign communication of individuals who are deaf-blind was drawn from Chute (1987) who adapted Shannon's (1948) mathematical social interaction theory to the information communication theory. Tactile sign communication as a process through which an individual's thinking is understood, is derived from the information communication theory (Markova, 2008). Thus, individuals who adopt the information communication theory view tactile sign communication as any activity of transmitting meaningful messages to

persons who are deaf-blind. Messages can be conveyed through signals that may be written, spoken or signed (Alhassan, 2012). The information communication theory provides an arena for persons who are deaf-blind to be able to use tactile signs to feed-forward and feedback. This implies that tactile signed messages can be conveyed with a definite meaning and can be followed by a tactile response or action after its reception by individuals who are deaf-blind.

According to Markova (2008) the information theory of communication implies a form of dialoguing which is characterised by human beings' ability to recognise and understand tactile signs in interaction. This theory of communication states that dialoguing is a theoretical understanding of tactile sign knowledge with regards to the tactile method used for its validity and scope in human interaction (Alhassan, 2012). The concept of tactile sign communication between teachers and learners with deaf-blindness is concerned with a specialised tactile signs in interaction. However, tactile signing modalities may be too difficult to perceive and express, and too slow to be processed efficiently in the working memories of learners who are deaf-blind. Therefore, it may be a difficult functional modality for language acquisition.

Information theory places a high premium on well-organised and orderly ways of conveying a message (Markova, 2008). The implication is that the theory seems to resonate well with the tactile sign communication process of teaching and learning, which is regarded as communicating using tactile sign language, where the sender or the receiver needs to tactilely feed-forward in order to have tactile feedback. The meaning revealed by the information theory is that tactile signing feed-forward and back should be centred on clear and concise tactile signs that can stimulate and inform both the teacher, who is regarded as the receiver of message in feed-forward and the learner with deaf-blindness as the sender or vice versa. The tactile sign

feed-forward and back, in information theory of communication, is oftentimes centred on the provision of correct and well-elaborated tactilely signed content for skills acquisition, fluency building, maintenance and generalisation in such interactions. The information theory provides a panacea for the teachers to build tactile signing blocks for later symbolic language development by deaf-blind learners. The teacher can sustain and expand the tactile sign interaction by responding tactilely to the learner's standardised tactile expression of tempo, rhythm, intensity and emotions with available tactile modalities (Hart, 2006, Bruce, Trief, Cascella, 2011). Learners who are deaf-blind have few clues about what is available beyond the reach of hands (Mesch, 2013); therefore, their communication depends upon the good will of the teachers around. In this regard, the researcher adopted the information theory of communication which focuses on learners who are deaf-blind as members of a linguistic minority group.

Methodology

The study was rooted in the interpretive paradigm and employed the qualitative research approach. A qualitative research is viewed as a collection of "all of which rely on verbal, visual, auditory and olfactory data" (Patton, 2014:16). The researcher employed the qualitative research approach as it offered familiar techniques of handling verbal materials to make situations come alive. The qualitative research approach also facilitated a deeper understanding of teachers' perceptions towards teaching learners who were deaf-blind using tactile sign language. A case study design was used and the population of the study were all teachers from two schools in Masvingo that enrolled deaf-blind learners in their classes and used tactile sign language to communicate and give information on their lived experiences.

Purposive sampling was employed to come up with the actual ten teachers who taught learners with deaf-blindness from the school that enrolled learners with deaf-blindness. This allowed the researcher to generate rich data from them until data saturation. According to Litchman (2010) a sample is a limited subset of the entire population, and the lesser the number of participants the easier it becomes to manage (Silverman, 2009; Guba & Lincoln, 2019). The researcher was the major data-generating instrument as he recorded general observations and non-verbal participants' characteristics to augment the semi-structured interviews and questionnaire which were used to generate data about teachers' attitudes, perceptions, experiences and beliefs related to the topic of interest (Galleta, 2013). Generation and analysis of qualitative data occurred simultaneously as advocated for by Creswell (2009). Ten teachers willingly consented to participate as key informants in the study. In order to circumvent the distortion of information by the participants, audio recording was done during face-to-face interviews and the researcher later analysed the transcripts as a follow-up to the semi-structured discussions and questionnaire data as advocated by Braun and Clarke (2006) and Creswell (2014). Following Barlow and Hersen (2010) the researcher personally translated, analysed, and interpreted data into categorised themes. The researcher sought ethical clearance from the Ministry of Primary and Secondary Education (MoPSE) adhering to considerations such as voluntary participation, benevolence and confidentiality of data.

Findings and Discussion

In order to make generated data meaningful, data were presented and analysed in thematic areas derived from the research questions. For easy categorisation of the data, the researcher used name codes (T1-T10) in the vignettes.

Teachers' communication with deaf-blind learners enrolled in regular classes

The findings showed that teachers felt that they were not being supported in their attempt to communicate with deaf-blind learners. Some of the concerned teachers felt unprepared to effectively communicate with such learners. The following sentiments shed light on teachers' experiences

T3: It is really difficult to tactilely communicate with these learners on academic content, they cannot even understand vowels.

T5: I tried to use this sign language manual, but translating sign language into tactile signs is difficult. I tried to tactilely sign the word, 'Rain', but up to today the child does not attach any meaning to that.

T6: I am not experienced in tactile communication, I just found myself being given this class and I use my own designed codes which other teachers may not conform to.

The above sentiments show that the teachers found it difficult to use effective tactile sign communication with learners who are deaf-blind. Some of the teachers said that they avoided even communicating and assisting learners who are deaf-blind as the teachers are not well versed with tactile signing. Since most teachers find it difficult to tactilely communicate with learners who are deaf-blind, they just provide learners with concrete objects which the learners would be asked to explore. By so doing the teachers take pride in using concrete objects to scaffold instructions. The above discussion corresponds with what is happening in Nigeria and South Africa where there is a shortage of qualified personnel to teach tactile sign communication, the few of whom sometimes develop negative attitudes towards learners who are deaf-blind (Collins, 2014 ; Chapman, 2015). According to Dammeyer et al. (2015) teachers who teach learners who are deaf-blind need to develop a number of important tactile sign communication competencies in order to be able to teach such learners to effectively acquire

tactile signing proficiencies early. The comments show that they use own designed, unstandardised and undocumented haptic communication signals as an extra-linguistic communication approach to support communication with learners who are deaf-blind.

Most participants noted that teaching and learning of learners who are deaf-blind is a systematic process which can be effected by levels of self-esteem for tactile sign communication. It was, however, discovered that the majority of the teachers who teach learners with deaf-blindness are generalist and are expected to teach what they do not know and oftentimes do not teach with love. A majority of the participants cited that the current competence based curriculum is silent on tactile sign communication and the diverse communication needs of learners who are deaf-blind, which negatively impacted on their communication. The following statements were uttered:

T9: Unfortunately, the present curriculum was for the sake of changing the syllabus, there is nothing in it about tactile sign communication and the learners who are deaf-blind. It is up to the teacher to develop own tactile signs and to adopt them so as to improve the learning and understanding of the concepts by these learners.

Another teacher had this to say:

T5: There is no time specifically allocated to teach tactile sign communication as a language for them to be able to socialise and communicate with learners who are not deaf-blind.

The message conveyed by the sentiments is that learners who are not deaf-blind are not even taught tactile communication, which implies that those other learners who are not able to do tactile signing, would not want to communicate and assist learners who are deaf-blind, which

creates confusion to the cognitive levels and abilities of the learners who are deaf-blind. According to Mahanya (2019) the teaching of students with blindness requires skills and understanding of visual disabilities. A majority of the participants raised issues to do with limited teacher-teacher partnership and involvement in tactile sign communication. One of them said:

T2: Other teachers who teach learners who are not deaf-blind just don't even want to discuss issues about tactile communication modalities.

T6: One teacher was angry at why I selected her to help in assisting learners who are deaf-blind as she didn't train in special needs education.

The sentiments show that teachers experience challenges in tactile sign communication, therefore, they are unable to effectively communicate tactilely. Teachers were also disturbed by the large class size which the majority of the participants considered large enough for a specialist teacher. They had the following comments:

T8: In a class where there are more than two learners who are deaf-blind, it is very difficult for me as a teacher to pay particular attention to every learner, especially in tactile sign communication.

T6: There should be one on one type of teaching and learning.

It was noted that classes for learners who are deaf-blind had more than two learners and it was a challenge for the teacher to tactilely sign to all the learners. A study by the Virginia Department of Education (2012) in the United States found that one-on-one teaching of learners who are deaf-blind yielded better results in tactile sign skills acquisition and performance. Most of the participants said that they focused much on vocational literacy since

the implicit curriculum was not being implemented to learners who are deaf-blind. One of the administrators said:

T10: I supervise my teachers twice per term to see the academic progress of all the learners regardless of the disability to improve the pass rate, but I found it difficult on learners who are deaf-blind.

T3: I never communicated with my school head and don't know him.

The above statements give testimony to the fact that teachers lack understanding of what needs to be done in tactile communication.

Knowledge possessed by teachers who teach learners with deaf-blindness

It emerged that most of the teachers who teach learners with deaf-blindness are not specialist teachers in special needs education. The following sentiments shed light:

T5: 'I did not train in special needs education. I just use my teaching experience on learners with deaf-blindness.'

T7: I have vast experience in visual impairment, but did not go for tactile sign training.

The above sentiments are a clear testimony that teachers who teach learners who are deaf-blind are not trained in visual disabilities, hence, profound deficit on tactile sign communication. Understanding of deaf-blindness can lead to proper ways of teaching such learners. Teachers' conviction on specialist knowledge as well as their instructional planning processes for deaf-blind learners has an impact on higher order tactile signing skills and performance in tactile communication.

Strategies to enhance teachers' tactile sign communication with learners who are deaf-blind

Most participants said that they needed concrete teaching and learning materials to aid their communication with learners. They revealed this thus:

T4: *We need tangible audio visual aids for learners with residual hearing and blindness.*

T9: *I teach learners using tangible aids to communicate with learners who are deaf-blind.*

The sentiments imply that teachers need tangible and real teaching and learning aids to enhance their tactile sign communication with learners who are deaf-blind. This shows that the principle of concretising teaching and learning resources influence and encourage effective tactile communication more than the traditional tactile signing techniques such as the print on palm. Teachers who teach learners who are deaf-blind need ICT devices to deliver tactile signing skills well. Furthermore, Watters, Owen and Munroe (2005) note that in other Western countries like Canada, the governments mandate that every deaf-blind learner should receive modern relevant assistive devices for tactile sign communication. Besides the supply of assistive devices and technology, the majority of the participants had this to say:

T8: *Our school environment should have mobility rails for learners who are deaf-blind so that they can independently move and socialise with others.*

The responses spell out the need for specially designed ICT devices and rooms for effective tactile sign communication with learners who are deaf-blind. The importance of specifically designed ICT gadgets is highlighted by teachers who expressed that they need assistive technology and a well-resourced learning environment for learners who are deaf-blind for effective tactile sign communication. The prevailing problem in the schools that cater for deaf-

blind learners in Zimbabwe is lack of funding that is directly linked to poor resources. Most African countries have provided relatively little funding for ICT resources to adequately support learners with disabilities (Ewing, 2010). It has been found out that lack of funding has created unique tactile sign communication challenges to learners who are deaf-blind as they depend upon touch to learn and understand what is going on around them. Although Zimbabwe is a signatory to UNCRPD (2006) and has commissioned statutory acts to provide assistive technology assistance to persons with disabilities, it has been found that the current practices show lack of commitment in the provision of Contemporary Assistive Tactile Communication Technology (CATCT). In order to successfully achieve inclusive and equitable quality education and lifelong learning for all, learners who are deaf-blind must be included in all plans to manage their tactile sign language communication needs.

Conclusion

Research outcomes suggest that teachers find themselves in a quandary as to how to effectively teach tactile sign communication. They feel unprepared to effectively communicate with learners who are deaf-blind as they feel authorities are not supporting them through availing tangible resources to support their tactile communication skills. It was also perceived that some teachers avoid communicating and assisting learners who are deaf-blind as such teachers are not well-versed with tactile signing mechanics. However, effective tactile sign communication can be achieved if the Zimbabwe government and other non-governmental organisations prioritise and provide training opportunities to regular school teachers.

The findings show that learners who are deaf-blind are just trained in vocational activities, where their teachers take advantage of concrete objects to scaffold instruction, hence, the use of symbolic and non-symbolic objects. The findings also disclose that teachers and

administrators who lack knowledge and skills of tactile sign communication do not value and support the communication of learners who are deaf-blind. The researcher concluded that teachers use non-documented haptic communication signals as an extra-linguistic communication approach to support learners with deaf-blindness. It was established that the current curriculum was silent on tactile signing and the sundry communication needs of learners who are deaf-blind. Subsequently, such learners are not being taught standard tactile communication signs. The researcher concluded that teacher-teacher partnership and involvement in tactile sign communication of learners who are deaf-blind was limited and affected learners with deaf-blindness' motivation, performance and ability to connect and continue with the learnt tactile sign skills.

It was also concluded that the prevailing poor assistive devices and information communication technology (ICT) for tactile sign communication for deaf-blind learners in Zimbabwean schools was directly linked to lack of funding and posed a great challenge for teaching using tactile sign communication.

Recommendations

In light of the findings and conclusions, it is recommended that there be training, in-servicing, and employment of qualified personnel to solve tactile sign communication problems encountered by teachers of learners who are deaf-blind. The curriculum should also be updated to uphold dictates of standardised tactile sign mode of communication. Tactile sign communication should be considered and regarded as a language in its right. The MoPSE could launch a standardised tactile sign language dictionary, train more tactile sign language specialists and employ visual impairment specialist teachers.

References

- AL Hassan, A. M. (2012). Effective teaching practices and educators attitudes and knowledge towards special needs minorities in regular classrooms. *European Journal of Business and Social Sciences*, 1(6), 86-106.
- Ask Larsen, F. (2013). Acquisition of a bodily-tactile language as first language. Aalborg: Material Centre. (pp. 91-119).
- Biesecke, K. (2005). *100 years of support for individuals who have deaf-blindness in Potsdam, Germany*. DB I Review, July – December, p. 30 – 31.
- Bodsworth, S. M. (2011). Deaf-blindness and mental health: Psychological distress and unmet needs among adults with dual sensory impairment. *British Journal of Visual Impairment*, 1(2), 34-57.
- Barlow, D. H. and Hersen, M. (2010). Single case experimental designs. Strategies for studying behaviour change. New York: Pergamen Press.
- Bruce, S. (2007). *Teacher preparation for the education of students who are deaf-blind: A retrospective and prospective view. Deaf-blind perspectives*. Monmouth: National Consortium on Deaf-Blindness.
- Buelund Selling, H. (2013). *Tactile communication is more than visual sign-language hand-over-hand*. Aalborg: Material Center.
- Bunning, K. (2009). *Making sense of communication. Profound multiple intellectual disabilities: Nursing complex needs*. London: Blackwell.
- Council for Exceptional Children. (2008). *What every special educator must know: Ethics, standards, and guidelines (6th Ed)*. Arlington, VA: UNESCO.
- Creswell, J.W. (2014) *Research design: Qualitative, quantitative, and mixed methods approaches*. London: Sage.
- Dammeyer, J., Nielsen, A., Strom, E., Hendar, O. and Eiriksdouttir, V. K. (2015). A case study of tactile language and its possible structure: A tentative outline to study tactile language systems among children with congenital deaf-blindness. *Journal of Intellectual and Developmental Disabilities*, 51(3): 154-163.
- Denzin, N.K. and Lincoln, Y.S. (2005). *The Sage handbook of qualitative research*. Thousand Oaks: CA Sage.
- Guba, E.G. and Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin and Y.S. Lincoln (Eds). *Handbook of qualitative research*. Thousand Oaks: Sage.

Gall, W. R. (2003). *Educational research - An introduction*: New York: Longman Publishers.

Galleta, S. (2013). Reflecting on the methodological aspects of a critical ethnographic approach used to inform change for adolescents with disabilities. *The Qualitative Report*, 16 (2), 523-562.

Hart, P. (2006). Using imitation for congenitally deaf-blind adults: Establishing communication partnerships. *Infant and Child development*, 3 (15), 263 – 274.

Litchman, M. (2010). *Qualitative research in education. A user's guide*. Thousand Oaks: C.A Sage.

Jansen, M. J. (2010). *Enhancing the quality of interaction between deaf-blind children and their educators*. New York: Pergamen Press.

Nafstad, A. V. and Rodbroe, I. B. (2015). *Communicative elations: Interventions that create communication with persons with congenital deaf-blindness*. Aalborg: Material Centre.

Mahanya, P. (2019). Assessing inclusive education pedagogies for students with visual impairment in Zimbabwean universities: Challenges encountered in implementation. *Journal of New Vision in Educational Research*, 1 (1), 115-132.

Mahanya, P. (2016). *An assessment of the impact of inclusive education on students with visual impairment in Zimbabwe*. Thesis Submitted to Zimbabwe Open University. Harare: Zimbabwe Open University.

Mahanya, P. and Chabaya, O. (2016). Unmet academic needs: A dilemma of students with visual impairment in inclusive education in Masvingo District of Zimbabwe. *International Teacher Development Journal*, 3(1), 68-80.

Mavundukure, G., and Themhani, N. (2010). *Comparative issues in special needs education*. Harare: Zimbabwe Open University.

Mesch, J. (2013). Tactile signing with one-handed perception. *Sign Language Studies Journal*, 13(2): 238-263.

Miles, B, and Riggio, M. (2000). *Remarkable conversations. A guide to developing meaningful conversations with children and young adults who are deaf-blind*. Watertown, MA: Perkins School for the Blind.

Mirenda, P. (2016) Post-school quality of life for individuals with developmental disabilities who use AAC. *Augmentative and Alternative Communication*, 22 (2), 134-147.

National Consortium on Deaf-Blindness. (2009). *The 2008 national child count of children and youth who are deaf-blind*. Monmouth, OR: National Consortium on Blindness.

National Federation of the Blind COVID-19, (2020) *Disability considerations during the COVID-19 outbreak*. UK: NFD.

Patton, M. (2014). *Qualitative research and evaluation methods: Integrative theory and practice*. UK: SAGE publications

Parker, A. T. (2010). Orientation and mobility research for persons who are deaf-blind; A review of single subject studies. *Journal of Visual Impairment Blindness*, 103(6), 3272-377.

Pottar, L. (2005). *Essential competencies for teaching children with disabilities*. Pretoria: Sage.

Plato, R.C. and Kaufman, S.R. (2008). *Problems with self-regulation*. London: Blackwell.

Rule, P. and Ruth, T.M. (2012). *We must believe in ourselves: Attitudes and experiences of learners with disabilities in Kwazulu*. Pretoria: Sage.

Shannon, C. (1948). *Mathematical theory of communication*. London: Bells Labs.

Silverman, D. (2009). *Doing qualitative research*. California: SAGE Publications.

United Nations (2006). *The convention on the rights of persons with disabilities*. Paris: United Nations.

UNESCO (2020). *Website on COVID-19 response*. Hong Kong: Disability Inclusive Response.

UNPRPD (2020) *Disability inclusive social protection response to Covid-19 crisis*. EU: World Institute on Disability. Available at <https://www.ilo.org.social-protection>. [online] (Accessed: 25 July 2020).

MoPSE (2015). *The Curriculum Framework for Primary and Secondary Education (2015-2022) Enhancing quality education through the Curriculum*. Harare: CDU.

Watters, C., Owen, M. and Muroe, S. (2005). *A study of deaf-blind demographics and services in Canada*. Toronto: Canadian National Society of the Deaf Blind.

World Federation of Deaf-blind (2018). *Report on the Situation and Rights of Persons with Deaf-blindness*. Norway: IDA.