International Journal of Learning, Teaching and Educational Research
Vol. 15, No. 1, pp. 30-41, January 2016

Inclusive Education and Challenges of Providing Classroom Support to Students with Blindness in a General Education Classroom at a School in Botswana

Joseph Habulezi
University of Botswana,
Gaborone, Botswana

Odiretsemang Molao
Central Regional Education Office,
Serowe, Botswana

Sandy Mphuting
Kgalagadi Regional Education Office,
Kang, Botswana

Kebotlositswe Mark Kebotlositswe
Molefi Senior Secondary School,
Mochudi, Botswana

Abstract. The research investigated classroom support provision and the challenges of providing support to students who are blind in a general education classroom at an inclusive secondary school in Botswana. Interviews, observation and questionnaires were used to collect the data. The challenges of providing classroom assistance to students who are blind in general education Biology classrooms are as diverse as the students themselves. The teaching methods some teachers use do not cater for all the students in an inclusive classroom. The main factors leading to this include lack of adequate preparation and shortage of both human and material resources. The class enrolments pose a challenge because the classrooms are over enrolled. The study recommends that special education Biology teachers be increased at the school and more learning support workers equally be hired. Teacher capacity building should also be considered as well as the acquisition of more access technology.
Keywords: Classroom support; blindness; Botswana; challenges.

1. Introduction

Botswana has committed itself to achieving full inclusion in education to both maximise the potential of its people for the future development of the country and to fully comply with the international requirements for human and educational rights. This is because the country views education, (Christie, 2010,

UNESCO, 1994, 2001, 2008, 2009), a basic human right. In its positive efforts to fulfil its commitment, the government of Botswana through the Ministry of Education and Skills Development formulated a guiding mission statement; to provide efficient, quality, and relevant education and training that is accessible to all. Consequently, in 2011, an inclusive education policy was launched and implemented.

The implementation of inclusive education, though, has faced some challenges. Despite all the efforts to cater for all students equitably, students with blindness at a senior secondary school in Kgatleng District in Botswana are academically performing poorly. This study, therefore, investigated the challenges of providing classroom support to students with blindness in a Biology class. The research aimed at establishing the underlying challenges of providing assistance to students with blindness in a general education Biology classroom at a secondary school in Kgatleng District in Botswana. Basing on the findings, the study suggested solutions to overcoming the challenges.

Overleaf is a table showing an extract of the performance of the students in reference in their final form five results from the school. For ethical reasons, the names of students have been replaced with letters. Botswana uses the points system in which a distinction, 'A' is 8 points, 'B' is 7 points, 'C' is 6 points, 'D' is 5 points, 'E' is 4 points while 'F', 'G' and 'U' attract no points.

Table 1.1 Performance of students with visual impairment in the 2014 BGCSE examinations

Student name	English language	Setswana	Mathematics	Science Double Award	Chemistry	Physics	Biology	History	Geography	Social Studies	Literature in English	Religious Education	Art	Commerce	Points attained
A	E	C	C	DD					D	B			C	C	36
B	D	C	C		D	D	E	D		B		C			35
C	C	D	F	DD						C	E				31
D	D	D	D	DD				C	D		E			E	31
E	G	C	E	EE					D				B		30
F	C	E	E	FF					E	D				D	28
G	E	C	F	GG					E	E			C	F	24
H	G	D	G	GG					E	D			C	E	24
I	E	D	U	GG						D		D		D	24
J	E	D	U	GG				C		F		C		F	21
K	E	D	G	UU						E		E		E	17
L	E	D	U	UU					U	G			B		16
M	G	E	U	UU					U	U			C	G	10
N	F	F	U	UU						G		F		G	0
O	F	F	U	UU						U		F		U	0

BGCSE-Botswana general certificate of secondary education
Source: Special Education Department, 2015

The trend of the results above prompted this research to find out the challenges of providing classroom support to students with blindness in a general education Biology class at a school in Botswana. Providing support to students who are blind remains a challenge in general education classrooms and these challenges vary as some lie with the teachers, while others lie with the students. Students who are visually impaired have unique learning needs that must be addressed in order for these students to become independent and productive citizens of the society. It is against this back drop that today the family and educational institutions face a significant challenge in providing services that will enhance the positive academic outcomes for such students. One cannot over emphasis the fact

that making appropriate decisions about students who are blind requires clear understanding of their unique learning needs and interventions.

2. Classroom support

Classroom support mainly provides assistance to teachers during classroom activities. Sharma et al (2010) emphasise that when students who are blind are included in the classroom, it allows the mainstream teacher receive the much needed assistance in the teaching of the needy students. Support basically refers to resources and strategies that promote a student's development, education, interests and personal well-being in the classroom (Mphande, 2011). The support offered needs to align with the teaching and learning methods the mainstream class teacher uses for all the students to benefit academically (Abbott, 2014).

This environment should start with the attitude of school administrators towards the inclusion of the students who are blind. The administrator's attitude influences the attitude of others, therefore creating acceptance or rejection. The administrators should not only establish a school based support team and encourage collaboration but also be active members of the team. Other members of the team like learning support workers must be made available to increase support in the classroom. In addition, classroom support can be provided by specialist teachers who would support general education teachers during lessons or they can co-teach. Travers et al (2014) warn that the organisation and management of additional support for students require on-going monitoring and review to evaluate its effectiveness. The support provided by learning support workers should be importantly aiding the development of independence in the students.

In the classrooms, the students who are blind should be availed opportunities to learn like any other student. Firstly, the trained special education teacher should assist students in the development of the sense of touch and use of other senses in order to respond positively to situations. Williams (2015) and Fraser (2015) recommend that the students who are blind should not be treated as passive observers any more but must be involved actively in all the lessons. Greater concept realisation and increased interest for students can only be realised if the students are valued and given opportunities like all other students.

Piljl and Van den Bos (2001) advise that teachers should talk while they teach and verbalise notes as they write legibly on the board. Delors (1996), Witburn (2014) and William (2015) add that the use of verbal commentary, use of hands on experience, sensitive questioning, explanations and descriptions can bring alive the abstract material of some subject areas. In addition, students with blindness should be strategically positioned to maximise their potential visually or auditory. Students who are blind cannot fully access the curriculum if modifications and adaptations are not considered. It is therefore important to consider the abilities of students in any given subject and content. Nasib (2005) asserts that changes to the syllabi, content or period of a course can be changed to cater for students' impairment in line with their abilities. Access technology simplifies and aids in most of the operations of supporting the students' learning in inclusive education.

3. The study

The study investigated current classroom support given to students who are blind during Biology lessons at an identified school in Kgatleng District in Botswana. The purpose was also to investigate existing challenges that interfere with supporting the successful learning of students with blindness and academic achievement of the students in Biology. The questions that guided the study include:

1. What classroom support is currently offered to students who are blind in a general education classroom at the school?
2. What are the student–related challenges that interfere with classroom support that is provided to students with blindness in a general education classroom at the school?
3. What are the teacher-related challenges that interfere with classroom support that is provided to students with blindness in a general education classroom at the school?

4. Population and sample

Students from six Form 5 classes which had students who are blind and the teachers who taught those classes were the target population. A purposefully selected sample of informants who were deemed knowledgeable about the subject included a Biology specialist teacher for students who are blind, a Biology general classroom teacher, 7 students with blindness and 8 sighted learners. Volunteer sampling, though, was used on the sighted learners after the research purpose was explained to the classes.

Table 1.2 Classification of interviewees

Participants	No. of Participants	Females	Males
Biology specialist teacher	1	1	0
Students who are blind	7	2	5
Biology general classroom teacher	1	1	0
Sighted learners	8	5	3
Total	17	9	8

5. Methods

The study used a mixed methods approach to collect data. This included one-to-one and focus group interviews, lesson observations and questionnaires. More than one methods of data collection were used because they can show the result and explain why it was obtained. Additionally, it places credibility and dependability of the findings of the study (McMillan and Schumacher, 2014). The lesson observations were done in two days in the two classrooms that had students with blindness to understand the assistance students were accorded during lessons. Two observations were done; each session lasted 40 minutes. This was guided by a 10 point observation check list that was administered

during lessons. The observations were done by the Senior Teacher Biology who was also a member of the research team. The lessons were video recorded with participants' permission.

The interview was also used to collect data. 17 participants were used as shown in table 1.2 above. The gender break down and statuses of participants are provided in the table above. The participants' age in years ranged from 16 to 40. Arrangements for the interviews were made following the ethical procedures and understanding of the research purpose. The interviews were video recorded with participants' permission. In addition, self-administered questionnaires were used on students with blindness. The questions were formulated, brailled and hand delivered to students. The responses were then transcribed from braille to ink print.

6. Ethical considerations

The Regional Education office, which sponsored the research during the Inclusive Education Action Research, assisted the researchers in obtaining permission and consent from the relevant personnel.

7. Results

The findings from the data collected show that the trained and qualified general education Biology teacher used diagrams which were not embossed. The observations also showed that the diagrams used by the general biology teacher were not bold enough (visible). They were also crowded with labels. The inappropriate use of the diagrams in this case became a disadvantage to the students with low vision since they could neither see nor read the information clearly. The teacher confessed that sometimes she would only remember about the students who are blind when she entered the class to teach. This presented a big challenge for students who are blind since they could not see the materials. The sighted students assisted by describing the diagrams to the students who are blind. Lesson notes were most often made available in the form of hand-outs in ordinary print and in large print, thus only useful to the sighted students together with those with low vision. During the lesson, the general education Biology classroom teacher wrote small letters on the chalk board, drew illustrative diagrams which she did not let students with blindness know about.

On the other hand, the Biology specialist teacher for students who are blind was descriptive in her teaching. Whilst teaching, she would pause to allow students ask questions or walk to students who are blind to reinforce. She wrote bigger letters on the chalk board and also spelled and read out some of the key words as the lesson was in progress so that students with blindness could benefit. Interview results indicated that some effort is made to support all students. The special education Biology teacher had prepared some files with brailled hand outs and embossed diagrams. These learning materials were made available to the students with blindness during the lesson. There were no prescribed recorded or brailled Biology text books found during the research in the library or special education department.

The students who are blind were very concerned with the absence of prescribed text books in Biology. They pointed out that the diagrams and lesson hand outs are mostly derived from text books. The students with blindness could not use the available text books for the purpose of research, homework or preparation for examination. The research findings indicated that there is an acute shortage of human resources in the special education unit. The respondents mentioned the need to provide more special education Biology teachers and learning support workers.

During the observations, no learning support workers were found in any of the classes. At the time of this research, there was only one learning support worker against 21 students with blindness. Out of the nine Biology teachers in the school, there was only one who was trained in special education. To add on to this problem, the specialist Biology teacher had been allocated four (4) classes of Biology to teach. This included the class which had a total of twenty nine (29) students including four (4) with blindness. In both classes observed, the students with blindness were strategically positioned; nearer to the chalk board and with a buddy. Other than the perkins braillers and the hand frames, there were no assistive devices found in the classrooms. At the Special Education Department though, there were three closed circuit televisions, seven talking scientific calculators, head phones, 2 braille printers connected to computers, perkins braillers, a photocopying machine and two tape recorders.

8. Discussion

8.1 Teaching Methods

From the lesson observations conducted, the Biology special education teacher taught a class for 40 minutes. During the lesson, the teacher was descriptive in her teaching. She used a large hand writing to write on the chalk board and spelled out all the words she wrote, pausing all the time to check whether all students were on board. She also gave individualised attention to students with blindness. This benefited all the students. Her teaching method is synonymous with the recommendation of Piljl and Van den Bos (2001) that teachers should talk while they teach and verbalise notes as they write legibly on the board. Roe (2008), Williams (2015) and Niwagaba (2014) add that the use of verbal commentary, use of hands on experience, sensitive questioning, explanations and descriptions can bring alive the abstract material of some subject areas. On the other hand, the general Biology classroom teacher used small hand writing on the chalk board and did not spell out everything she wrote on the chalk board. This disadvantaged both students who are totally blind and those with low vision. More often, the students do not benefit from such lessons.

8.2 Learning materials provided

Observation, interview and questionnaire results reveal that students with blindness in a class taught by a special education specialist Biology teacher were given brailled notes, embossed diagrams, enlarged hand outs, magnifying glasses and laboratory apparatus for tactile observation. Mavundukure (2001) and Opretti and Belalcazar (2008) all support the use of learning materials for students who are blind because they increase accessibility and clearer

understanding of the subject matter. Contrary to the practice and sound views above, students with blindness in a class that was taught by a general education Biology teacher were not provided with any pre brailled materials, embossed diagrams or any other learning material other than perkins braillers. Occasionally, the teacher stated that she provides students with large print materials and allows students with blindness to explore laboratory apparatus or models. This makes the students use perkins braillers to take down notes in class and eventually cause a lot of noise throughout the lesson because the braillers did not even have rubber mats to absorb the noise.

8.3 Lack of access technology

In the self-administered questionnaire, 6 out of the 7 students with blindness stated that digital or computer aided learning materials were not availed to them during lessons. Interviews of both teachers and students yielded the same result that there are no assistive devices being used during Biology lessons except for hand frames, hand held magnifiers and perkins braillers. The students also bemoaned the fact that they were unable to access internet to research because there are no adapted computers except for the two which are used for materials production. A snap survey in the Special Education Department revealed that there are three closed circuit televisions, seven talking scientific calculators, head phones, 2 braille printers connected to computers, perkins braillers, a photocopying machine and two tape recorders.

At the time of this research, the school had an enrolment of 21 students with blindness among whom 16 were braille users and five used large print. Going by the numbers of the students and the available equipment, there is need to increase the access technology that is available especially internet connection to the Special Education Department and acquisition of adapted computers for students with blindness. Adaptive technology is very important, as Bray, Brown and Green (2004) and DePountis, Pogrund, Griffin-Shirley, and Lan (2015) stipulate, because it has revolutionised, simplified and improved the efficiency in modifying and adapting teaching and learning materials for students who are blind.

8.4 Shortage of learning support staff

Interviews and observations showed that there is a serious shortage of learning support staff. This includes braillists, learning support workers and special education Biology teachers. The school has 9 Biology teachers but among them, there is only one special education Biology teacher for students with blindness, who does not only support students in her classes, but also other students too and all the teachers for Physics and Chemistry. With her teaching load of four classes at the time of the research, this seems to be too much for her to be effective enough in the provision of meaningful learning support. This defeats the Government of Botswana's (2006) efforts and guidelines that consideration should be made to reduce special education teachers' teaching loads by one class to allow them time to assist other subject teachers as well as students who are blind.

There were no learning support workers in the classes during the observations; students also confirmed this during interviews. The only learning support worker mostly accompanies students who are visually impaired to the hospital. Mwakyeja (2013) and Habulezi and Phasha (2012) state that the primary responsibility of the learning support worker is to support the classroom teacher, enabling the teacher to provide the educational programme that meets the needs of all the students in the class, including the students with blindness. This important role has not been played because there is only one learning support worker against 21 students. This seriously impacts negatively in the students' participation and understanding of experiments conducted during lessons. Teachers normally make students with blindness sit next to sighted learners who lend their support by describing the diagrams drawn on the board to their colleagues. This form of assistance enables the students with blindness to visualise and comprehend the lesson instructions during the course of the Biology lesson but may disadvantage the sighted students as they could miss points in the process of learning.

8.5 Lesson preparation

The interview further revealed that the general Biology teacher's lesson planning did not cater much for the students who are blind. Planning ahead of the lesson would help the teacher to organise the lesson and assemble materials appropriate to the lesson content. If a student with low vision requires enlarged print, audio tapes or brailled materials, they should be prepared ahead of time (Nasib, 2005). With regard to the special education Biology teacher, interview results indicated that some effort was made to support the students who are blind. Before her lesson, she prepared some files with brailled notes and embossed diagrams. These learning materials were made available to students with blindness before or when they met for lessons. This foresight in planning ensured the inclusion and increased participation of students with blindness during lessons. In fact, Sharma et al (2010) assert that flexibility, adaptability and positive attitudes toward inclusion are co-attributes of successful inclusive teachers.

8.6 Sitting arrangement and number of students in classes

In Biology classrooms and laboratories, just like Niwagaba (2014) advices, the students with blindness were strategically positioned in the front row nearer to the teacher and chalk board. They are also made to sit side by side with the sighted students. According to both of the teachers, this sitting arrangement enabled the students with blindness to easily hear the lesson instructions since they were closer to the teacher. The front row seats allow the students with low vision to see the diagrams drawn on the chalkboard. The sighted students who sit next to students who are visually impaired also play an important role in the support system. As already pointed out, the sighted students assist by dictating notes, spelling words and describing diagrams and pictures used during the lesson. The number of students was slightly lower where there were students with visual impairment but somehow higher. It must be realised that one (1) student who is blind in Botswana, is equated to 4 sighted students. Taking this scenario into consideration it therefore means a class with 37 students including four students with visual impairment is quite large, with a very high teacher

student ratio. This further curtails the support that the specialist teacher renders to the students with visual impairment.

8.7 Remedial lessons

Rarely, the general education Biology teacher conducts remedial lessons. On the other hand, this is a regular practice for the special education Biology teacher who takes time to meet and conduct remedial lessons with the students who are visually impaired separately during study time. This gives the students an opportunity to learn some of the concepts they could not fully comprehend during normal lessons. Witburn (2014) and Mwakyeja (2013) recommend pre and post tutoring sessions in the sense that they give an opportunity to go over key concepts and discuss what went well or was particularly difficult and examine the quality of any work produced. In addition to teaching normal lessons the special education Biology teacher emphasized the need to meet with the students with visual impairment for the purpose of guidance and counselling. In terms of life skills learning, these occasions reinforce the sense in which students take responsibilities for aspects of their own organization and keep them well-grounded both in their academic and personal lives. In contrast, the general Biology teacher did not mention ever conducting guidance sessions with the students who are blind.

9. Conclusion

The challenges of providing classroom support to students who are blind in a general education Biology classroom are as diverse as the students themselves. The teaching methods most teachers use do not cater for all the students in the inclusive classroom because most of the teachers in the school are not trained in the teaching and learning methods for students with special educational needs. In addition, the majority of the teachers lack adequate preparation for their lessons in that they may prepare for the mainstream students but forget that there are students who are blind who may need brailled, enlarged, embossed or recorded teaching and learning materials. The challenges are compounded by the shortage of trained special education Biology teachers, learning support workers, access technology and brailled or recorded prescribed Biology text books. The human resource shortages translate into workloads that are too much to efficiently manage for the trained special education Biology teacher and the only learning support worker. The class enrolments also pose a challenge because the more the students in the class, the more difficult it becomes to support them.

10. Recommendations

The study recommends that more special education Biology teachers be deployed to the school and more learning support workers should equally be hired. Access technology simplifies work and reduces demand for human resources; more of the access technology should therefore be procured. Teacher capacity building should equally be considered.

References

Abbott, S. (Ed.), (2014). The Hidden Curriculum; the glossary of education reform. Retrieved from http://edglossary.org/hidden-curriculum

Bray, M., Brown, A., & Green T. D. (2004). *Technology and the diverse learner. A guide to classroom practice*. Thousand Oaks, CA: Corwin Press INC.

Christie, P., (2010). The complexity of human rights in global times: the case of the right to education in Africa. *International Journal of Educational Development* 30, 3–11.

Delors, J. (1996). *Learning: The Treasure within. Report to UNESCO of the International Commission on Education for the twenty- first century.* Paris: UNESCO.

DePountis, V., Pogrund, R., Griffin-Shirley, N. & Lan, W. Y. (2015). Technologies used in the study of advanced Mathematics by students who are visually impaired in classrooms: Teachers' perspectives. *Journal of Visual Impairment & Blindness*, *105*(9), 265 –278.

Fraser, K. (2015). Accessible Science: making Life Sciences accessible to students with visual impairment. Washington State School for the blind: Washington D.C. Available on: www.perkinselearning.org.

Government of Botswana, (2011). Inclusive Education Policy. Ministry of Education: Government Printers.

Government of Botswana, (2006). Establishment register for secondary schools: Directorate of Teaching Service Management. Gaborone: Government Printers.

Habulezi, J. & Phasha, T. N. (2012). Provision of learning support to learners with visual impairment in Botswana: A Case Study. *Procedia-Social and Behavioral Sciences 69: 1555-1561.*

Mavundukure, G. (2001). *Special education provision in Botswana*. Paper presented to at a workshop to specialist teachers for learners with visual impairment, in Selebi Phikwe, Botswana.

McMillan, J. & Schumacher, S. (2014). *Research in education. Evidence–based inquiry*. 7th ed. Pearson: London.

Mphande, S. (2011). *Access in the classrooms for learners with blindness in Zambia*. Unpublished thesis.

Mwakyeja, M. B., (2013). *Teaching students with visual impairments in inclusive classrooms: A study of one of the secondary schools in Tanzania*. (Unpublished masters' thesis).

Nasib, M. (2005). Child Psychology, a necessary tool for student teachers. Unpublished manuscript.

Niwagaba, G., (2014). *Including and teaching blind children in ordinary classrooms. Teaching tools teachers use and their influence on the inclusion of blind children in an ordinary classroom in a primary school*. (Master's thesis). University of Oslo, Norway.

Opretti, R., Belalcazar, C., (2008). Trends in inclusive education at regional and interregional levels: issues and challenges. *Prospects* 38, 113–135.

Piljl S., & Van den Bos, K. (2001). Redesigning regular education support in Netherlands. *European Journal of Special Education.* 16 (2): 111-119.

Roe J. (2008). Social inclusion: meeting the socio-emotional needs of children with vision needs. *British Journal of Visual Impairment*. Vol. 26 (2): 147-158

Sharma, U., Moore D., Furlonger B., King, B. S., Kaye L., & Constantinou, O. (2010). Forming effective partnerships to facilitate inclusion of studentswith vision impairments. Perceptions of a regular classroom teacher and an itinerant teacher. *The British Journal of Visual Impairment*. Vol. 28 (1): 57-67.

Special Education Department, (2015). *Result analysis for 2014 BGCSE special education students*. Molefi S.S.S: Mochudi.

Travers, J., Balfe T., Butler, C., Day, T., Dupont, M., McDaid, R., O'D'onnell & Prunty, A. (2014). *Addressing the challenges and barriers to inclusion in Irish Schools.* Dublin: Special Education Department, St Patrick's College.

UNESCO. (2009). *Policy guidelines on inclusion in education*. Paris: UNESCO.

UNESCO. (2008). *Towards inclusion.* Available: www.portal.unesco.org/education

UNESCO. (2001). *Open file on inclusive education support materials for managers and administrators.* Paris: UNESCO.

UNESCO. (1994). *The Salamanca Statement and Frame Work on Special Education***.** Paris: UNESCO.

Whitburn, B. (2014). The inclusion of students with vision impairments: Generational perspectives in Australia. *International Journal of Whole Schooling,* 10 (1) 2014

Williams, G. (2015). *Making Science accessible to students who are blind or visually impaired.* Washington State School for the blind: Washington D.C. Available on: www.perkinselearning.org