

Barriers to Teaching Non-speaking Learners with Intellectual Disabilities and their Impact on the Provision of Augmentative and Alternative Communication

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The purpose of this investigation was to gain an understanding of the challenges of teaching non-speaking learners with intellectual disabilities and the scope of augmentative and alternative communication (AAC) used in primary school settings in Gaborone, Botswana. A qualitative interview methodology was used to investigate the experiences of 11 special educators working with non-speaking learners with intellectual disabilities. Participants of the study revealed that teaching non-speaking students with intellectual disabilities is challenging. The study further showed that AAC systems were not widely used in Botswana, and that teachers lacked knowledge and skills. Nevertheless, the participants recognised the importance of AAC in enhancing the functional communication skills of the non-speaking learners with intellectual disabilities. Based on the findings recommendations are made to pave the way forward.

Keywords: augmentative and alternative communication (AAC); intellectual disabilities; special education in Botswana; qualitative research

Introduction

Access to education is a fundamental right of children, including learners with intellectual disabilities. A large proportion of learners with intellectual disabilities have difficulties using natural speech in order to meet their communicative needs (Ronski & Sevcik, 1997; Rosenberg & Abbeduto, 1993; Wilkinson & Hennig, 2007). Although children with limited vocal communication abilities pose a great challenge for educators and parents alike, augmentative and alternative communication (AAC) approaches have the potential to facilitate the acquisition of language skills, literacy, communicative competence, as well as ensure quality of life of non-speaking children with intellectual disabilities (Calculator, 1997; Hamm & Mirenda, 2006; Light, Binger, Agate, & Ramsay, 1999; Ronski & Sevcik, 1997).

Augmentative and alternative communication (AAC) means any method of communication that helps an individual with severe communication disorders to compensate for activity limitation and enhances participation in various communicative interactions. It makes use of multimodal approaches of communication such as gestures, vocalisations, sign, oro-facial expressions as well as picture symbols, voice output devices or other computer-based technologies (Beukelman & Mirenda, 2005; Hustad & Shapley, 2003; Mirenda, 2003, Wilkinson & Hennig, 2007). The use of AAC, therefore, helps in academic and social activities at school or workplace, home and in community. AAC enhances

communication and is not intended to replace verbal communication. It could be used along with spoken and written communication. As stated in a technical report prepared by the American Speech–Language–Hearing Association, “AAC involves attempts to study and, when necessary, temporarily or permanently compensate for the impairments, activity limitations and participation restrictions of individuals with severe disorders of speech language production and/or comprehension” (ASHA, 2005, p. 1).

The recognition of AAC as means of facilitating non-speaking students during academic and social activities grew significantly in the last 10 years due to better comprehension of multimodal approaches to communication and rapid progress of technological advancement of micro-computers and speech generating devices (Wilkinson & Hennig 2007). Furthermore, increased numbers of courses on AAC in speech pathology and special education programmes in schools (Ratcliff, Koul, & Lloyd, 2007), evidence-based practice (Schlosser & Raghavendra, 2004) and parental acceptance and increased use of AAC devices at schools and home (Bailey, Parette, Stoner, Angell, & Carroll, 2006) helped to promote the use of AAC. Despite the wide recognition of AAC as a potential tool in bridging the communication gap between non-speaking children and their speaking peers and family members, no studies have been conducted to investigate the scope of using AAC in educating non-speaking learners with intellectual disabilities in Botswana.

The Republic of Botswana

The Republic of Botswana is a landlocked country in Southern Africa and it is located north of the Republic of South Africa. It is about 585,730 sq km in size with 1.7 million people. This small population has placed its citizens in an advantageous position in terms of education, health and science (Lekoko & Maruatona, 2006). The country is divided into districts and town councils. Almost half of the population lives in urban areas (Presidential Task Force, 1997, p. 23). The per-capita income of Botswana is approximately P 18,340.00 (AUD\$7,255) (UN Botswana, 2005), which is much higher than most other African countries. English and Setswana are the official languages. However, other languages are also spoken by various groups of people. The medium of instruction is predominantly English, but the government is trying to include other languages. Recently, the National Broadcasting Agency, Botswana Television, recognised the importance of Sign Language, and now interprets the daily English news, weekly information on agriculture (Temo le Leruo) and HIV/AIDS educational programme (Talk Back) in Sign Language. It is therefore hoped that other forms of AAC will also be welcomed in Botswana.

Disability in Botswana

The Central Statistics’ Office of Botswana indicated that an estimated 58,716 (2.99%) people live with various disabling conditions (Census, 2001). Little information is available on the number of Botswana who have communication disorders. No demographic or service provision information for non-speaking children with intellectual disabilities has been published. Table 1 displays the actual number of individuals with speech problems and individuals with intellectual disabilities, which was gathered during the census. However, this information should be interpreted cautiously, as it was extrapolated from a census report. Secondly, the criteria for classifying people with a disability were not selected scientifically and people who collected the information were not trained in the health sciences. At the time of the current research, no information on the level or types of assistance required to facilitate communication for non-speaking children.

Table 1. Distribution of individuals with an intellectual disability and speech defects.

Type of disability	Age in broad age groups (years) in %					
	0-4	5-14	15-29	30-44	45-59	60+
Defects of speech	7.45	11.34	7.26	4.07	2.72	1.41
Inability to speak	11.74	8.89	5.74	2.36	2.04	0.87
Moderate intellectual disabilities	5.34	8.11	8.70	8.11	7.25	2.03
Severe intellectual disabilities	4.95	3.74	2.17	3.74	1.29	0.41

Special Education in Botswana

Upon gaining independence in 1966, a major thrust of the government of Botswana was given to the education of its citizens, and many efforts were made to enhance access to education. Historically, educating children with disabilities in Botswana started around 1970 due to the efforts of some non-governmental organisations (NGOs). In those early years, the Government of Botswana showed very little interest in educating children with disabilities because this was not considered a "sound investment of resources" (Abosi & Makunga, 1995, p. 263). However, as education reforms were implemented and the need for open access and equity were emphasised, the government declared an interest in educating all Botswana, including individuals with a disability (Dart, 2006). In 1994, the document that brought hope to all, "The National Policy on Education", was published. Its approval by the National Assembly on 7 April 1994 was a sign that Botswana was indeed committed to embracing the sentiments of the 'right to education' (Education for All), including children with disability. Since then, the situation has been steadily changing although the pace of interest as reflected in policy formulation and implementation is very slow and worrying.

Purpose of the Current Research

The purpose of this research was to explore and examine the perceptions of special educators regarding the management of non-speaking students with intellectual disabilities and the scope of use of AAC devices with those learners in the context of the Botswana school system. Specifically, information was gathered from teachers on the following dimensions: (a) challenges in working with non-speaking learners; (b) teachers' perceptions related to using AAC in their classes; and (c) teachers' knowledge, skills and attitude towards the use of AAC for non-speaking learners with intellectual disabilities in Botswana.

Methodology

Research Design

Qualitative methodology was selected for this investigation because of its unique appropriateness in meeting the purpose of the study. Miles and Huberman (1994) identified the strength of qualitative research as, it: (a) occurs in natural settings, which allow the researchers to gather information about non-obvious issues; (b) allows for holistic, rich and complex findings; and (c) focuses on the lived experiences of participants. At the same time, this research gave a platform to teachers to express their feelings and opinions about learners with intellectual disabilities as such kinds of opportunities have been limited for

special educators in Botswana. The method used in his investigation was the focus group discussion as described by Krueger (1998). This process allowed the “key informants” to share their experiences, listen and respond to the views of other members of the group during discussions led by a facilitator (Krueger).

Research Setting

The investigation was carried out in three government primary schools located in the capital city, Gaborone. The reasons for selecting the schools were the close proximity of the schools to the place of work of the researchers and these schools were regular primary schools that have special education units attached to them. The number of learners with intellectual disabilities in each unit varied from 42 to 62. There were two to three classrooms and each classroom consisted of 20 to 22 students arranged in two groups. Each group consisted of 10 to 12 learners who were taught by one teacher. Each class also had a teacher-aide. The groups were mostly based on the ability of the students. The age range in each group varied from seven years to 23 years. Each class had a student teacher ratio of 12:1. The percentage of limited verbal/nonverbal students ranged between 30–42%. Table 2 indicates the number of non-speaking students identified by the teachers in each school.

Participants

The participants of this study were selected through a purposive sampling technique (Patton, 1990). This is a strategy which allowed the researcher to select only those teachers who had had the relevant experience. The participants from the three schools selected in Gaborone, Botswana for the study totalled 11 special educators who formed the three focus groups (Groups A, B and C). Participants who met the following criteria were included: (a) individuals who were trained as special educators; (b) have at least two years teaching experience with nonverbal students; and (c) were willing to take part in the study. Group A had five teachers, one male and four female teachers; four teachers held Bachelor of Education qualifications whereas one teacher held a diploma in education. Group B consisted of three teachers, all of them were females; and possessed a BEd in special education. Group C, also consisted of three teachers. Two teachers held a diploma in special education and one teacher had a B.Ed degree in special education.

Instrument

An interview schedule, consisting of 12 open-ended questions and themes, was developed in English. The schedule was designed to obtain information about the scope of using AAC in Botswana by teachers who worked in these schools and taught non-speaking learners

Table 2. Students with intellectual disabilities in the special units in Gaborone City.

Schools	Verbal Frequency (%)	Nonverbal/Limited verbal Frequency (%)	Total
School A	36 (58)	26 (42)	62
School B	32 (76)	10 (24)	42
School C	32 (70)	14 (30)	46
Total	100 (67)	50 (33)	150

with intellectual disabilities. This interview schedule was developed through a review of the literature relating to AAC and non-speaking students with an intellectual disability. The intent of the interview guide was to provide an overall direction for the session and stimulate discussion. A pilot test was carried out using a focus group discussion with four fourth year undergraduate students of special education who after their diploma in special education had experienced teaching students with an intellectual disability. The interview questions were then refined by the authors based on the feedback given by the participants of the pilot focus group.

Data Collection Procedure

Each group was interviewed once by the investigators in English. The interviews ranged in duration from one hour to one and half hours. The interviews were conducted at the teachers' school. The researchers informed the participants about the purpose of the research and reminded the teachers that the researchers were interested in finding out anything and everything about their experiences relating to teaching nonverbal students and the use of AAC devices in their classes. The investigators made sure that the participants were comfortable and free from any distraction (Krueger, 1998). One of the investigators facilitated the interview process and the other investigator tape-recorded the information. The facilitator began the interview using the interview guide and made sure that every participant responded to the same question and encouraged discussion among participants. Both investigators remained as neutral as possible.

Data Analysis

A step-by-step method was used to analyse data (Boyatzis, 1998; Kavale, 1996; Strauss & Corbin, 1990). In Step 1, each transcribed interview was prepared into more manageable thought units for analysis. In Step 2, each transcript was examined separately, and whenever a new theme emerged, it was highlighted. The identified themes within the transcript were then compared across transcripts in Step 3. Summary themes were then developed in Step 4. This meant that for each analysed transcript a summary was compiled in which sub-themes were compared. The analysis was carried-out by the researchers individually and then together.

Conformability

After preliminary findings, a member check exercise was carried out by giving the participants the preliminary analysis of data to comment on in terms of whether they found the theme to represent their own opinions (i.e., to comment on the accuracy of the information). Participants were also asked to add any additional information to their summaries. All participants agreed with the summaries and informed the investigators that the information reflected accurately their contributions to the investigation. The final coding themes were: (a) challenges in teaching nonverbal students; (b) scope of using AAC; (c) teachers' knowledge about AAC; and (d) perceived barriers to the use AAC in the classroom.

Results

Through data analysis, five themes emerged and related to each theme; various categories and subcategories were also identified.

Challenges of Teaching Nonverbal Students with an Intellectual Disability

Participants of this study, who were teachers of learners with an intellectual disability, expressed their frustration at the limited spoken ability of their students. Participants expressed that:

It is difficult to understand what the non-speaking students want and what they don't want.

They don't participate in the class.

Mostly we do the same activities again and again.

They don't socialise.

Other students avoid them.

These statements clearly indicate that the non-speaking students have not got the means of expression and, therefore, raise an important issue of classroom participation. The participating teachers stated that special demands were made on them by the "specific nature of the students' educational needs". They specifically referred to the aspects of child-related and teacher-related issues.

Child-related Issues

The participants highlighted that non-speaking students with an intellectual disability are highly heterogeneous and mixing them with the other students offers significant challenges (e.g., learners are at different levels of intellectual ability, behaviour problems and communication problems). Different levels of intellectual ability of the learners of the same age groups in a single classroom create many problems for teachers. One of the participants reported:

We want to divide our classes based on the level of functioning. This, in itself, is a big challenge. We don't know how to do that. It looks simple, but in real practice it's complex. If you match their age, the levels of ability differ, and if you match the levels of abilities, age differs.

Teachers who participated in this study were of the opinion that behavioural problems might occur due to the lack of ability to communicate. They stated that it is difficult to discipline their non-speaking children. One of the participants said:

Non-speaking students exhibit more behavioural problem compared to verbal students. Another thing that I find very challenging is disciplining them. How do we discipline these children? Do they really understand what discipline is, for what purpose, and why?

As the quotations reflect, some teachers felt that there was a different way of disciplining non-speaking students from disciplining other students. The teachers found it difficult to discipline the students who do not speak. One of the participants said:

I feel comfortable to discipline those who speak, as I feel they understand. I feel uncomfortable disciplining non-speaking students, as I don't know if at all they understand. I am trying to discipline them. I start but stop in between, the bad behaviour continues.

The heterogenic nature of the communication needs of the non-speaking children also increased the workload of the teachers. One of the participants mentioned that:

All the non-speaking children in my class are not the same. They all are different. Some speak, but I fail to understand them, and some do not speak at all. I don't understand what they intend to say. I feel bad. I try... I wish I could understand them. It's really frustrating.

Teacher-related Issues

From the comments made by the teachers interviewed, it was clear that teaching nonverbal students with an intellectual disability required additional work and responsibilities. The teachers made numerous references to the fact that they serve not only as teachers, but also had to assume the roles of teacher-aides, nurses, counsellors, mothers and therapists:

I had to prepare lessons, incorporate varieties of activities for each learner. It means a lot of work.

I must simplify each little word and first explain it.

At times I try to correct their speech and model for proper pronunciation. I need to transfer them, help them in eating and toileting. I am tired.

We have a shortage of teacher-aides; therefore, the teachers themselves need to help these students.

These statements clearly indicate the extent of more demands that non-speaking students put on teachers. During the interviews, some of the teachers stated that there was a stigma attached to special education. These teachers reported that the stigma was obvious from attitudes of other persons, especially students and colleagues in mainstream education and the society in general. One of the participants said:

Other students call me Miss Special. The other teachers actually look down upon us who are teaching in the special classes. No one cares for us, not even the Ministry of Education. We don't get an extra allowance or promotion, not even a pat on our back for the hard work that we do everyday.

This according to another participant is an unfortunate situation. The problems and frustrations expressed by the teachers were obviously experienced as very tiring and stressful, as stated by one participant: "Teaching students who don't speak is very tiresome. Majority of them have physical disabilities, such as cerebral palsy. Some have visual problems. Some don't hear".

Scope of Using AAC

A majority of the teachers were not aware of the concept of AAC and how to use it. A majority of the participants indicated that they used natural gestures, which were mostly functional in nature, to communicate with the nonverbal children. One of the participants explained: "I have heard about AAC. I don't know much about it, and moreover, how to use it with my students. Is it sign language? Is it difficult to learn?"

Another participant noted that: "Communication is an important aspect of socialisation. These children cannot socialise with others; therefore, they disturb others. If they have some means of communication they will not disturb others and will behave well".

However, a majority of the teachers felt that AAC could be used only for functional communication. One of the participants succinctly asked, "How can you use it for development of reading? I don't think it is possible."

Teachers' Knowledge, Skills and Attitude Towards AAC

Participants identified three major concerns related to use of AAC. These were: the lack of knowledge, lack of academic gains and social exclusion. Participants reported that they were not competent in using AAC and were apprehensive about its use. They were not sure about the efficacy of AAC for students with an intellectual disability. One

participant was sceptical and asked, "Do you think it can work for students with intellectual disabilities?" She felt that the nonverbal students' academic needs would never be met, and that these children would never receive the adequate attention they deserve. She also expressed concern about the interactions of the verbal and nonverbal students in the same setting. Other participants also reported that the non-speaking students were usually avoided by speaking groups. The teachers were not sure whether AAC could help in bridging the gap. One commented, "How can it increase student's participation?" She reported that students usually avoided non-speaking students, and they were excluded by their peers in social situations outside the classroom. Some participants said that it would be time-consuming to learn to use the AAC systems. One of the participants expressed the view: "I heard AAC is complicated and highly technical". Another participant commented that AAC is "good only for basic communication, not for enhancing literacy in the classroom". Another participant was clear about her position in using AAC. "It is good for one-on-one basis". One of them expressed a desire to take a course in AAC after working with a nonverbal student, and stated: "I want to learn more. You should teach us".

Training on AAC

Although participants recognised the importance of AAC, they lacked knowledge about its use. Participants thought it was good for children to realise their communication needs, but they were not convinced of its use for the purpose of education. At the same time one of them was highly enthusiastic about it, and interested in learning more about it. She said:

Maybe it is useful, but I am not trained. Everybody in the class, I think, should communicate. I feel pity for them. I can't help much. I can help if you train me on how to use it. You should organize workshop for teachers.

At the same time she recommended that the workload should be reduced. She further stated: "I am not ready to use it unless we are given less number [sic] of students".

Perceived Barriers of Using AAC

The other predominant theme was the perceived barriers of using AAC. All participants anticipated barriers to teaching nonverbal students. Specifically, the participants discussed three main barriers. They are related to schools, resources and teachers.

School-related Barriers

Participants anticipated two major barriers: structural and resource barriers. The structural barriers put emphasis on the physical set-up such as proper infrastructure and the resource barriers highlighted the lack of trained staff and support service professionals, and the lack of material resources. One of the participants stated that:

We don't have enough classrooms, special furniture for the necessary adjustments for our students, and students sit on the floor. Students can't move freely. The classrooms are small and often overcrowded. How can they interact [sic]? It is sad. Some students use wheelchairs, we don't have special furniture.

The teachers also spoke of the high student teacher ratio. One of the teachers reported that "each of us teach [sic] almost 10 students, this is too much".

Resource-related Barriers

Support services which are essential for the successful training of students with an intellectual disability, such as speech language services and occupational therapy, are not available in schools in Botswana. One of the participants said, "Speech therapists do not visit the school, who would train us on how to use communication devices in classroom settings". The teachers also expressed a need for assistants or para-professionals. A general concern expressed by most of the teachers was that they had no assistance from professional experts. They complained that:

We have no occupational therapists, psychologists, educational therapists, or speech therapists to work with us. We need medical personnel. Social workers should come to school and support us. We cannot work alone. Schools do have intervention team [sic], but it cannot function without the support of other professionals.

The teachers expressed their concerns about the fact that they cannot manage nonverbal students alone. They need a team of professionals. One of the teachers commented that she never received any detailed assessment information about the abilities, needs, educational background or current educational goals of a student who came into her class from another institution: "We've never seen any detailed report about any child before admission. We wouldn't know how to communicate with a nonverbal student. We get students anytime during the term".

One of the participants raised her concern regarding assessment and lack of teamwork:

One day, a parent brought a letter stating that her child had been admitted in my class. The next day, someone came and dropped off the child. The child cried the whole day. I think she had multiple disabling conditions. I didn't know what to do. I think we should be consulted before placing a nonverbal child. We also need a detailed assessment on the predominant modes of communication used by the child.

The participants were concerned about developing individualised educational plans for nonverbal students in their classes. They also highlighted the lack of parental support in the teaching-learning process. Some teachers also indicated that parents did not cooperate; students did not do their homework because parents did not help their children at home. The teachers further voiced their disappointment and dissatisfaction about the general lack of parental involvement and interest at their school, and said the following about parental involvement:

The parental involvement... it's almost non-existent... as if the parents are happy to see their children off to the school. They just dump their children, even on the Teachers' Day. One mother brought her child knowing that we don't work on that day. She exhibited her displeasure for not operating on Teachers' Day.

The teachers who took part in the research were of the opinion that the community and society in general were apathetic and ignorant, which could possibly be ascribed to a lack of communication.

Teacher-related Barriers

Participants also identified the following barriers related to themselves as teachers: (a) limited knowledge and skills; (b) time constraints resulting in inadequate planning and preparation; (c) negative attitudes towards nonverbal children; and, (d) teacher "burnout". Teachers described their lack of training related to how they dealt with nonverbal students and their lack of knowledge on how to use AAC as limited to meeting the needs of nonverbal students. One of the participants explained that "she had no idea about AAC equipment

or on how to use it". Similarly, others stated their concern about the time required to learn how to use an AAC system and about classroom accommodation strategies. They commented that additional time was required to complete necessary training on AAC. One of them added that teachers will "burnout" if something is not done about the teacher-student ratio: "Some of us will be forced to leave the job". She added, "It's a lot of hard work".

Discussion

The purpose of this research was threefold: first, to find out the challenges of teaching non-speaking students with an intellectual disability in special education units in Botswana. Secondly, to find out teachers' perceptions with the scope of using AAC for non-speaking students, and finally, teachers' knowledge, skills and attitudes towards the use of AAC for non-speaking students with intellectual disabilities.

Education of Non-speaking Students

According to the results of the present study, a number of critical issues concerning the education of non-speaking learners with an intellectual disability in Botswana were raised. These were broadly classified into teacher-related barriers and child-related barriers. It is clear that teaching students with intellectual disabilities is a multifaceted activity. Learners with an intellectual disability are heterogeneous in nature, hence individual differences were evident. Some of the learners with an intellectual disability may have multiple disabling conditions making teaching more difficult. It is therefore essential for the teacher to differentiate instruction and to decide on the appropriate teaching style for individual learners. This process is not only complex, but also takes effort. Similar kinds of sentiments were also raised by Bos and Vaughn (2002). It is important that teachers understand and honour the learners' communication needs (Fletcher & Bos, 1999). Some of the learners with an intellectual disability do exhibit emotional and behavioural problems that demand a lot of effort and energy from teachers to maintain discipline in the class (Krik, Gallagher, Anastasiow, & Coleman, 2006). Smith (2001) stated that all learners with an intellectual disability are not the same and therefore, instruction must suit the individual child's ability and level of functioning. This means that the teacher needs to prepare lessons including the adaptation of activities, and design teaching material to ensure each learner's participation. Teachers of students with an intellectual disability need patience and empathy. They often feel drained, and experience emotions such as guilt, anger and irritation (Norwich, 1990).

Special educators often lack the support, acknowledgement, and appreciation they deserve. Such support might come through peer-collaboration and multi-disciplinary teamwork. Parental involvement is another important issue (Krik et al., 2006). Often it is not available, which creates special challenges to educators. Hegarty (1993) also expressed concern about the fact that parents were more than happy for schools to take over full responsibility for their children's education and care. The findings of this study are consistent with these concerns.

Scope of Using AAC

This study sought to determine the teachers' perceptions towards the use of AAC devices for non-speaking students. At present, there is only limited information available on the scope of using AAC for non-speaking learners with intellectual disabilities in Botswana.

There is, however, good reason to believe that many non-speaking learners with an intellectual disability would benefit from using AAC and the participants recognised the potential of using AAC. The teachers acknowledged that challenging behaviours such as aggression, self-injury or unwanted social behaviours were pronounced among non-speaking children with an intellectual disability and therefore, could be supported by AAC. Nevertheless, teachers were apprehensive about its use in the development of literacy. Similar findings were also observed in the studies of Soto, Müller, Hunt, and Goetz (2001), in an inclusive environment. In that study teachers recommended AAC for social purposes rather than for academic use of language.

Teachers' Knowledge, Skills and Attitude

In the context of "additional work and responsibility and stigma" of working with students with intellectual disabilities who were non-verbal, some participants in the study referred to "burnout". However, such comments need to be interpreted cautiously. In the context of Botswana where there is a lack of human resources and related support services and therefore statements of additional work and being overworked are common. Special education is fairly new in Botswana. It was started by the missionaries in 1969 and was more formally introduced in the 1980s. Special education training programmes started in the 1990s. Therefore, stigma and negative attitudes towards individuals with a disability are common. Even though the majority of the participants demonstrated negative attitudes towards the use of AAC, it is important to note that one of the participants was highly enthusiastic in learning about AAC. Perhaps this is the starting point.

Currently, all the teachers' training programmes have an introductory course in special education. As there is a move towards implementing inclusive education, it is hoped that regular education teachers' attitudes towards people with disabilities in Botswana will change.

The participants highlighted the importance of in-service training and expressed a need for professionals and administrators to support the use of AAC in enhancing communication opportunities in schools. These findings are consistent with the literature that emphasises the role of in-service training for teachers and teacher-aides (Mukhopadhyay, 2005). Lebel, Olshtain and Weiss (2005) used a web-based approach to in-service Israeli teachers. According to these authors the online course gave participants unique opportunities to learn both theory and practice. It was flexible and promoted lifelong learning. Researchers of this study also believe that web-based courses could work in Botswana.

Conclusion and Recommendations

The findings of this study confirm the view that teaching non-speaking students is a challenging activity. Despite using AAC as a way to enhance communication it is seldom used in Botswana primary schools. This finding is attributed to teachers' lack of knowledge, skills and their negative attitudes. The researchers see a need to become involved in training teachers to use AAC. Therefore, the following suggestions are made. Although the results of this study focused on Botswana, the suggestions may be useful for other developing countries.

Specialised Training Facilities

Special educators should be competent in using AAC. Therefore, the special education programme of the University of Botswana should offer formal courses on AAC. Since

Botswana is a large country, a web-based in-service training programme for teachers could play an important role. However, not all teachers are comfortable with online training and therefore face-to-face training would need to be provided alongside web-based learning.

Resources

The provision of human and material resources are also important. The Ministry of Education in Botswana should provide additional support staff to help special educators. There is also a lack of culturally-appropriate resource materials in classroom interventions. It is recommended that culturally and linguistically appropriate materials be developed.

Teamwork

It appears from this study that there is a lack of teamwork among support service professionals, parents and teachers. A series of workshops focusing on the topic of effective teamwork might be one way of enhancing teachers' knowledge and skills. Leadership also plays an important role in implementing new ideas. Therefore, it is important for the Ministry of Education to support teachers and provide leadership in providing training in effective teamwork. It is also suggested that schools could collaborate with the special education department of the University of Botswana to develop in-service training and to create culturally-appropriate materials. Action research studies could be enacted in classrooms where ACC is used. This model of classroom research would allow adaptations to be made and their outcomes examined. A university with school partnership in action research may have mutual benefits for researchers and teachers.

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