

Njoroge, M. and Nyakundi, A. (In Press). Navigating Communication Difficulties Faced by Children with Autism: Evidence from Kenya. In Ulrike M. Lüdtke, Edward Kija, Mathew Kinyua Karia. *“Handbook of Communication Disabilities and Language Development in Sub-Saharan Africa*. Springer Publishers

ABSTRACT

On the one hand, the available literature on inclusive education report that, globally, children with autism experience diverse communication difficulties in educational contexts. On the other hand, the same literature expounds on a variety of communication interventions to such challenges. It argues that if such strategies are employed early, these autistic children, with time, will be able to communicate effectively and meaningfully and be able to lead fulfilled lives. Based on a qualitative research done in Kiambu and Nairobi Counties, Kenya (Africa), the chapter outlines the communication challenges faced by children with autism learning in inclusive classrooms. Further, the chapter discusses the interventions that teachers of these children employ to navigate these difficulties, thus aiding the development of their communicative ability. Using interviews and observation schedules, data were collected from 72 children and 6 teachers in 3 inclusive schools for children with autism. In the analysis of the data, description of the results and interpretation of emerging patterns, the study was guided by the Imitation Theory of language acquisition. The findings show that children with autism do face communication challenges but quick interventions by their teachers support the slow but impactful development of language and communicative ability of these children.

Key words: autism, language difficulties, communication difficulties, interventions

Index words: autism spectrum disorders, social skills, communicative ability, social stigma, taboo, imitation theory, echolalia, inclusive education, Individualized Educational Program, sub-Saharan Africa

Motive and Research Questions

Autism spectrum disorders (ASDs) are a class of neurodevelopmental disorders characterized by impairments in social reciprocity, atypical communication and repetitive behaviors (Hyman and Levy 2013). Autistic children have slow personal, social and emotional development. They tend to be slower than their peers with delayed speech development, disturbed sleep patterns, lack direct eye contact and are more silent unlike their peers. The signs usually begin before a child is three years old. Many of the symptoms are often ignored due to the little knowledge available about the disorder. Children suffering from autism spectrum disorders experience several communication difficulties.

According to Rapin and Dunn (2003), communication difficulty is present to varying degrees in most individuals with autistic spectrum disorders. The same authors observe that language delay is usually the first area of concern identified by most families whose children are later diagnosed with ASDs. Hyman and Levy (2013) state that early language of children with ASDs is often characterized by imperative labeling (using words for naming instead of communicating), echolalia (echoing speech), atypical prosody (inflection), and improper use of pronouns (referring to self in the third person).

Children with ASDs may have a basic impairment in many nonverbal behaviors such as the ability to both perceive and imitate facial expression (Dawson et al. 2005). These children, however, may be trained and supported to overcome communication difficulties, for example, by trained speech and language therapists. As Riccio (2011) observes, some children with autism may also be more susceptible to behavioural and language therapies and thus more easily able to adapt and understand societal conventions. These children, most probably after therapeutic interventions, can become well able to lead independent lives and begin families of their own.

Unfortunately, there is a shortage of speech and language therapists (SLTs) in sub-Saharan Africa, with only 1 speech therapist per 2-4 million people (Wylie et al. 2012). The situation is worse in the rural sub-Saharan Africa settings because, as Jochmann (2006) notes, speech and language therapy in East Africa is mainly confined to urban areas, and even then, it is often restricted to private health care. Individuals who reside in rural and remote areas, therefore, have difficulties in accessing support (Wylie et al. 2013). Moreover, there are many barriers that make access to

speech and language therapy a daunting task. Such barriers may be physical (e.g., poor transport system) (Moïsi et al. 2011), informational (e.g., ignorance of available support) (Ensor and Cooper 2004), or financial (e.g., insufficient funds for travel) (Makinen et al. 2000).

Besides receiving assistance from speech and language therapists, autistic children can also be adequately supported by teachers and caregivers in the acquisition of social and communication skills (Bunning et al. 2013). In other words, autistic children can benefit from training and support in school. Perhaps this is why the Kenyan government has of late integrated units for autistic children in a number of public schools to teach and care for children suffering from autism. Further, the government, through the Teachers Service Commission, recruits teachers trained in special needs education and posts them in these autistic units. The teachers are expected to instruct and support children suffering from autism with the view of assisting them acquire social and language skills for them to fit within the wider society.

But what is the reality on the ground? Are the teachers trained in special needs education? What communication difficulties do autistic children face? What strategies do teachers put in place to support the children with ASD navigate these communication difficulties? Do they succeed? Such questions motivated the research reported in this chapter.

Problem background

Globally, children suffering from autism may not lead meaningful and functional lives and enjoy social relationships because of the diverse communication difficulties they face. The situation is worse in sub-Saharan Africa where such children are seen as taboos and are hidden far from the eye of the public because of the social stigma associated with disability in the African culture. In Kenya, for example, autistic children are seen as an embarrassment and parents lock them up in their rooms (Mwangi 2015).

The stigma associated with disability may explain low research output on autism in sub-Saharan Africa. Review of literature in autistic studies indicates that prevalence estimates for autism spectrum disorders in African countries are hardly available and there is limited research on autism spectrum disorders sub-Saharan Africa (Bakare et al. 2012; Bakare and Munir 2011). This situation makes it difficult to establish the accurate number of children suffering from autism. Autism

Society of Kenya (2007), however, notes that autism is a devastating and complex developmental disorder affecting approximately 4% of the Kenyan population.

One of the avenues of rehabilitating autistic children is through schools. Nevertheless, autistic children can access education mainly when they overcome the communication difficulties they face. Without the ability to communicate, these children cannot easily and quickly express their needs. Therefore, they may lack essential help when they need it, or worse, get the wrong help all together because the other person may misinterpret what the child needs. An autistic child may be locked out of opportunities to attain education, a fundamental human right, because of communication difficulties. There is then need for these children to be trained on how to navigate the communication difficulties they face for them to have the ability to express their needs. Once they overcome these communication difficulties, they can easily integrate with other children in regular schools and attain education, which is a human right.

Teachers of autistic children play a key role in helping them acquire communicative ability. It is assumed that for such teachers to be effective, they will have received adequate training in special needs education to be able to walk with the children as they navigate communication difficulties. The research on which this chapter is based, therefore, sought to establish the kind of communication difficulties children suffering from autism in Kenya face and the interventions that their teachers put in place to enable them navigate these difficulties. The chapter also discusses the effectiveness of these interventions in increasing the ability of children with autism to overcome communication difficulties and, as a result, be able to lead meaningful lives.

Theoretical background

The study was guided by the imitation theory of language acquisition. According to Bergman et al. (2007), imitation theory stipulates that children learn language by listening to the speech around them and reproducing what they hear. They add that language acquisition consists of memorizing the words and sentences of a language. The authors argue that the idea that acquiring a language is a process of learning to imitate the speech of others is partly true. This theory also explains the fact that children learn the language that is spoken around them by parents, caretakers, and others, regardless of what the language of their ancestors may have been (Bergman et al. 2007).

We argue that children suffering from autism learn language by listening to the speech around them and reproducing what they hear. They memorize the words and sentences of the language spoken around them. This partly explains echolalia among autistic children. The research on which this chapter is based rests on the premise that children suffering from autism learn the language spoken around them be it by teachers, caregivers, other pupils that they interact with at school and parents while at home. This would especially be the case during the first days that these children start attending school. Their first speech is likely to be an imitation of the speech of those around them.

The imitation theory has two major weaknesses. The theory fails to acknowledge that a child has any sort of internal mental grammar that includes rules for combining words and other elements in systematic ways, so it would incorrectly predict that a child would not produce incorrect words (Bergman et al. 2007). According to the same authors, the most serious fault of the theory is that it cannot account for how children and adults are able to produce and understand new sentences. They argue that if children learned only by imitation, the only way they could understand a sentence is if they had heard it before. However, we know that there are an infinite number of possible sentences in any language, and any speakers (even children) are able to understand and produce completely novel utterances (Bergman et al. 2007).

It is the argument of this study that as children suffering from autism start gaining the ability to use language, they are likely to produce incorrect words and sentences. They may not have necessarily heard these incorrect words and sentences from the speeches of those around them. Finally, based on the tenets of the Imitation theory, we argue that with early and effective interventions, children suffering from autism are able to navigate the communication difficulties they face, and the teachers, parents, family members, caregivers, the rest of the students in the school and even multi-media learning have a significant role to play in the development of communicative and social skills of autistic children. The children with time are able to produce and understand new sentences in the language or languages they speak.

Methods

The study adopted descriptive research design within the broad qualitative approach to collect, analyze and interpret the data. Data were collected from three units attached to three elementary schools: two in Kiambu County, and the third in Nairobi County, Kenya. The schools were purposively sampled because they had units for children suffering from autism. The rationale of the choice of public schools rests on the premise that children suffering from autism irrespective of their socio-economic background can access public schools in Kenya.

The study population comprised 72 children and 6 teachers in the three sampled schools. All the six teachers were interviewed (see Appendix) and the 72 children observed as the teachers took them through various activities, all geared towards making them acquire communicative ability. Permissions were sought to visit and research in these three autistic units was sought from relevant offices. Three visits were made in each school to interview the teachers and to observe the teaching as it progressed. The researchers would report at 8am and leave at 12.30pm. All the observations were noted, and together with the feedback from the interviews with each of the six teachers, they both formed the data that were qualitatively analyzed.

RESULTS

The number of children with autism in the sampled schools

There were 72 children with ASDs in the sampled schools. Their ages ranged between 5 and 16 years. School A had 24: six of these children were girls and 18 were boys; school B had 28: 12 girls and 16 boys; and School C had 20: 7 girls and 13 boys. Asked why there was disparity in gender among the children with ASDs, the teachers said that autism is more common among boys than girls. Their explanation concurred with the findings in literature. Centers for Disease Control and Prevention (2009), for example, observe that autism affects more boys than girls, with gender ratios generally ranging from 2:1 to 5:1.

The number, qualifications and experience of teachers of autistic children in the school

There were two teachers in each of the three schools and these teachers were wholly responsible for the teaching and management of the units. They were assisted by 6 caregivers, again two in

each school. These teachers and caregivers were insufficient considering the number of autistic children in the sampled schools and the individualized attention required for the interventions they had put in place to be effective for each child. For sufficient attention to be given to each autistic child, and therefore ensure more effective teaching and better results, the teachers interviewed reported that one teacher should not have more than 5 children with ASDs in their class.

Regarding qualifications, all the six teachers in the sampled autistic units had studied special needs education at the university, all having attained bachelor's of education degree and one was even pursuing a master's degree. Autism was one of the courses they were taught at the University. They had also been taught courses on teaching mentally retarded children and children with learning disabilities during their undergraduate programs. Thus the six teachers possessed sufficient training and knowledge to teach children suffering from autism. All the six teachers had taught in the school for between one and six years.

Support given to teachers of autistic children

The teachers interviewed reported that the school, parents, donors and individuals supported the autistic units in various ways. Each of the three schools, for example, provided opportunities for the teachers to benchmark for best practices. The school administration organized visits to other autistic units. Such visits assisted the teachers in learning new strategies of improving their teaching. Parents, on their part, worked closely with the schools to make the work of the teacher less strenuous by offering support that catered for the caregivers. In addition, different individuals, donors and well-wishers provided equipment and learning materials that facilitated acquisition of language and social skills by autistic children in their specific units. These statements from Teacher 1 illustrate:

Our school takes us to City Primary in Nairobi County for benchmarking. City Primary has a unit for teaching children with autism. The school has also employed 2 caregivers for these children. The caregivers help us by assisting the children in toilet training and feeding. Some children come with their caregivers. The caregivers are trained by Kenya Institute of Special Education.

The parents are cooperative as they bring the children to school and follow the instructions we give them in training their autistic children. They also support us by appreciating our work and by buying some of the things their children need. They also provide caregivers.

Donors such as Safaricom Foundation and Rotary Club of Thika have been very supportive. They have given us computers, television sets and videos. Some individuals also give us food and other items.

Despite these efforts, however, the resources needed were more than what the teachers, the children and the school ever received. The most important of this was food to enable the teachers keep the children in school up to the end of the term. The teachers also lacked enough computers to be able to teach the high number of children they had more effectively using the most recent computer assisted Programs. The other very important resources they needed were special furniture and better rooms for these children. The rooms and furniture they had were not conducive for these children. The teachers therefore lacked many highly useful resources that could have enabled them to use more recent and effective interventions to help children suffering from autism navigate the communication difficulties they faced.

Challenges of teaching Autistic children

The teachers in the sampled autistic units reported that they faced several challenges in their work. First, there were many children suffering from autism in the schools yet the teaching and learning resources were inadequate. For example, though each teacher is supposed to have 5-8 children, they had over 20 in each unit. This negatively affected the length of time and quality of attention they gave to each child.

Second, there was no curriculum from Kenya Institute of Curriculum Development for teaching children with ASDs. The teachers had to prepare what to teach based on individual children's needs and the resources available. On one hand, this can be advantageous for the child as the teacher has to closely interact with the child to know his or her needs. On the other hand, this can have several disadvantages. To begin with, the teacher can be overwhelmed by working with many autistic children and, therefore, be unable to know each child's individual needs. In addition, the

teacher may not be well trained and experienced to design an effective curriculum. Furthermore, if the teacher does not get guidelines on how to design curricula from any office or if there is no evaluation of such curricula, the quality of the curriculum will be highly compromised.

Third, there was lack of refresher courses, seminars and workshops for the teachers. The teachers explained that these courses, seminars and workshops could have helped them to share experiences on the most effective instructional methodology and skills that will help children suffering from autism to overcome the communication difficulties they faced. However, these courses, seminars and workshops were not organized by any government agency, thus denying the teachers an important opportunity to learn and enhance their knowledge and skills.

The fourth challenge was that though teachers of these autistic children needed to share experiences, strategies and ideas with teachers from other schools, such meetings were too few. Other challenges included the following: the caregivers not being helpful, the teachers not being able to know when an autistic child was sick, some parents of autistic children being very poor and not able to afford the things needed to support their autistic children, autistic children being very emotional and sometimes producing sounds one may not understand.

Communication difficulties children suffering from autism face

The teachers reported that the children with ASDs in their schools faced a number of communication difficulties. The main one, according to these teachers, was that these children were not able to speak and express what they needed and, secondly, a number of them stammered. What emerged from the research was that the severest cases of communicative difficulties in the schools involved autistic children who were unable to use nonverbal communication.

The teachers reported that there was one child in one school who was hard of hearing. They said that this problem increased the communication difficulties that the child had to overcome to be able to interact meaningfully. It also increased the challenges that the teachers faced in teaching the child. To be able to navigate the communication difficulties such a child is facing, the teachers needed to design unique individual education programs for the child and dedicate more time to understanding the child and training him effectively.

Countering communicative difficulties

The teachers reported that children suffering from autism were taught using various activities focusing mainly on motor skills. While some of the activities were physical, others included the use of therapy balls. The children were also trained on activities of daily living such as eating, dressing and brushing their teeth. In addition, they were taught basic numeracy skills. In the morning, for instance, the children were given cards with numbers on them. The main function of these cards was to teach the children how to count. As they counted, they were also learning how to speak by uttering short and simple words. The teachers taught them how to count repeatedly. To enable them to fit well in society, the children were taught virtues. One of these virtues was responsibility. They were trained to collect materials for use from the store and return them once they were through.

The teachers used songs to teach children and soothe their senses especially after lunch. Children enjoyed music and would dance as the music played. The teachers encouraged the children to repeat some simple words in the songs. The songs were both in Kiswahili and English, Kenya's official languages.

These words from teacher 5 explain more:

There are therapeutic breaks on a daily basis. Some of the activities these children engage in are meant to soothe them and relax their senses before lunch. Such activities include dancing to music in a circle. The children are exposed to simulation songs. Autistic children like listening to music. English gospel music is played for them. Some of the simulation songs are in Kiswahili. Some of these children can sing though they are not able to speak.

By listening to songs, children suffering from autism may be learning communication skills by imitating what the singers say. If played repeatedly, the children may pick some words and be able to pronounce them. This is another important area where the theory of imitation could be useful in explaining the teaching of language to children with ASD. Imitation is significant in the acquisition of language by children with ASDs.

The teachers told the researchers that the children were given books and pencils and thereafter assisted to write. Because autism spectrum disorder affects the motor activity of these children, they require more attention and patience from their teachers as they are assisted to write. With effective assistance in writing, drawing, and with much patience, the children do reach a point where they can write on their own. The teachers explained that this is mainly dependent on the severity of the communication difficulties that an individual child had and for how long they had been in the program.

All the six teachers made use of the following teaching resources: pegboards, number value, alphabet puzzles, crayons, picture books, toy cars, bicycles, assorted blocks, communication board, knitting needles, toothbrushes, picture charts, televisions, computers and videos. They however lacked useful resources such as talking books.

Data collected indicated that teachers of children suffering from autism used a variety of activities to help these children navigate the communication difficulties they were facing. The teachers made use of songs and repetition of words until the children mastered them. The children also watched videos and after watching, they would imitate some of the actions or some of the sounds they heard. The tenets of imitation theory help explain the aspects of repetition and imitation as methods of learning in autistic children's classroom. These children learn to speak by imitating the speech of others.

The teachers organised environmental walks around the school compound with the aim of exposing and teaching autistic children more about their environment. During such walks, the children were shown and told to repeat names of structures such as classes, names of plants and animals. This way, the children learnt new words and expanded their vocabulary.

Another strategy used to teach these children was computer applications. For example, the teachers used computers that had software with computer games to teach mathematics. In the process of learning mathematics, these children also learnt basic communication skills. This enabled them to

improve their communication abilities. The teachers from the three schools observed that most autistic children were very good at mathematics.

To counter the challenge of reading, the teachers used repetition. This, the study established, required a lot of patience from the teacher as she or he had to first of all ensure that the children could acquire speech before they could read. Other strategies that teachers in the sampled school used to train these children included use of pictures, picture charts, playing with therapeutic balls, swinging, and praying for spiritual development. The teachers used simple language, symbols, cards and peer teaching. Those children who had acquired speech and understood a concept were encouraged to show others. The children also engaged in group activity. They had talking boards. The teachers considered individual needs of the children when deciding the activities that each child would be engaged in. Teacher 4 noted:

Autistic children have different needs. Teachers therefore come up with IEPs (Individual Education Programs) for every child. We, the teachers, work together to develop the IEPs. We consider age, abilities and interests, severity, length of time and availability of resources when designing IEPs. IEP is aimed at improving communication skills, self-help and to be independent or social skills.

We observed one autistic boy in one of the sampled unit who was very good at information communication and technology though he could not speak. He could understand all the instructions which were normally given by the teacher in Kiswahili. The teachers would also communicate non-verbally and the children too would do the same. Nonverbally, the children communicated through smiling, pointing at what they wanted, using gestures and even by crying. The teachers and caregivers trained these children on nonverbal communication skills. The children therefore learnt to imitate their teachers' and caregivers' nonverbal communication behaviors, and with time, they could also express themselves independently.

The teachers and the administration in each of the schools encouraged other children to interact with autistic children. This is practical because the autistic unit is located within the compound

that caters for non-autistic children. The teachers observed that such interaction was useful in helping the children learn through imitation.

This importance of interaction in the acquisition of communicative ability among autistic children can be explained from the perspective of the imitation theory: children learn by imitating the speech that they hear in their surroundings from their parents, caretakers, and others (Bergman et al. 2007). In the sampled elementary schools, autistic children interacted with other children who were not suffering from autism and, through imitation, they learned new words, pronunciation of those words, combination of words to form sentences and they learned how to hold simple conversations with other people in different social contexts.

The effectiveness of these strategies

The teachers reported that after these children had been in the program for some time, say three years, some of them could write their names and some could write numbers from 1 to 10. Within three years, about 20% of the children suffering from autism had developed language skills. 6 of the 72 children had developed very good speech. The six could clearly and effectively describe their homes and families. 10% of the children suffering from autism who had been in the program for three years could pronounce words clearly. All the children could respond to the speech of others and they could also respond to their names. All of them could point or touch body parts once asked to do so, and they could also recognize their caregivers and parents. Moreover, they could tell different types of food.

The teachers focused on teaching them reading and the children comprehended simple passages written in Kiswahili. The children also repeatedly listened to songs sung in Kiswahili. Due to their ability to comprehend what they read, these children could also do simple mathematics such as subtraction and addition. Therefore, the interventions used to teach them reading and comprehending what they read enabled them to learn skills in mathematics.

After being in the program for one year, all of the children were able to use and understand nonverbal communication. They could use gestures and facial expressions which they were not

able to use before joining the program. The children could tell the direction to their home and even bid bye to others nonverbally. Similarly, the children, with time, could understand messages communicated through gestures, facial expressions and even interpret the tone of one's voice. They could tell one's feelings through body language and tone of voice.

Interviews with the teachers established that after being in the program without interruption, some of the autistic children could draw and colour. These were abilities that they did not have when they joined the program. Through drawing and colouring, these children were able to express their thoughts and inner feelings. This shows that children suffering from autism have creative abilities which can also be developed to enable them to communicate meaningfully. The study found that teachers trained autistic children in all these skills through repetition. Their teachers repeated whatever they wanted to teach them until the children fully modelled and learnt it.

Discussion

The findings that have emerged from the analysis of data show that autistic children face various communicative difficulties. The findings also point out that education of these children plays a significant role in facilitating acquisition of communicative abilities and social skills that the children need for them to lead functional lives.

From the data collected, some of the factors that influence the prevalence of autism include gender, family socio-economic status and environmental factors. The study found that boys were more likely to suffer from autism than girls. This was confirmed by the number of children suffering from autism in the sampled autistic units as well as from relevant literature (Centers for Disease Control and Prevention 2009).

The findings of the study show that the children in the three autistic units displayed nonverbal communication difficulties. As Dawson et al. (2005) point out, children with ASDs may have a basic impairment in much non-verbal behavior such as the ability to both perceive and imitate facial expression. Studies have also shown that the brain of children with Autistic Disorders process faces as if they are objects. As a result, every time the facial expression of the communication partner is changed, the person with an ASD must re-identify the face (Schultz 2005). People with ASD may also have a decreased ability to simultaneously process speech and

posture that influences both social processing and pragmatic language (Silverman et al. 2010). Without specific interventions, nonverbal communication impairments may be problematic even with the development of conversational language (Hyman and Levy 2013).

Strategies that teachers of autistic children use to help children navigate communication difficulties have also been discussed. For interventions to be effective in helping children suffering from autism to overcome communication difficulties, early and accurate diagnosis needs to be done so that these interventions can be started early. Experts say it is easier to assist a young autistic toddler than a child over 14 years, and advise that more attention should be given to early detection of the disorder.

Early educational programs focus on teaching social language and enhancing appropriate behaviors (Hyman and Levy 2013). However, from the data collected it was clear that some parents could not put their autistic children in early educational programs because of poverty or ignorance. High rates of poverty and ignorance are common in sub-Saharan Africa. This could therefore make many children suffering from autism to miss an opportunity to attain critical communication abilities that could enable them to overcome communication difficulties and lead meaningful lives.

The study found out that teachers in the autistic units made use of Individualized Educational Program (IEP). A comprehensive approach usually requires a combination of the IEP, behavioral intervention and supports, social and pragmatic language skills development and family support. The interventions employed in the three units made use of each of these approaches. However, with the high number of children suffering from autism being taught by only two teachers per autistic unit, these interventions may not achieve the effectiveness they are supposed to. The teachers may not be able to give each child the attention they deserve to achieve good results. A high number of children with autism against a shortage of specially trained teachers might also be the situation in many other countries in sub-Saharan Africa. This therefore affects the effectiveness of the interventions employed to help autistic children navigate communication difficulties.

The National Research Council (2001) observes that education is a critical component of Autism Spectrum Disorders (ASD). Successful programs share the characteristics of early entry, active participation in an intensive program offered daily throughout the year, planned teaching opportunities organized with the attention span of the child in mind and sufficient adult staffing to meet the needs of an individual child and his or her program (Hyman and Levy 2013). The programs in the three autistic units start early. The children go to school when schools are open like other children in the mainstream programs and they close school when other children close schools. Teaching is based on the attention span of the child and the needs of an individual child. This shows that if countries in sub-Saharan Africa are able to put in place the appropriate interventions to help children suffering from autism access education, even with meagre resources, most of these children will acquire communicative ability to be able to lead meaningful lives.

Teaching children suffering from autism in an integrated school such as in the sampled schools is beneficial since the children learn not just what they are taught by their teachers but also imitate what the other children who are not suffering from autism are doing. This view concurs with Hyman and Levy's (2013) observation that inclusive education allows for the child to model appropriate behavior and, in the process, the child learns how to participate in the community.

Another crucial finding was the fact that autistic children in the three units developed an ability to comprehend what they read in Kiswahili. This is evidence that children suffering from autism could even achieve bilingualism if appropriate strategies are used to teach them. It could also be evidence that reading and comprehension skills could be taught much faster if the language of instruction is also commonly used in other contexts, besides the school. The study assumes that most of these children come from low income families whose main language of interaction at home is Kiswahili.

Another finding that emerged from the study is the importance of ICT in navigating communication difficulties. The children in the three units were at home in the use of ICT devices, and they could operate the equipment very well. According to Ennis-Cole et al. (2013), technology can be used to help children with autism communicate. One of the applications of technology currently in use is augmentative and alternative communication devices (AACs). Augmentative

and alternative communication tools can be simple non-electric books or boards or more complex high-tech devices that use eye-gaze, head or mouth pointers to assist users who have physical limitations (Ennis-Cole et al. 2013). The authors state that AACs support the development of language in children and adults with autism spectrum disorders (ASDs) who have limited verbal skills, echolalia (repetitive responses), or are non-verbal. According to Millar et al. (2006), AAC use increased speech production in individuals with developmental disabilities and autism who had inadequate speech to meet their communication needs. With communication boards and computers, it is therefore clear that the teachers in the three autistic units where data were collected used technology to help autistic children navigate the communication difficulties they faced.

The teachers used a multi-media approach in the teaching of language and social skills to the children in the three autistic schools. It also emerged that teachers made use of more visual than audio resources in the classroom. Because of the communication difficulties that children suffering from autism face, the choice of teaching resources in the three units was in line with the argument by Hyman and Levy (2013) that learning may be more efficient with visual rather than auditory cues.

A strategy that was not observed in the three autistic units yet could be more friendly and effective to both teachers and children is guided reading. Studies indicate that guided reading can serve as a successful reading intervention for students with ASD (Simpson et al. 2007). Guided reading is a teaching approach used with all readers, struggling or independent, that has three fundamental purposes: to meet the varying instructional needs of all the students in the classroom; to teach students to read a variety of increasingly challenging texts with understanding and fluency (Fountas and Pinnell 2001); and to construct meaning while using problem-solving strategies to figure out complex sentence structure and gain understanding of new ideas or concepts (Iaquinta 2006). Guided reading occurs in a small group setting to allow for interaction among teachers and readers (Simpson et al. 2007). The authors add that because each group of readers has different strengths and needs, each guided reading lesson varies in the skills that the teacher focuses on. The teacher can read small portions of a text, based on the abilities of the children, and ask them to imitate him or her.

Suggestions on areas of improvement

The teachers in the three autistic units suggested that children should be taken to school at an early age, for example, at the age of three years. This will make interventions more effective. The teachers further observed that because of poverty and ignorance, some parents brought their autistic children to school when they were more than six years old. Late entry of children with ASDs to school made interventions to take longer before they could be effective. Late introduction of interventions make very little impact in helping the child to navigate communication difficulties associated with autism. This scenario calls for governments and other stakeholders in sub-Saharan Africa to educate people on the importance of taking their autistic children to school early. To address the problem of poverty being responsible for these children being taken to school late, governments and other stakeholders need to heavily support the schools that have programs for children suffering from autism so that these children can be offered free education.

Impact

The study found that children suffering from autism face many communication difficulties. These include lack of speech, repetitive speech and lack of non-verbal communication abilities. In teaching these children, the study found that the teachers faced a lot of challenges. These challenges included dealing with children who are not easy to understand because they lack both verbal and non-verbal communicative abilities, children who are very emotional, having a high number of autistic children in their classes, lacking sufficient support in terms of resources to teach these children, and lack of regular interactions with other teachers of children suffering from autism to share ideas and experiences.

In spite of the challenges these teachers faced, the study found that the interventions they used to teach these children to navigate communication difficulties were effective. The interventions were varied, ranging from repetition of instructions, peer teaching, use of songs and interactions with pupils who do not have disabilities, to use of videos, computer and television programs, among others. These varieties of interventions have different strengths which enable children suffering from autism to effectively learn a variety of communication and interaction skills.

The study found that the autistic children who join autistic units early enough and stay in the program without any disruption were able to develop effective and meaningful speech. They were able to overcome the communication difficulties they faced such as echolalia, imperative labeling, improper use of pronouns and inability to use nonverbal behaviors. They could therefore communicate using verbal and non-verbal messages. These children could pronounce words correctly, identify and name people, places, animals and other features in their environment, read clearly and comprehend what they read, write legibly and hold meaningful conversations with teachers and other pupils. It was also established that upon successfully acquiring speech and being able to read and write, these children were integrated into the regular school system and they learnt like other children who do not suffer from autism.

The study suggests that more modern teaching resources be made available in schools offering Programs for children suffering from autism so that instruction may be made easier. Such resources include the use of a variety of augmentative and alternative communication devices. This will also make interventions to navigate communication difficulties more effective.

Teachers should be patient with these children. For instance, teachers of children with ASDs should repeat instructions over and over again for the children to understand. This is the only way these children can learn to speak, read and write. The teachers should not compare autistic children with non-autistic ones. This can happen when there are enough well-trained teachers who can handle autistic children. The teachers should also be taken for regular refresher courses and be given enough support and quality resources to support them as they work.

Since distance from schools for children suffering from autism could also be a hindrance to taking these children to school, there is need for more schools spread across all parts of sub-Saharan African countries that have educational programs for children suffering from autism. This will enable parents of these children and the children themselves to have easy access to such schools.

Considerations for future work, research and politics

In order to improve the quality of interventions for autistic children to navigate communication difficulties, we suggest a number of considerations that need to be looked into in the future. There

is need, for example, for an analysis of the quality of curricula used to teach children suffering from autism. Since there is no agency in the Ministry of Education in Kenya that develops the curriculum for autistic learners and teachers of these children are left to develop curricula based on the needs of individual children, it is important to establish the features of these curricula: whether they meet international standards and whether they are effective for purposes of quality teaching. Research should also be done in other countries in sub-Saharan Africa to establish whether they have curricula for children suffering from autism, the quality of such curricula, whether they meet international standards and whether they are effective for purposes of quality teaching.

The other suggestion for research is on the effectiveness of music in teaching communication skills to children who are suffering from autism. This research should focus on aspects such as the quality and complexity of the songs used in teaching communication skills.

In conclusion, we note that more awareness and sensitization is needed to counter the cultural politics surrounding acceptance of persons with disability in sub-Saharan Africa. Everybody should know that a person with ASD, for example, is as human as any other. He or she has feelings, dreams and hopes for tomorrow. Children suffering from autism need understanding, care and support to be able to develop communicative ability and social skills needed for them to lead a functional life in the society. They should be brought to the open instead of being locked out in their rooms or being seen as a curse or a burden in the community.

Corresponding Author

Martin C. Njoroge
Pan Africa Christian University
P.O. Box 56875 – 00200
Nairobi, Kenya
mnjoroge@pacuniversity.ac.ke

Acknowledgement

The authors are grateful to the 6 teachers, 72 students and the three head teachers in the three purposively sampled schools for their invaluable help during the collecting of data.

References

- American Psychiatric Association. 2000. *Diagnostic and statistical manual of mental disorders*. (Text Revision). Washington, DC: American Psychiatric Association.
- Bakare, M. O., P. O. Ebigbo, and V. N. Ubochi. 2012. Prevalence of autism spectrum disorder among Nigerian children with intellectual disability: a stopgap assessment. *J Health Care Poor Underserved* 23 (2): 513-8. doi: 10.1353/hpu.2012.0056 PMID: 22643602
- Bakare, M. O., and K. M. Munir. 2011. Autism spectrum disorders (ASD) in Africa: a perspective. *African Journal of Psychiatry* (Johannesburg) 14 (3):208-10. doi:http://dx.doi.org/10.4314.ajpsy.v14i3.3 PMID: 21863205
- Bergman, A., K. C. Hall, and S. M. Ross. eds. 2007. *Language files: Materials for an introduction to language and linguistics*. Columbus, OH: The Ohio State University Press.
- Bunning, K., J. K. Gona, C. R. Newton, and S. Hartley. 2014. Caregiver perceptions of children who have complex communication needs following a home-based intervention using augmentative and alternative communication in rural Kenya: An intervention note. *Augmentative and Alternative Communication*, 30:4, 344-356, DOI: 10.3109/07434618.2014.970294
- Centres for Disease Control and Prevention. 2009. Surveillance summaries: Prevalence of autism spectrum disorders – Autism and developmental disabilities monitoring network, United States 2006. *Morbidity and Mortality Weekly Report*, 58 (No. SS-#), 1-24.
- Dawson, G., S. J. Webb, and J. McPartland. 2005. Understanding the nature of face processing impairment in autism: Insights from behavioral and electrophysiological studies. *Developmental Neuropsychology*, 27 (3), 403-424. doi:10.1207/s15326942dn2703_6
- Ennis-Cole, D., B. A. Durodoye, and H. L. Harris. 2013. The impact of culture on autism diagnosis and treatment: considerations for counselors and other professionals. *The Family Journal: Counselling and Therapy for Couples and Families*. 21(3) 297-287. Doi:10.1177/1066480713476834
- Ensor, T., and S. Cooper. 2004. Overcoming barriers to health service access: influencing the demand side. *Health Policy and Planning*, 19, 69-79. doi: 101093/heapol/czh009
- Fountas, Irene and Gay Pinnel. 2001. *Guided readers and writers, grades 3-6: Teaching comprehension, genre, and content literacy*. Portsmouth, NH: Heinemann.
- Hyman, Susan, L., and Levy, Susan, E. 2013. Autism spectrum disorders. In *Children with disabilities*, ed. Batshaw, M. L., Roizen, N. J., and G.R. Lotrecchiano, ----- . Baltimore: Paul H. Brookes Publishing Co.
- Iaquinta, Anita. 2006. Guided reading: A research-based response to the challenges of early reading instruction. *Early Childhood Educational Journal*, 33(6), 413-418.
- Jochman, A. 2006. Speech and language treatment in East Africa. *The ASHA Leader*. Retrieved from <http://www.asha.org/publications/leader/2006/060207/f060207b.htm>

- Karambu, Immaculate. 2010. How parents can take care of autistic children. <http://www.businessdailyafrica.com/How-parents-can-take-care-of-autistic-children/-/539444/948902/-/g1g4w6z/-/index.html>. Accessed 10th Oct 2016.
- Makinen, Marty, Hugh Waters, Margie Rauch, Nailya Almagambetova, Ricardo Bitran, Gilson, L., and Ram, S. 2000. Inequalities in health care use and expenditures: empirical data from eight developing countries and countries in transition. *Bulletin of the World Health Organization*, 78, 55-65.
- Millar, Diane C., Janice C. Light, and Ralf W. Schlosser. 2006. The impact of augmentative and alternative communication on the speech production of individuals with developmental disabilities: A research review. *Journal of Speech, Language and Hearing Research*, 49, 248-264.
- Moisi, J. C., D. J. Nokes, H. Gatakaa, T. N. Williams, E. Bauni, O. S. Levine, and J. A. G. Scott. 2011. Sensitivity of hospital-based surveillance for severe disease: a geographic information system analysis of access to care in Kilifi district, Kenya. *Bulletin of the World Health Organization*, 89, 102-111. Retrieved from <http://dx.doi.org/10.1590/S0042-96862011000200009>
- Mwangi, Muraguri. 2015. Taking care of autistic children. <http://www.standardmedia.co.ke/lifestyle/article/2000159261/taking-care-of-autistic-children/?pageNo=2>. Accessed 15th Oct 2016.
- Rapin, I., and D., Michelle. 2003. Update on the language disorders of individuals on the autistic spectrum. *Brain and Development*, 25 (3), 166-172. doi: 10.1016/S0387-7604(02)00191-2
- Riccio, Ariana. 2011. Autism in Kenya: A Social, Educational and Political Perspective. *SIT Digital Collections*. Retrieved 10 October 2016. http://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=2198&context=isp_collection
- Schultz, Robert T. 2005. Developmental deficits in social perception in autism: The role of the amygdale and fusiform face area. *International of Developmental Neuroscience* 23 (2-3), 125-141. doi:10.1016/j.ijdevneu.2004.12.012
- Simpson, Cynthia G., Vicky G. Spencer, Robin Button, and Sylvia Rendon. 2007. Using guided reading with students with autism spectrum disorders. *TEACHING Exceptional Children Plus*, 4 (1) Article 5. Retrieved 9 October 2016 from <http://escholarship.bc.edu/education/teplus/vol4/iss1/art5>
- Wylie, K., L. McAllister, B. Davidson, and J. Marshall. 2013. Changing practice: implications of the World Report on Disability for responding to communication disability in underserved populations. *International Journal of Speech-Language Pathology*, 15, 1-13. doi: 10.3109/17549507.2012.745164
- Wylie, K., McAllister, L., Marshall, J., Wickenden, M., and B. Davidson. 2012. Overview of issues and needs for new SLP university programs in developing countries. Paper presented at the 4th East African Conference on Communication Disability, Kampala, Uganda.

Appendix: Interview Schedule for Teachers

SECTION ONE: PEDAGOGICAL PREPARATIONS

1. What is your highest academic level?
2. What is your professional qualification?
3. Before you were deployed to this unit, had you interacted with learners with Autism Spectrum of Disorders (ASD)?
 - ii) If yes, specify how long
 - iii) For how long have you taught at the unit?
4. What is the number of learners in your class?
5.
 - i) Do you employ team teaching in your class?
 - ii) Do you have teacher aides in your class?
 - iii) What role do teacher aides play in your class?
 - iv) Have you attended any in-service course for learners with autism since you joined the unit?
 - v) How many times have you attended the in-service course?
 - vi) How regularly do you attend the in-service course?
 - vii) Has the in-service course improved your ability to teach children suffering from autism?
6. Do you face any challenges when teaching learners with autism in your class?
7. What strategies do you employ to overcome the challenges mentioned above?
8. What strategies would you suggest in order to manage the challenges faced by teachers teaching learners with ASD?

SECTION TWO: COMMUNICATION DIFFICULTIES FACED BY CHILDREN WITH AUTISM

1. Which common communication difficulties do children with autism in your class face?
2. What are some of the patterns of language use and behaviour that are often found in children with ASD in your class?
3. Do all the communication difficulties mentioned above affect the ability of children with autism to learn and socially interact?

4. Which of the communication difficulties facing autistic children in your class can you rate as:
 - i. Mildly severe
 - ii. Not severe
5. Are there children suffering from autism who do not experience communication difficulties?
 What are some of the factors that influence the nature of communication difficulties that children suffering from autism face?
6. How can you rate children suffering from autism in your class on difficulties in pronouncing words?
7. Which among the following subjects do children suffering from autism in your class express themselves clearly?
8. Based on your experience, at what age do children suffering from autism respond fast to interventions in navigating communication difficulties?
9. What are some of the challenges you face when teaching children suffering from autism to navigate communication difficulties?

SECTION THREE: TEACHING STRATEGIES

1. Does the unit have a curriculum for learners with autism?
2. Do you have a syllabus that you use in teaching learners with autism?
3. i) Does the syllabus meet the needs of learners with ASD?
 ii) Please explain your answer
 iii) Do you have an Individual Education Plan (IEP) for every learner suffering from autism in your class?
 ii) Who develops the IEP for learners with autism in your class?
 Do you use augmentative and alternative communication (AAC) supports in teaching learners with autism?
4. Which of the following augmentative and alternative communication devices do you use?
 Picture Exchange Communication System (PECS) Sign language
 Communication boards and communication books Communication cue cards
 Conversation books Voice output communication aids None

5. Which among the following do you use to communicate with children suffering from autism? Using simple language Using symbols or pictures Literal understanding Repeating instructions Always addressing the child by their first name
6. i) Are there strategies, other than the ones mentioned above, that you use to teach children with autism in your class to overcome communication difficulties?

ii) If your answer is *yes*, name these strategies
7. i) Are there teaching resources, apart from those mentioned above, that you use when teaching learners with autism in your class?

ii) If yes, list these teaching resources
8. What are the factors that influence your choice of strategy in teaching children with autism to overcome the communication difficulties they are facing?

 Age Interests Severity of communication difficulty The availability of resources needed in using the approach The length of time it will take for the child to start showing signs of improvement
9. Do the strategies you use help children suffering from autism to overcome the communication difficulties they face?
10. How can the teaching of children with autism be improved to help them overcome communication difficulties?