

Academic Achievement Of Learners With Down Syndrome In Special Primary Schools For Learners With Intellectual Disability In Kiambu County, Kenya.

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Abstract- Down syndrome (D S) in Learners cause many challenges including health problems, hearing Impairments and learning disabilities, including those affecting communication. However, with use of proper resources, strategies, early intervention and enough time they may improve on their academic performance. This paper aimed at analyzing academic achievement of learners with Down syndrome in special primary schools in Kiambu county. The sample of the study consisted of 6 head teachers, 74 teachers and 147 parents from the six special primary schools for learners with intellectual disability in kiambu county. The respondents completed questionnaires, observation checklists and interview guides. The study findings showed that head teachers revealed that all learners with DS had communication difficulties. Teachers revealed that learners with DS did not fully participate in class during the teaching and learning activities. Most parents reported that their children recorded poor performance even though their social skills were highly demonstrated.

Index Terms- Academic achievement, Down syndrome, Early intervention, Instructional resources and Teaching strategies.

I. INTRODUCTION

The World Report on Disability (2011) by the World Health Organization (WHO) and the World Bank estimates that approximately 15% of the world's population lives with some form of disability. The report highlighted the disproportional effects which disability has on people and children in particular from lower income countries. The report continued to say that nowhere else is this reflected than in the sphere of education where these children are less likely to start or finish school than their non-disabled peers. Of profound importance is the impact which these issues around access and participation in education have on contributing to high levels of unemployment among people with disabilities, leading to very poor levels of economic participation in their societies and high levels of poverty and deprivation, both for the person with a disability and their family (SADPD, 2012).

All learners have a right to education regardless of their disability, gender, race, religion, social status or any other criteria. This is as stipulated by the international, regional and national instruments of learners' rights, key among them the United Nations Convention on the Rights of the Child, UNCRC 1989; the African Charter on the Rights and welfare of the child 1990; and the learner's Act (2001). Although rights are fundamental to all learners, a report by the United Nations Educational, scientific and cultural organization (UNESCO, 2002) noted that, in most countries, this reality is bleak regarding access and quality education especially for learners with special needs.

In America, the history of special education dates back to the early part of the 20th century when parents formed advocacy groups to help bring the educational needs of children with special needs in the public eye. Prior to that, parents of children with special needs had no other choice than to educate them at home or pay for expensive private education. Individuals with disabilities Act (IDEA), requires all schools to provide individualized or special education for children with qualifying disabilities. IDEA gives guidelines for schools to provide education that is tailored to meet the needs of the individual child with a disability.

This education must be of benefit to the child and should prepare them for further education or to work and live independently (Special Education News, 2014).

Within the Australian context, parents of learners with disabilities have reported that inclusive education does not always live up to the theory espoused by educators (Queensland (QPPD), 2011). Research has identified that many parents do not feel confident about inclusive policies in Queensland schools, and are concerned that some children with disabilities do not have a sense of belonging and achievement in local school contexts (GPPD, 2011). Down Syndrome Australia ((DSA) provide support, information and resources to people with DS and their families across the country (DSA, 2014).

On the African continent, it is estimated that only between one and two percent of the disabled people have access to basic services including care, rehabilitation and education (Secretariat for the Rehabilitation of Disabled Persons, 2006). The Secretariat of the African Decade of Persons with Disabilities (SADPD) (2012), reports that early efforts aimed at providing education for children with disabilities in Africa have mainly been through special schools. These institutions can only cater for a fraction of disabled children and have the disadvantage of isolating them from their families and society. It also does not equip them with the knowledge and skills required to pursue higher education or access productive employment (SADPD, 2012). Many people with Down Syndrome in Africa faced low life expectancy, physical abuse, stigma, segregation and limited life opportunities, both as children and adults. Societal negative attitude prevented them from reaching their potential, living valued lives and contributing to society (Down Syndrome International, 2015).

In Namibia, one in 630 learners born had Down syndrome, and with a population of 2.2 million citizens, there was an estimated 3400 people with this chromosomal disorder (Khobetsi, 2014). However, according to Eline Van der Linden, founding a member of the Down Syndrome Association of Namibia, due to the lack of information, advocacy, and medical care only 35% of these learners would live beyond the age of two. The Down Syndrome Association of Namibia, which was launched aimed at reaching out to the government, private sector and the general public to change perceptions about people with Down Syndrome. The association would see people with the condition living a meaningful and happy life, engaged and fully included in the society.

The situation for people with Down syndrome in Zambia was bad, they hid children with DS in homes, they were not able to access quality health care and education and socializing was still a problem. This was all due to lack of sensitization and dissemination of information. Parents had negative attitude towards early childhood development. This was due to lack of support and information as well as lack of services from the government. On the aspect of education most special schools in Zambia were used as dumping grounds, many learners with Down Syndrome were put there to pass time. Though some schools did provide help, there was no proper curriculum in place. Down syndrome Foundation of Zambia had been invited to work with schools to improve the situation (Down Syndrome Foundation of Zambia, 2015).

In Kenya, the government recognizes the importance of Special Needs Education as a key sector for accelerating the attainment of the second goal of Millennium Development Goal (MDG) which is Education For All. The session Paper No 1 of 2005 in Kenya outlines the vision of the education sector as an inclusive quality education that is accessible and relevant to all children (SNE Policy, 2008).

Special education has for a long time been offered in special schools, however with the government's policy on integration, the main challenges relating to accessing and equity include: lack of data on children with special needs, lack of a comprehensive policy on SNE, inappropriate infrastructure, inadequate facilities and lack of resources that makes it difficult to integrate special education in regular programs (SNE Policy, 2008; MDG, 2005). The Kenyan government updated their policy for people living with disabilities when the constitution was changed in 2010. The new legislation included a section for disabilities and allowed for tax-free benefits and bonuses.

About 40,000 Kenyans are living with DS condition, struggling with speech and movement. About 1 in every 800 children in Kenya are born with DS, (Jaman, 2010). In Kenya, many children born with DS are locked away from the people's glare, lest they shame their parent's and healthy siblings. In the early 1980s, educators found that a stimulating programme of exercises and games could significantly spur development of muscles and the sense of touch, sight and hearing in children with DS. Meanwhile, DSSK is planning to set up the first school for children with DS, because most schools do not take care of their needs to enhance the children's prospects (Jamah, 2010)

Therefore, following the above findings, it is important that the study on academic achievement of learners with DS has to be researched and mitigated comprehensively worldwide. Henceforth, this study seeks to identify the instructional resources used by teachers to teach learners with DS in special primary schools. The study further seeks to assess the instructional strategies used in teaching learners with Down syndrome.

II. MATERIALS AND METHODS

The study was carried out in six special primary schools for learners with intellectual disability in Kiambu county from April 2016 to November 2016. A total of 90 participants participated in the study.

Study Design: Descriptive research design.

Study Location: The study was carried out in Kiambu county in central province, Kenya. Its borders Murang'a county to the North and North East, Machakos to the East, Nairobi and Kajiado counties to the south. The study was conducted in six special primary schools for learners with intellectual disability.

Study duration: April 2016 to November 2016.

Sample size: 6 teachers, 44 teachers and 40 Parents.

Sample size calculation: A sample of 90 participants was selected from a total of 227 targeted participants. Headteachers were purposive selected from the six special primary schools, teachers and parents were randomly selected.

Subject and selection method: The respondents were drawn from special primary school only. Headteachers and teachers were asked to answer questionnaires while parents were given interview guides.

Inclusion criteria:

1. All the six special primary schools headteachers.
2. Some teachers in the special primary schools.
3. Some parents from the special schools.

Exclusion criteria:

1. All regular primary school teachers.
2. All learners with Down syndrome.

Procedure Methodology:

After getting clearance and research permit from relevant authorities, the researcher visited the schools under study to establish rapport and sought permission from the administration to be allowed to conduct research in their schools. The researcher then personally distributed the questionnaires to the headteachers and teachers to fill. The respondents were given time to go through the questionnaires and ask questions where they did not understand for clarification before the researcher left. The respondents were also advised not to write their names on the questionnaires. The filled questionnaires were collected after a duration of one week.

Through the help of the headteachers, the researcher conducted face-to-face interviews to the parents of the learners with Down syndrome who were available in the schools under study. The interview was conducted the same day the researcher collected the questionnaires within that week. Information gathered was written down by the researcher. The researcher filled observation checklist and lesson observation schedule in a classroom setting within stipulated period of time.

Statistical Analysis:

Quantitative data from the questionnaires was coded, edited, organized and analyzed using Statistical Package for Social Sciences (SPSS). Descriptive statistics such as frequencies and percentages were used to analyze the data quantitatively. On the other hand, qualitative data from interview guide and observation was done using thematic approach. The results were presented by use of frequency tables, bar graphs and pie charts.

III. RESULTS AND DISCUSSIONS

Academic Achievement of learners with Down syndrome in special primary schools.

Objective sought to analyze the academic achievement of learners with Down syndrome in special primary schools. This was achieved by analyzing the documents related to academic progress focused on learners (aged 9 years) with DS from sampled six special schools through examining the learning activities and analyzing the competence of learners with DS with regards to communication, pronunciation of simple words, reading skills, writing skills, counting and vocabulary tests. The results of the findings are as presented in Table 4.5.

Table 4.5: Academic progress of learners with DS

Academic component	Sample A	Sample B	Sample C	Sample D
Communication	Communicates with difficulty but has good social skills	Communicates with difficulty	Poor speech	Has poor communication skills
Pronunciation	Hardly pronunciation simple words	Skips letters	Prolonged pronunciation	Correctly enunciates
Reading	Reads with difficulty	Hardly reads	Good reading skills	Average reading skills
Writing	Writes under guidance	Poor writing skills	Writes under close guidance	Poor handwriting
Spelling	Poor spelling	Average vocabulary skills	Average in spelling	Average in spelling
Counting	Only counts up to 20	Can count up to 50	Counts but skips some numbers	Counts beyond 50

As seen in Table 4.5, a large number of learners with DS had communication difficulties. They also faced challenges in relation to pronunciation, reading, writing and counting. The findings also revealed that despite the fact that some learners with DS had communication difficulty, they still had good social skills. These findings imply that majority of learners with DS in the special primary schools in Kiambu County have difficulties in literacy and numeracy skills acquisition and the situation needs to be effectively addressed.

Further observation of the lessons attended by learners revealed that learners with DS did not fully participate in class during the teaching and learning activities. It was observed that while others concentrated in learning, others would distract their desk mates by bullying them while others threw objects to their colleagues. Even though sitting arrangements suited learners with DS, they could easily make unnecessary movements in class during teaching and learning activities. Learners with DS could only perform individual task under close supervision of the teachers.

In an interview, parents were asked to give any comment about their child’s academic achievement progress. Most parents reported that their learners recorded poor performance even though their social skills were highly demonstrated. This finding was buttressed when one parent explained: ‘In most cases, my daughter suffers a lot from fatigue and spends most of her time sleeping. Therefore homework and private studies are not prioritized due to her health conditions which causes uncertainties in her commitment to studies’.

According to Buckley (2000), Down Syndrome results in moderate to severe learning difficulties. In line with the findings of the study, most learners with DS start their schooling at 5 years with a spoken vocabulary of about 300 words. Some can recognize up to approximately 400 words although they may not always know the meaning or how to use them.

This study found that, learners with DS could count at least up to 20. This finding is backed by Bird and Buckley (2001) who noted that, with regard to their numeracy skills, learners with DS up to the age of 5 years have learnt about numbers and mathematical words through nursery school songs or activities. During the infant years, age from 4 to 7, some learners with DS are developing numeracy skills up to 20, with some knowledge of numbers beyond 20. In the junior years (between 8 and 11), some learners know about numbers to 100, counting in units of ‘two’ or ‘five’. This is a strong skill for learners with DS.

It is evident in the findings of the study that learners with DS had not acquired basic skills in communication despite their advanced age of 9 years, in comparison to learners without disability who acquires good communication, pronunciation, reading, writing and vocabulary at an early age. This is in line with Goodman and Linn (2003) that learners with Down syndrome may display longer processing times for information which result in educators misinterpreting this as passivity or low motivation in tasks.

4.4 Instructional Resources used by the SNE Teachers in Teaching Learners with DS

Objective sought to identify instructional resources used by the SNE teachers in teaching learners with down syndrome. An observation was conducted to determine the availability of instructional resources. During the study,

learning materials such as resources books, charts, pictures, visual schedule timetables, blackboards, exercise books and drawing items were observed. Additional results were obtained from headteachers and teachers response from the questionnaires. The findings are presented in Table 4.6.

Table 4.6: Availability of Instructional Materials

Instructional Materials	Instructional materials		
	Adequate	Not adequate	Not available
	No.	No.	No.
Communication books	0	6	0
Charts	1	3	2
Pictures/photographs	0	6	0
Visual schedule timetables	1	5	0

Drawing items 0 6 0

As seen in Table 4.6 teaching and learning materials were not sufficient in most special schools. These findings found that communication books, charts, pictures, visual schedule timetables and drawing items were available in special schools, but they were inadequate. The finding was backed up the response by head teachers which revealed that all the respondents agreed that teaching aids were inadequate.

Teachers were also asked to give some of the instructional resources they used when teaching these learners. Findings revealed that most teachers preferred utilizing pictures to other instructional resources for the sake of boosting the low memory of learners with DS. However, the instructional materials were not adequate for all learners in the classrooms. This implied that both learners with DS and their teachers faced difficulties in copying up with ratio of materials shared in the classrooms.

These findings were consistent with those of Githuthwa (2011) who asserted that learning is strengthened when there are enough reference materials such as communication books, stationery and teaching aids. Thus, shortage of communication books and materials had harmful effect on satisfactorily teaching.

According to Ng'asike (2012) a strong positive significant relationship between instructional resources, academic performance and effective teaching cannot take place within the classroom if basic instructional resources are inadequate.

The findings were in line with Ministry of Education (2009) which also made a similar observation that lack of adequate learning facilities discourages learners. Githuthwa (2001) further argues that insufficient resources hinder effective implementation of quality education policy. The implication of this result is that provision of adequate teaching/learning resources can positively change teachers' attitude to the teaching making teaching and learning interesting not only meaningful but also exciting to the learners with DS and hence realization of quality education in special schools.

4.5 Instructional Strategies Used in Teaching Learners with Down syndrome

Objective sought to assess the instructional strategies used in teaching learners with Down syndrome in Kiambu County. This was achieved by asking teachers to give the instructional strategies they used in teaching learners with Down Syndrome. Table 4.7 gives a presentation of findings obtained from the observation schedule.

Table 4.7 Instructional Strategies /Methods and Frequency of use by Teachers

Instructional methods	Frequency of use		
	Frequently used	Rarely used	Not used at all
Individualized Educational Programme	20 (50%)	18(45%)	2(5%)
Peer tutoring	2(5%)	24(60%)	14(35%)
Differentiated Instructions	8(20%)	27(67.5%)	5(12.5%)
Task Analysis	11(27.5%)	23(57.5%)	6(15%)
Topic Modification	14(35%)	26(65%)	0(0%)

N=40

The results in Table 4.7 show that such methods as; Individualized Educational Programme, peer tutoring, differentiated instructions, task analysis and topic modification were used for instruction. However, not all strategies were equally preferred and used by teachers. Majority 27(67.5%) of teachers reported that they rarely used differentiated instruction as a method. Findings further revealed that another high proportion

26(65%) said that topic modification was rarely used. The least used method of instruction was peer- tutoring as 14(35%) said that they did not apply it at all. This implied that teaching was rather passive than giving learners with DS to handle tasks on their own hence they were not adequately provided with the essential skills and knowledge, both practical and theories for their future preparation.

Teachers were further asked to give the frequency at which they planned and reviewed learners' progress as a team. The results are as presented in Figure 4.2.

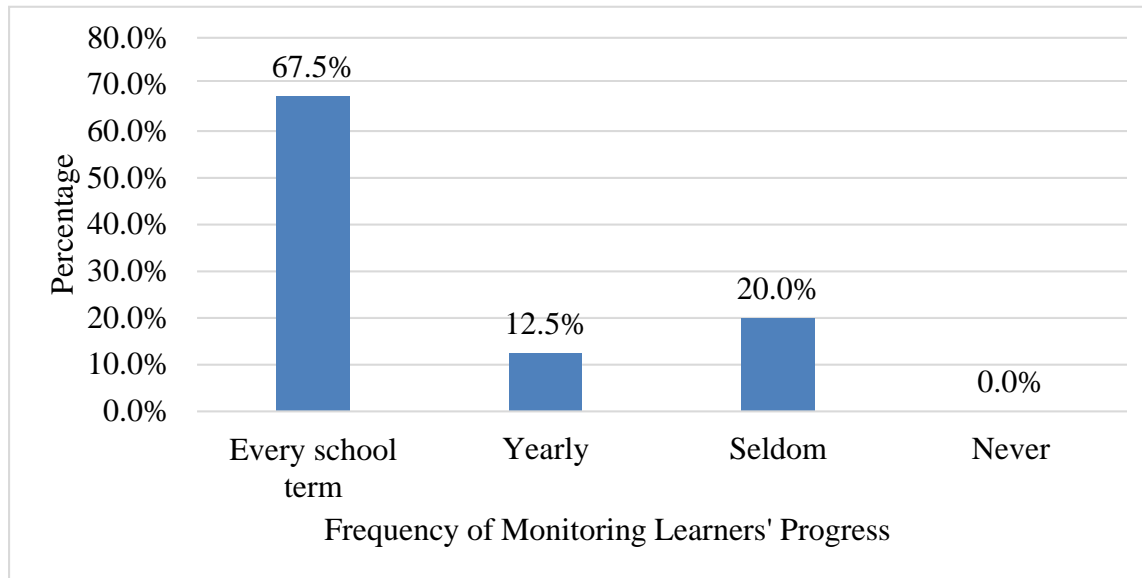


Figure 4.2: Teachers' Response on Frequency of Monitoring Learners' Progress

Results in Figure 4.2 indicated that majority 27(67.5%) reported that they monitored the progress of learners with DS at the end of term. Findings further showed that 5(12.5%) of the teachers said that they did the same at an interval of one year while 8(20%) reported that they seldom checked the learners' progress. This finding means that none of the teachers in the special primary schools who participated in the study did follow up the academic progress of learners with DS on a daily basis hence exposing these learners to delay process of learning. In disagreement to this finding, Dolva, Gustavsson, Borell, and Hemmingsson, (2011) emphasized that effective intervention and early identification is important approach in dealing with learners with special needs, especially with learning difficulties such as DS.

IEP as a strategy enables learners to proceed at their own rate and allow for major differences in what and how much is to be learned at a given time and in what standards used in judging quality of achievement (Gargiulo, 2009). IEP seemingly is appropriate for teaching learners with Down syndrome for better achievement in learning.

The use of concrete materials, or hands on materials, has been identified as particularly useful for students with Down syndrome as there is a tendency for learning through doing and through the use of manipulation of familiar and concrete learning materials (Ashman & Elkins, 2009). For example, in lessons where counting is a focus, the introduction of real materials to count is extremely useful.

In agreement with the findings of the study, the use of concrete materials was supported by Faragher's (2004) research into mathematics that identifies the use of calculators to be effective combined with direct teaching strategies, ensuring adequate time is given for learning concepts and consolidating newly acquired skills into learning for students with Down syndrome (Faragher, 2004). The use of computers as the second most effective material identified by Wolpert (2001) could be due in part to the technological advances

seen in the last decade. The invention of hand held devices, touch pads, and wireless devices have impacted the way curriculum is delivered in classrooms worldwide, but as yet there is little research done in this area. Such teaching and learning resources cultivate motivation in the learners and make them active participants in the learning process.

Based on teacher-parent relationship as a strategy, another teacher in special school E describes having conversations with a child’s mother on most days. She also noted another strategy she used to facilitate communication with the parents is by taking photographs in the class and sending them to the parents through whatsapp. This strategy assists the parents to look at the photos of what the learners do and they validate their learning. Some parents are really keen to show and foster every kind of learning experience we have in school.

According to Croser and Bridge (2012), the use of gadgets in special schools helped to create opportunities for learners with DS to develop their senses of belonging using communication and to remove barriers from their learning environment. This exchange promotes a collaborative parent/teacher relationship which strengthens the learners’ participation in learning. In an interview, parents were asked to provide their contributions in improving their learners’ academic achievement. One of the parents explained that he received a report from school that his son goes out of the class at times for speech and language work. However, in conjunction with the special education teacher, the parent reported that a communication gadget had been implemented which saw the child exit the classroom for intensive speech and language. My son loves to work with other learners so we are always ensuring that he is not working on his own but that he does have other learners with him and is not being isolated at all.

The implementation of learning through interactions and experiences created a basis for learning through social interaction and promoted social skills such as building friendships, relating positively to others and other elements of a positive classroom climate (McLeskey & Waldron, 2007). These findings concurred with the Gilmore and Cuskelly (2014) that provision of instructional resources is relevant to building engagement and motivation is the provision of understanding around the individual nature of learners with Down syndrome, and their strengths and weaknesses in learning.

The findings were also in line with McDonnell, Thorson, Disher, Mathot-Buckner, Mendel, and Ray (2003) who identify peer tutoring, individualized education programme, topic modification, task analysis and differentiated instruction as strategies that teachers use to support students with disabilities.

4.6 Instructional Challenges Caused By Down syndrome Secondary Conditions

Objective sought to examine the instructional challenges caused by Down syndrome secondary conditions in Kiambu County. Using questionnaires, headteachers were asked to identify academic difficulties learners with DS did face in their schools. The results were presented and discussed using mean and standard deviation as shown in Table 4.8.

Table 4.8: Instructional Challenges Caused by DS Secondary Conditions

Challenges	Frequency	Percentage	Mean	Std dev
Frequent fatigue	4	66.7%	2.94	0.86
Sleep complications	4	66.7%	2.94	0.81
Slow motor development	3	50%	2.97	1.03
Speech problem and delayed language	2	33.3%	2.70	0.89
Poor numeracy skills	5	83.3%	3.68	0.89
Poor memory	5	83.3%	3.68	1.05
Trainer’s behaviors in helping trainee to solve4 problems		66.7%	2.94	1.16

Lack of competence	6	100%	3.71	1.09
Poor social skills	2	33.3%	2.70	1.08
Average Score			3.14	1.42

N=6

Results in Table 4.8 indicated that all items had high mean scores (overall mean=3.14) implying that there were many instructional challenges associated with secondary conditions of DS ranging from frequent fatigue, sleep complications, slow motor development. Speech problems, poor counting skills, poor memory, lack of competition among peers and poor social skills. Head teachers further reported that there were inadequate funds for the implementation of early interventions in schools and only a few parents gave support to their institutions through little contributions. In a similar study conducted in Australia, it has been shown that there are insufficient funds available for professional development to up-skill teachers for working with students who have disabilities, and also insufficient funds to cover teacher relief, travel and support (Shaddock et al., 2007). All the head teachers who participated in the study also agreed that they had noticed some dropout of school by learners with DS in their school.

Teachers were also asked to state instructional challenges faced when teaching learners with Down syndrome. Focusing on child 1 in school B, a teacher identified communication as the most challenging factor to her teaching when working with the child. Although the child (Child 1) had very limited language and used no identifiable signing system, he was encouraged to use his words. During an interview with child 1's guardian, she explained:

As I said he has only got 2 or 3 word utterances that are, probably two words that can be you know really explicitly understood. After that it becomes a very mixed mash of language but we let him speak.

In a statement during an interview, a parent of a child in school B described that lack of information and systemic support had left her daughter feeling isolated and with no attachment. She elaborates:

Sometimes it is a get through the day, sometimes it's really difficult and you've nearly had enough of her by the end of the day. Sometimes you just can't get her back to being composed.

Teachers were asked to give the way forward in relation to the challenges associated with DS in their school. A teacher in school C identified play-based learning as an important element of her teaching approach. In agreement to these findings, (Jones, Neil & Feeley, 2014) revealed that there are many reasons why learners with DS are not able to meet high expectations in future including feeling disengaged in learning experiences, being fatigued always, not understanding the task set out for him, or being engrossed in a learning experience.

When asked if she was to give advice to teachers working with the child with Down syndrome, parent C in special school F responded.

Absolutely get to know the child first, don't worry about the curriculum as that will come, leave that alone and just get to know your learners.

These findings were therefore in line with Fidler (2005), factors such as illness, fatigue and associated health conditions may impede learners with Down syndrome's motivation and engagement in learning. Deficits in motivation for individuals with Down syndrome have been identified as part of the behavioural phenotype of Down syndrome (Fidler, 2005). However, environmental conditions such as educational interactions and learning environments play a leading role in the engagement and motivation of learners with Down syndrome. Respiratory issues and sleep complications experienced by learners with Down syndrome may result in fatigue which is misinterpreted by teachers as low engagement in the classroom (Pandit & Fitzgerald, 2012).

In agreement with the findings of this study, Feeley and Jones (2006) pointed out that challenging behaviours present obstacles to learning in educational contexts for the child, and have implications for the teacher. Research has indicated that such challenging behaviour serves a function or a purpose, such as to avoid difficult activities, or to increase attention for the child. Westwood and Graham (2003) also pointed out that barriers to individualized adjustments given by teachers for learners with disabilities include that inclusion is time consuming, simplifying lessons slows the pace for other learners, using different approaches and resources can highlight differences, a lack of awareness of what to do, and a lack of training and school support for teachers.

IV. CONCLUSION

Research findings revealed that all the learners with DS had communication difficulties. Observation of the lessons attended by learners revealed that learners with DS did not fully participate in class during the teaching and learning activities. Most parents reported that their learners recorded poor performance even though their social skills were highly demonstrated.

Learners with Down syndrome performed poorly in academics due to poor communication, pronunciation, reading, writing and vocabulary skills.

The instructional resources such as communication board, choice board, visual schedules among others were inadequate. Most teachers preferred using Individualized education programme as a teaching strategy

Most of the learners had secondary conditions including sleep complications, poor memory, poor numeracy skills, slow motor development which worsened their performance.

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