PEDAGOGICAL CONSTRAINTS ENCOUNTERED BY TEACHERS TEACHING CHILDREN WITH AUTISM SPECTRUM DISORDERS: A CASE OF NAIROBI CITY PRIMARY SCHOOL, NAIROBI COUNTY, KENYA

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MARCH 2013
DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

To my entire family, without whose support I would not have made it.
ACKNOWLEDGEMENT

First, I thank the almighty God for helping me throughout the entire period I struggled with my work. Second, I would like to express my gratitude to my supervisors Dr. Franciscah Wamocho and Dr. Martin C. Njoroge for their dedication and guidance in all stages of my work. Further, I wish to express my gratitude to the Head teacher and entire staff at the autism unit in City Primary School, Nairobi for allowing me to carry out the study at the unit. In addition, I am also grateful for the assistance I received from the Director Autism Society of Kenya (ASK), Felicity Nyambura Ngungu. I also wish to register my appreciation to my colleagues at Kenya Institute of Special Education for their encouragement. I express my sincere thanks to my entire family, my parents the late Samuel Kariuki and Alice Wambui Kariuki and to my immediate family, Mr. Gitonga, Wanjiku, Andrew and Kariuki for their prayers and encouragement. Mr. A.D. Bojana deserves gratitude for editing the final work. Finally, I wish to express my sincere thanks to everyone who made this work a success. To you all, I say, God Bless you.
TABLE OF CONTENTS

DECLARATION ................................................................. II
DEDICATION ............................................................... III
ACKNOWLEDGEMENTS ................................................ IV
TABLE OF CONTENTS .................................................. VI
LIST OF TABLES .......................................................... XIII
LIST OF FIGURES ......................................................... XII
ABBREVIATIONS AND ACRONYMS ......................... V
ABSTRACT ........................................................................ IX

CHAPTER ONE ........................................................................ 1
INTRODUCTION .................................................................... 1
1.0 Introduction .......................................................... 1
1.1 Background to the Study ........................................ 1
1.2 Statement of the Problem ...................................... 7
1.3 Purpose of the Study ............................................. 9
1.4 Research Objectives ............................................. 9
1.5 Research Questions ............................................... 10
1.6 Significance of the Study ...................................... 10
1.7 Scope and Limitations of the Study ...................... 11
1.8 Assumptions of the Study .................................... 12
1.9. Theoretical and Conceptual Framework of the Study 12
1.10 Summary of Chapter ................................................................. 27
1.11 Definition of Operational Terms .............................................. 28

CHAPTER TWO ............................................................................ 30
LITERATURE REVIEW ................................................................. 30

2.0 Introduction ............................................................................. 30

2.1 Background Information of Autism Spectrum Disorders (ASD) ......... 30

2.2 Challenges Encountered by Teachers of Learners with ASD due to Triad of impairments ............................................................... 33

2.2.1 Communication and Language Difficulties in Autism .................. 33

2.2.2 Impaired Imagination ............................................................... 36

2.2.3 Social Interaction Challenges .................................................. 41

2.3 Level and Type of Training Preparation for Teachers of Learners with ASD ........................................................................... 43

2.4 Educational Resources Required for Learners with ASD .................. 46

2.4.1 Educational Resources for Communication ................................ 46

2.4.2 Resources for Social Interaction ................................................. 47

2.4.3 Impaired Imagination ............................................................... 48

2.5 Curriculum and Teaching Strategies for Learners with ASD ............... 49

2.5.1 Curriculum for Learners with ASD .......................................... 49

2.5.2 Teaching Strategies for Learners with ASD ................................ 49

2.5.2.1 Multi-Sensory Method for Learners with ASD ....................... 50

2.5.2.2 Visual Cued Instructions ...................................................... 51
2.5.2.3 IEP for Learners with ASD ......................................................... 52
2.5.2.4 Applied Behaviour Analysis ...................................................... 53
2.5.2.5 Discrete Trial Instruction ......................................................... 54
2.5.2.6 Prompting .............................................................................. 54
2.5.2.7 Peer Tutoring ........................................................................ 55
2.5.2.8 Task Analysis ........................................................................ 55
2.6 Inclusion of Services for Learners with Autism .................................. 56
2.7 Summary of Literature Review and Gaps to be Filled in the Study ...... 56

CHAPTER THREE .................................................................................. 58
RESEARCH METHODOLOGY ................................................................. 58
3.0 Introduction ................................................................................. 58
3.1 Research Design .......................................................................... 58
3.2 Variables ..................................................................................... 58
3.2.1 Dependent Variables ............................................................... 58
3.2.2 Independent Variables ............................................................. 59
3.3 Location of the Study .................................................................... 61
3.4 Target Population .......................................................................... 61
3.5 Sampling Techniques and Sample Size .......................................... 61
3.5.1 Sampling Techniques ............................................................... 61
3.5.2 Sample Size ............................................................................. 61
3.6 Construction of Research Instruments .......................................... 62
3.6.1 Teachers Questionnaire ............................................................ 62
3.6.2 Interview Guide for Parents’ Coordinator and Head teacher.......... 63
3.6.3 Interview Guide for Teacher Aides.......................................... 63
3.6.4 Observation Checklist.......................................................... 64
3.7 Pilot Study................................................................................. 64
3.7.1 Validity ................................................................................. 65
3.7.2 Reliability ............................................................................. 65
3.8 Data Collection Techniques ..................................................... 66
3.9 Data Analysis........................................................................... 66
3.10 Logistical and Ethical Considerations ..................................... 68
3.11 Summary of Chapter ............................................................. 69

CHAPTER FOUR ............................................................................ 70
DATA RESULTS, ANALYSIS AND DISCUSSION ............................. 70
4.0 Introduction ............................................................................ 70
4.1 Methods of Data Analysis....................................................... 70
4.2 Description of the Case Study School. ..................................... 71
4.3. Background Information of the Respondents ....................... 72
4.3.1 Level and Type of Training Attained by Teachers of Learners
with ASD..................................................................................... 72
4.3.2 Teachers' Professional Improvement................................. 75
4.3.3 Experience and Self-Assessment of Teachers Ability .......... 78
4.3.4 Teachers’ Prior Experience of Working with Learners with ASD.... 79
4.4 Challenges Encountered by Teachers.................................... 80
4.4.1 Other Challenges ................................................................. 83
4.4.1.1 Teacher-Learner Ratio ..................................................... 83
4.4.1.2 Availability of Teacher Aides in Classes ......................... 84
4.4.2 Strategies used by Teachers to Overcome Challenges ........... 86
4.5 Teaching and Learning Resources ........................................... 88
4.5.1 Availability and use of Teaching/Learning Resources for Teachers... 88
4.6 Teaching Strategies ............................................................... 92
4.6.1 Availability of Curriculum for Learners with Autism in the School... 93
4.6.2 Availability of Syllabus ....................................................... 93
4.6.3 Syllabus Addressing the Needs of Learners with ASD .......... 94
4.6.4 Availability of I.E.P .......................................................... 95
4.6.5 Frequency of Use of I.E.P .................................................. 96
4.6.6 Application of Multi-Sensory Approach ............................ 97
4.7 Summary of Chapter ............................................................ 102

CHAPTER FIVE ............................................................................. 103
SUMMARY, CONCLUSION AND RECOMMENDATIONS .......... 103

5.0 Introduction ........................................................................... 103
5.1 Summary of Research Findings .............................................. 103
5.1.1 Constraints Related to Teachers’ Level and Type of Training .... 104
5.1.2 Constraints Emanating from Teachers Understanding of Triad of Impairments ...................................................... 104
LIST OF TABLES

Table 3.1 Population of Investigated Respondents ............................................. 62

Table 4.1: Professional Qualifications of Teachers ........................................... 73

Table 4.2: Nature of Benefits Accrued from In-Service Training ...................... 76

Table 4.3: Strategies Used by Teachers for Overcoming the Challenges .......... 86

Table 4.4: Other Recommendations for Managing the Challenges ................. 87

Table 4.5: Recommendations Made by Teachers ............................................. 90

Table 4.6: Considerations Made by Teachers in the Selection and Use of
Teaching Strategies .................................................................................. 100

Table 4.7 Recommendations of other Teaching Methods ............................ 100
LIST OF FIGURES

Figure 1.1: Conceptual Framework....................................................... 23

Figure 4.1: Level of Education for Teachers in City Primary Autism Unit...72

Figure 4.2: Area of Specialization for Teachers in City Primary Autism.... 73

Figure 4.3: Experience of Teachers working with Learners with SD......... 79

Figures 4.4: The Nature of Challenges Experienced by Teachers............. 81

Figures 4.5: Number of Learners per Class........................................... 83

Figures 4.6: Type and Purpose of Resources....................................... 89

Figure 4.7: Source of IEP for Learners............................................... 95

Figure 4.8: Teaching Methods in Use ............................................... 99
# ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>APA</td>
<td>American Psychiatric Association</td>
</tr>
<tr>
<td>ABA</td>
<td>Applied Behaviour Analysis</td>
</tr>
<tr>
<td>APQI</td>
<td>Autism Programme Quality Indicators</td>
</tr>
<tr>
<td>ASD</td>
<td>Autism Spectrum of Disorders</td>
</tr>
<tr>
<td>DTI</td>
<td>Discrete Trial Instruction</td>
</tr>
<tr>
<td>IEP</td>
<td>Individualized Education Programme</td>
</tr>
<tr>
<td>LWA</td>
<td>Learners With Autism</td>
</tr>
<tr>
<td>PDD-NOS</td>
<td>Pervasive Developmental Disorder Not Otherwise Specified</td>
</tr>
<tr>
<td>PDDs</td>
<td>Pervasive Developmental Disorders</td>
</tr>
<tr>
<td>PECS</td>
<td>Picture Exchange Communication System</td>
</tr>
<tr>
<td>TEACCH</td>
<td>Treatment and Education of Autistic and Related Communication Handicapped Children</td>
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The purpose of the study was to establish pedagogical constraints teachers encounter when teaching learners with autism. The autism unit at City Primary School, Nairobi was purposively selected as a case study because it was the first autism programme established in Kenya to provide multiple intervention strategies such as dietary intervention, sensory integration and behaviour modification to teach learners with autism. The study population comprised of 6 teachers, 6 class assistants, 5 non-teaching staff, 8 occupational therapists, head teacher and the parents' coordinator. The study was guided by The New York Autism Programme, of Quality Indicators (APQI) model 2001. Primary data were collected using structured questionnaires, an interview guide and an observation checklist that was developed by the researcher to corroborate information obtained in the questionnaires. Pre-testing of the instruments was carried out at Vanesa Grant Special School, in Nakuru County, which has a unit for children with autism. Data analyzed were both qualitative and quantitative using descriptive statistics and inferences made on the various constructs. Data pertaining to the various profiles were presented and discussed as per the objectives of the study. Qualitative data were analysed by first converting them to a write up to create descriptive multidimensional categories. The results of the study were presented in pie charts, tables of frequency distributions, bar graphs and percentages. The study revealed that teachers faced constraints in teaching learners with ASD because of limitations related to teachers' educational level and type of training, their understanding of Triad of impairments, availability and use of resources, and due to their limitations in curriculum and instructional strategies. It was, therefore, recommended that teachers of learners with ASD should possess competency in the area of ASD; that the government in-service programmes should be developed from an assessment of training needs and in collaboration with professionals, from various universities, as well as international and national experts who can provide research-based methodologies such as ABA, PECS and TEACCH.
CHAPTER ONE
INTRODUCTION

1.0 Introduction
This chapter comprises the background to the study, statement of the problem, purpose of the study, research objectives, research questions, and significance of the study. Other areas explored were scope, limitations and delimitations of the study, theoretical framework, conceptual framework, and lastly operational definitions of terms.

1.1 Background to the Study
Autism Spectrum Disorders (ASD) or Pervasive Developmental Disorders (PDD) is an umbrella term, used to describe a group of disorders, with specific diagnoses. These include Aspergers Syndrome, Retts Syndrome, Childhood Disintegrative Disorder (CDD), Pervasive Developmental Disorder (Not Otherwise Specified) PDD-NOS, Diagnostic and Statistical Manual of Mental Disorders, DSM-IV (American Psychiatric Association, 1994). These diagnoses are grouped together because they share common qualitative impairment in communication and social interaction, and restricted, repetitive, and stereotypic patterns of behaviour, interests, and activities, commonly referred to as triad of impairments (Wing, 1996). Learners with ASDs share the above similar characteristics however, each individual presents unique learning characteristics, which affect their learning and provide a complex of issues to educators (Robbins, 2010). Further, Simpson (2005) states that a combination of social interaction
issues, an array of abilities coupled with difficulties in language, sensory, behaviour deficits and excesses and unique personality make ASD an especially baffling disability. Teachers are seriously challenged by the condition and need to possess specialized skills in order to adequately meet these unique needs (Simpson, 2005). The term Autism spectrum of Disorders (ASD) was used for this study.

Leo Kanner, an American psychologist, carried out a research on 11 boys at John Hopkins hospital, in 1943. He came up with a number of features that in theory would identify learners with this disorder. These features included an inability to develop relationships; delay in the acquisition of language; non-communicative use of spoken language after it develops; delayed echolalia; pronominal reversal; repetitive and stereotype behaviour; maintenance of sameness; good rote memory; and normal physical appearance. These features are popularly known as ‘classic autism’ (Kanner, 1943). About the same time in Germany, Asperger (1944), identified another group of children who were similarly impaired but of above average intelligence and whose language was eccentric rather than delayed. The aforementioned deficits pose serious challenges to teachers of learners with ASD and they require specialist knowledge of the ASD condition for effective development of special programmes to overcome those challenges (Jordan, 1997). In the 1940s and 1960s, psychoanalysts attributed ASD condition to unresponsive parents. The psychoanalysts came up with treatment, which involved separating the learners from their non-responsive “refrigerator mothers” and placed the
children in residential programmes. This theoretical inclination has since been
discarded as a myth on the strengths of several studies that have revealed that
parents of learners with autism do not contribute to the condition (Richman,
2001).

Current researches involving various experts including psychologists, physicians,
clinicians and teachers within the field of ASD have revealed the puzzling nature
of ASD. They discovered that although learners with ASD share common
characteristics of the triad of impairments, it can manifest itself differently in an
individual in a variety of combinations, different ranges of difficulties, type and
extent (Richer & Coates, 2001).

Internationally, there has been a major concern about the problems faced by
learners with ASD. Research and new insights in the area of ASD have led to a
renewed vigour in establishment of educational programmes that allow for greater
teaching effectiveness for these learners who are faced with myriad of challenges
in the triad of impairments, that is, communication, socialization and imagination
(Wing, 1996).

According to Jordan (1999), provision of education for learners with ASD is
considered as one of the best treatment options and teachers ought to recognize
that learning deficits emanating from the ASD condition pose a challenge to the
individual learner. This in-depth understanding of the nature of challenges the
learners are facing, would enable the teacher to tailor a special education programme suitable for these learners with ASD (Jordan, 1999).

Findings from the Joint Report on Autism Awareness, Recommendations for Teacher Preparation and Professional Development (2008) indicated the challenges encountered by teachers of learners with ASD include pre-service as well as in-service training, lack of access to quality education, in-depth training in specific content beyond "introduction to autism" and lack of resources. Other reviews by Fletcher-Campbell (2003), on challenges for provision of education for persons with autistic spectrum disorders, indicate that teachers require a repertoire of knowledge and skills in intervention in both theoretical as well as practical training. They also require a multifaceted approach to problem solving as evidence reveals that the needs of these learners are highly individualistic and different for various pupils. This is because there is no one intervention that is more favourable across learners with ASD. This would enable the teachers to gain the required experience (Jordan, 1999).

The aetiology of autism is not well-known and specifics on how autism develops are still under investigation (Allen, 2008). Both Kanner (1943) and Asperger (1944) believe that the syndrome might be genetically transmitted as studies on twins have shown that the disorder is strongly influenced by genetic factors (Ghaziuddin, 2005). Bogdashina (2006) is of an alternative view that autism is caused by metabolic problems caused by inability to prevent toxins from leaking into the blood, a condition commonly known as the "leaky gut" syndrome.
Another controversial belief, which is under investigation, is that MMR vaccine or the triple vaccine causes ASD. Exposure of the foetus to environmental factors such as viruses and mercury may also cause autism (Rimland, 1999).

Globally, a high prevalence rate has been recorded, with estimates showing that about 40 per 10,000 learners between 3 to 10 years old have autism (Fombone, 1999). In 2006, the Centre for Disease Control and Prevention (CDC) in Atlanta, Georgia estimated ASD prevalence in the US to stand between 5.5 and 5.7 per 1000 learners. This increase in prevalence has also been attributed to changes in diagnostic criteria, better surveillance, increase in environmental exposure and genetics. However, studies show that learners who are diagnosed and treated at an early age show significant improvement. Despite these findings, only 50% of learners with autistic spectrum disorders are diagnosed before kindergarten level (Yeargin-Allsop, Rice, Karapurkar, Doernberg, Boyles & Murphy, 2003).

In Mexico, research findings by Tuman, Roth Johnson, Baker and Vecchio (1998) revealed that the challenges encountered in the education sector for learners with ASD include inadequate number of trained teachers in the area of autism as well as inefficiencies in training package. Other challenges highlighted include inadequacies of school supplies and lack of skills in identifying learners with ASDs by teachers. They further stated that there was little evidence of systematic information regarding the efficacy of teaching methods and strategies for learners with ASD, despite the development of comprehensive programmes developed in
In Africa, challenges encountered by teachers in school are diverse and complex. For example, studies by Antony (2009) in Ghana reveal that challenges in the education sector for learners with ASD include lack of data on prevalence of autism, lack of in-depth understanding of the disability and its unique characteristics and negative attitude towards the disability. Other findings were that classrooms in Ghana were overcrowded, loud and unpredictable. The general curriculum does not include direct teaching in the core skills such as imitation or receptive language, which are prerequisites to acquisition of other knowledge, and does not address culturally relevant social and communicative behaviour. Likewise, deep-rooted cultural beliefs were found to impede provision of education for learners with ASD as well. The above-mentioned challenges pose serious challenges to teachers in Ghana.

In Kenya, the provision of education for learners with ASD was initiated through the efforts of parents' advocacy. According to the Autism Society of Kenya report (2005), the first programme for ASD was established at City Primary School in Nairobi in September 2003. This centre was set up by a group of parents who saw a need for an educational programme suitable for these learners. A unit at Kasarani in Nairobi North is in the process of being established.

Autism Society of Kenya offers diagnosis; assessment; produce literature about
autism; counselling services, and runs autism awareness workshops as well as dietary intervention at City Primary Autism Unit in Nairobi County. However, educational intervention programmes for these learners with autistic spectrum disorders may not be adequately provided. It is against this background that this study was designed to find out the pedagogical constraints encountered by teachers educating learners with autism in City Primary School in Nairobi County.

1.2 Statement of the Problem

Learners with ASD condition face a myriad of challenges in the areas of communication, socialization, behaviour and imagination (Wing, 1996). These challenges are complex in nature and may impact negatively on learning and unless adequately addressed may cause constraints to teachers of learners with ASD. Internationally, there has been an increased understanding of the complex needs faced by learners with ASD, which has subsequently led to the development of various intervention programmes to counter these challenges (Simpson, 2005). Despite this improved understanding of ASD condition, which has led to the establishment of educational programmes with greater teaching effectiveness in developed countries, teachers continue to be faced by challenges on daily basis as they seek to minimize the effects of the disability and maximize the learners’ potential (Wing, 1996). Learners with ASD require teachers who are specially trained in the area of ASD with a capability to tailor an educational programme to meet the learners’ specific needs and counter the challenges.
In Kenya, there may not be comparable development of programmes such as in USA, Europe and Asia for learners with ASD and teachers could be faced with pedagogical constraints. Until 2003 (Kochung Report, 2003) when autism was recognized as a distinct group requiring specialized interventions, learners with ASD in Kenya were previously assessed and labelled as mentally disabled for the purposes of policy-making and policy implementation. They were later placed in schools and special units for learners who are intellectually challenged and may not have been taught by teachers specially trained in ASD but by teachers trained in mental difficulties (ASK Report, 2005). The Government of Kenya (GoK) through the Teachers Service Commission (TSC) in conjunction with parents started a special unit for learners with ASD at City Primary School in Nairobi in the year 2003. This educational programme was specifically established to meet the specific needs of learners with ASD.

Research conducted in Kenya by Weru (2005) compared the behavioural symptoms of autism in Kenya and the United States of America. The study did not explore pedagogical constraints teachers’ experience when teaching learners with ASD in Kenya. Moreover, there seems to be no studies published on pedagogical constraints experienced by teachers of learners with ASD in Kenya. It was against this background that the researcher undertook to investigate the pedagogical constraints that teachers encounter, in teaching learners with ASD in City Primary School in Nairobi County. This would possibly highlight some of the critical constraints that may hinder meeting the specific needs of learners with
ASD in a school programme. Specifically, the study addressed challenges teachers face when dealing with various complexities of ASD condition, the level and type of training teachers have received, the extent to which teachers use an individualized education programme, the type of resources used, and the teaching strategies used by teachers.

1.3 Purpose of the Study

The purpose of this study was to examine pedagogical constraints teachers encounter in educating learners with autism spectrum disorders in City Primary School, Nairobi.

1.4 Research Objectives

The study was guided by the following specific objectives:

i. To identify the challenges teachers face when teaching learners with ASD condition in City Primary School, Nairobi County.

ii. To establish the level and type of training attained by teachers teaching learners with ASD.

iii. To find out the resources teachers use when teaching learners with ASD.

iv. To determine existence of curriculum and instructional strategies used at City Primary School, Nairobi.
1.5 Research Questions

The study sought to answer the following research questions:

i. What were the challenges encountered by teachers dealing with the learners with ASD condition in City Primary School, Nairobi County?

ii. What was the level and type of training of teachers handling learners with ASD?

iii. Which were the resources used while teaching learners with ASD?

iv. What was the exact curriculum for learners with ASD and what instructional strategies do teachers use at City Primary School, Nairobi.

1.6 Significance of the Study

The successful education of learners with ASD may depend on the professional competencies of those who provide educational service for them in the classroom. It was therefore important to examine the way special education teachers who participate in teaching these learners deal with the challenges they face in their teaching. The researcher hoped that suggestions from this study would be useful to teachers of ASD in Kenya and beyond by providing information that they may need to apply in their classrooms, the use of appropriate teaching strategies such as ABA, PECS, prompting among others, understanding the triad of impairments and how it affects learning and the use of relevant resources to boost learning to mention but a few.

Further, it is hoped that the findings of this study may have yielded information for use by policy-makers and education planners in developing policy on the
existing curriculum and professional development for teachers of learners with ASD. For example, the researcher anticipated that the findings of the current study might help other stakeholders including concerned NGOs and religious bodies to ensure that learners with ASD receive best interventions (as stipulated in the APQI Model). It is also expected that findings will help trigger further research in the area of curriculum development, the roles of teacher aides, impact of ASD condition on learning among others.

1.7 Scope and Limitations of the Study
The focus of this study was limited to teachers, teacher aides in City Primary School, Nairobi, where Autism Society of Kenya and parents run an Autism unit. The study focused only on learners with autism in an attempt to provide the best educational services, hence shutting out any other condition. Lastly, the study was limited to pedagogical constraints encountered by teachers at the unit and not any other issue. The study focused on educational interventions and not other strategies offered in the programme such as medical, dietary and music therapy. Educational intervention was considered to be more holistic.

To date, there was little information documented in Kenya about the education of learners with Autism Spectrum Disorders (ASD) on pedagogical constraints and therefore, the researcher did not have data for comparison. This limitation was addressed by comparing with findings from studies conducted elsewhere. Some of the information sought was of a confidential nature, of which the respondents
could either deliberately refuse to divulge or could not have access to. The researcher, therefore, conducted observations and interviews in the time allocated by the managers of the programme.

1.8 Assumptions of the Study

i. Teachers at City Primary Autism Unit, Nairobi, encountered complexities of autistic spectrum disorders while teaching learners with ASD.

ii. The teachers undertook pedagogical preparations while teaching learners with ASD.

iii. Teachers used several teaching strategies to facilitate learning.

iv. Teachers used resources to meet the individual needs of learners with ASD.

v. Teachers developed and used an IEP and a curriculum when teaching learners with ASD.

1.9 Theoretical and Conceptual Framework of the Study

Data collection, analysis and interpretation of the emerging patterns in this study were guided by Autism Programme Quality Indicators Model (APQI Model, 2001). This model was developed by New York State Education Department (NYAN), jointly with experts drawn from the fields of education, medicine and psychology to come up with benchmarks for successful outcomes for learners with ASD.

The APQI Model is informed by multiple theories such as psychological,
biological and social-environmental theories. This is because there is no one theory that is singly adaptable for the ASD condition due to the number and heterogeneous nature of the symptoms. These theories adapted knowledge from various disciplines such as immunology, neurobiology, neurophysiology, biology and dietary science. The theories explore the multiple factors that affect the development of autism as well as inform on the development of multidisciplinary based intervention approaches to reduce the impact of the ASD condition. A few of these theories are reviewed briefly below.

**Psychological Theories**

Some of the psychological theories which may have influenced the APQI model include Theory of Mind (TOM), weak executive and central coherence theories. According to psychological theories, autism develops as a result of psychological strengths and defects which stipulates that learners with ASD have deficits such as low verbal IQ, low in information processing, poor executive function as well as weak social cognition, and meta-cognition. Some relative strength found in autistic savants includes special sensory abilities such as visual spatial memory and accomplishments in areas such as art and music.

Theory of mind or mind blindness was developed by Baron-Cohen Leslie and Frith (1985). It refers to the inability of people with ASD to realise that other people have their own unique point of view of the world as well as difficulty understanding their own view. Learners with ASD as a result, experience
challenges in their ability to establish relationships, develop language and communicate. Teachers require an understanding of the implication of this inability so as to tailor programmes that address those issues.

Weak central coherence theory in ASD was developed by Uta Frith (1989). The theory predicts that persons with ASD have deficits as well as strengths in processing information and these individuals prefer to attend to specific aspects of a task or environment rather than examining the task as a whole. This makes it difficult for them to process complex tasks and may attend to irrelevant details and fail to see the big picture. On the other hand, it enables an individual to focus on one detail which may lead to islets of abilities such as art and music. Failure by teachers to understand the implication of this inability may lead to distractions, lack of comprehension, unwanted behaviours and perseveration on tasks. It is the duty of teachers to minimise the effects of weak central coherence and structure the learning environment as well as take advantage of the islets of abilities to build future careers (Magnusen, 2005).

Executive function deficiency is the mental inability to plan actions, organise, search and respond to tasks and strategy selection (Bogdashina, 2006). It also involves impulse control, sustaining and shifting focus to tasks, attention processing speed, managing frustration, self-monitoring and regulating actions. Due to the aforementioned disability, children with ASD experience difficulties in activities that require switching responses such as discrimination and tend to
perseverate on a task, are less flexible, slow to act, distractible and they experience problems with pretend play and action. Failure by the teachers to have an understanding of the weak executive function may lead to pedagogical challenges.

**Behaviour Learning Theories**

Behavioural learning theory is rooted in the work of Evan Pavlov (1927) cited in Mitchell, Houwer, & Lovibond (2009). Pavlov came up with two basic kinds of learning or conditioning – classical conditioning and operant conditioning. Classical conditioning happens when a stimulus becomes able to elicit a particular response in an animal after being paired. The animal learns to associate a neutral stimulus with a stimulus that has intrinsic meaning based on how closely in time the two stimuli are presented. The classical conditioning is the dog's ability to associate the sound of a bell, something that originally has no meaning to a dog with the presentation of food that has meaning to the dog. The dog learns to associate between the bell and food and salivate. This kind of learning through association plays a major role in learning for children with ASD. Schramm (2007) recommends that while interacting with children with ASD, teachers should pair themselves with reinforcement 75% of the time to increase the learners' motivation to learn.

Operant conditioning or instrumental learning is based on the work of B.F. Skinner (1938). His aim was to analyze how behaviour is changed by its
consequences. The consequences such as receiving a food pellet for the bird was rewarding and there is a high probability of the behaviour being a reinforced. There are two types of reinforcers - positive and negative. The principles of operant conditioning have been successfully used in the intervention programmes for children with ASD. If a behaviour response to some particular incident is followed immediately and consistently by a particular consequence, the child will learn to associate that particular consequence with that behaviour response and if the consequence is desirable, or rewarding, there is a high probability of those behaviours occurring again. Effective programs that make use of reinforcement are such as ABA, the son-rise program from Option institute, and TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children).

Social Learning Theory

This theory was developed by Bandura in 1978. Learning occurs by observing other people's behaviour as well as observing the consequences. This enables people to learn many behaviours, attitudes and emotions by imitation from models who include parents, relatives, friends, teachers and television. The TEACCH model developed by Eric Schopler in the 1970s in the University of North Carolina is a parent professional collaborative program that serves children with ASD. The program adapts environmental modification to address ASD specific needs. Children with ASD learn through video modelling and the use of peer buddies to learn important skills.
Developmental Theory

Developmental theory of autism stipulates that ASD is a developmental disorder that emerges during the first two years of a child's life and lasts for the entire lifetime. Development occurs in multiple domains such as physical, sensory and cognitive. ASD presents fascinating pattern of uneven development which involves strengths and limitations. This calls for development of early intervention programmes as well as addressing the uneven pattern of development.

The above theories enabled the development of important parameters in the APQI Model which were to act as quality improvement guide and as an assessment tool for self-review by schools and programmes offering education for learners with ASD. According to the APQI Model, education is the primary intervention for young learners with ASD.

Tenets of APQI Model

After analysis of description of patterns observed in the study data, it emerged that the APQI Model highlights some of the critical issues that, if not well articulated in the provision of education for learners with ASD, would lead to challenges. The critical factors cited in the model are prerequisites for schools and programmes which would like to offer effective education of learners with ASD.

The researcher adapted the APQI model as a benchmark to highlight possible
constraints, which the teachers at City Primary School would encounter if those parameters were not present in the school. The key quality components in the model specific to this study included: individual evaluation, personnel, development of an IEP, curriculum, instructional methods and activities and challenging behaviours.

**Personnel**

According to the APQI model, personnel refers to teachers, teacher aides and related service providers, school psychologists, administrators, and support staff who should be knowledgeable and skilled in education of learners with autism. The following are the specific course they should be familiar with: characteristics of autism, assessment methods, developing of IEPs to meet the unique needs of each learner, curriculum, environmental adaptations and accommodations, instructional methods, strategies to improve communication and social interactions as well as classroom and behaviour management. Second, staff should participate in continuing professional development. Third, staff should be available in ratios sufficient to provide support necessary to accomplish IEP goals. Fourth, Teachers and related service providers should have access to the learners’ IEPs. Likewise, they should be informed of their responsibilities during implementation of the programme. Similarly, paraprofessionals should receive specific and direct instruction and supervision regarding their IEP responsibilities to the learner from the class teacher. Finally, there is need for ongoing support and technical assistance to resolve concerns related to learning and behaviour.
The researcher examined the above-mentioned parameters against existing practice at City Primary to determine the level, quality and depth of the teachers’ knowledge and skills in their understanding of the ASD condition. The researcher assumed that a deficiency in any one of the aforementioned areas would result in pedagogical constraints.

**Curriculum**

The APQI model, stipulates that the curriculum should contain a written statement of goals and philosophy from which instructional objectives, methods, and activities proceed. It should focus on maximizing independent functioning in home, school, vocational, and community settings and be adapted to the different ages, abilities, and learning styles of students with autism. The curriculum should emphasize on the development of: attention to social stimuli, imitation skills, communication and language, social relationships, symbolic play, imagination, and creativity, self-regulation, skills to meet the learning standards and vocational skills. The curriculum should lay emphasis on the development of a functional communication system for both verbal and non-verbal students with autism. In respect to social relationships, the curriculum should emphasize the development of social interaction skills with adults and peers for a range of occasions and environments. Other recommendations from the model include the maintenance and generalization of learned skills to more complex environments. The researcher set to examine if curriculum for learners with ASD was available in the school and if teachers at City Primary were applying it while teaching learners
with ASD.

**Instructional Methods of Teaching Learners with Autism**

The APQI model states that teaching methods should reflect the unique needs of students with autism and are to vary depending on developmental appropriateness and individual strengths and needs. Methods are to be adapted to the range of ages, abilities, and learning styles of students with autism. Similarly, they should reflect empirically validated practices or solid evidence that demonstrates effectiveness over time. The degree of structure and intensity of teaching ought to be geared to the functional abilities of the student. They should also emphasize the use of naturally occurring reinforcers, promote high rates of successful performance, and encourage communication and social interaction and spontaneous use of learned skills in different settings. As instruction proceeds, teachers should teach students with ASD to cope with the distractions and disruptions that are an inevitable part of daily living. There should also be a clear plan showing methods for systematically promoting the maintenance and generalization of learned skills to new and different environments. The researcher examined the type of instructional methods used and their relevance to the ASD condition.

**Individualized Education Programme (IEP)**

The APQI model stipulates that successful programmes for learners with ASD should address the assessment of individual needs through the development of an
Individualized Education Programme (IEP). Under the IEP, the developmental profiles examined included health, social-emotional and behavioural needs. Areas included were communication, social interaction behaviour and emotional development, play and use of leisure time. Other concerns include identified needs and parental concerns. The goals should be observable, measurable and should relate to long-term outcomes. The IEP should acknowledge programme modification, including environmental and instructional adaptations needed to support the learner. "Parent counselling and training" is indicated as a related service as well as appropriate. Augmentative and alternative communication systems are considered for students with limited verbal abilities and provide opportunities for interaction with non-disabled peers. Other challenges addressed included transition needs, challenging behaviour, communication difficulties, and social interaction among others. This study examined if teachers at Nairobi City Primary developed and used an IEP to meet the challenges of an individual learner with ASD.

Instructional Activities

APQI model recommends that the programme ought to provide a variety of developmentally and functionally appropriate activities, experiences, and materials that engage students in meaningful learning, instructional activities in the programme for learners with ASD. They should enhance response opportunities that are appealing and interesting and promote active engagement of the learner. Activities ought to focus on basic skills before more complex skills,
provide multiple opportunities for practising skills identified on the IEP, (whenever possible) embedded within on-going and natural routines of home, school, vocational, and community settings. Activities should use a variety of instructional formats for example, one-to-one instruction, small group instruction, student-initiated interactions, teacher-directed interactions, play and peer-mediated instruction based upon the skill to be taught and the individual needs of the learner. IEP goals and instructional methods are compatible and complementary when the programme uses components of different intervention approaches. Lastly, instructional activities are adapted to the range of ages, abilities, and learning styles of students with autism. Daily instruction is provided to meet the individual communication needs of students with autism. The study sought to find out the instructional activities used at Nairobi City Primary and whether they were based on learners’ needs.

**Conceptual Framework**

The conceptual framework was formulated from research on quality indicators for best practices for teaching learners with ASD by Bunsen in Gabriel and Hill (2003) and the APQI model (2001)
Figure 1.1: Conceptual Framework

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable</th>
</tr>
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<tbody>
<tr>
<td>Challenges faced by teachers due to Triad of impairments</td>
<td>Teaching learners with ASD condition</td>
</tr>
<tr>
<td>Level and type of training of teachers of children with ASD</td>
<td></td>
</tr>
<tr>
<td>Resources used for teaching learners with ASD</td>
<td></td>
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<tr>
<td>Curriculum and Instructional strategies</td>
<td></td>
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</tbody>
</table>

Source: Conceptual Framework developed by the researcher

**Pedagogical Constraints**

In regard to the dependent variable, 'constraints in teaching learners with ASD condition', the researcher proposed that teachers encountered significant constraints due to the complexities of the ASD condition. The researcher conceptualized that the independent variables of the study would constitute the critical constraints, which teachers would encounter when teaching learners who have triad of impairments, deficient use of curriculum and instructional strategies, lack of teachers’ professional development and use of inappropriate resources. Unless those constraints or challenges are adequately addressed, teachers would
not be able to realize the four general goals of education for learners with ASD, which are: to reach a state of independence, to develop spontaneous communication in social situations, the ability for self-advocacy and decision-making, and to apply academic knowledge in a functional way (Magnusen, 2005).

**Triad of Impairments**

The triad of impairments affects learners significantly in class in their social interaction with their peers, communication and imaginations and presents the learners with unique needs that should be addressed by the teachers (Wing, 1996). Teachers therefore require a deeper understanding of the autistic condition through specialized training, which exposes them to appropriate teaching methods and implementation of a suitable curriculum (APQI, 2001).

**Pedagogical Preparations**

In this study, ‘Level and type of training of teachers of learners with ASD’ constitute of teachers’ professional qualifications and continuing education they undertake to update their skills. The type of training refers to areas of specialization and whether they had relevant experience in teaching learners with ASD. In absence of adequate and relevant training, the teacher would be faced with constraints in teaching learners with ASD. According to Yell, Drasgow & Lowrey (2005), the No Child Left Behind Act (NLCB) of 2001, recognizes the importance of having well prepared teachers in public school classrooms. The NLCB (2001), requires all teachers in public schools to be highly qualified and
must hold a minimum of bachelor’s degree; obtain full state certification or licensure for the area in which they teach; must be able to demonstrate subject matter competency in the core academic subjects that they teach; and must demonstrate subject matter competences by passing a state-administered test in each of the core subjects that they teach.

Curriculum and Instructional Strategies

A good curriculum for learners with autism is one that is developmentally appropriate, well defined, and easily replicated. The curriculum should be carefully adapted to the needs of the learner in terms of its design of the environment, materials, and teaching interactions within an intervention programme (National Research Council, 2001). Individualized Education Programme is a yearly special education programme, tailored to meet the unique needs of a learner with ASD. Teachers are to develop and implement an IEP that meets the specific needs, learning styles and interests of the learners with ASD. One must first ensure that prerequisite skills for future learning are in place and fluent in the child (Quill, 2000). This study sought to find out if teachers at Nairobi City Primary School develop and use an IEP for learners with ASD and establish the curriculum they use.

Highly structured or discreet trial-based methodologies are useful when teaching new behaviours (Luiselli, Russo, Christian, & Wilczynski, 2001). Studies conducted on effective instructional strategies for teaching learners with ASD
include those where teachers were more reflective about their practice on how students would use the classroom space, communicate and interact, access curriculum and instruction, and work with each other.

Factors to consider when choosing teaching strategies include a focus on the individual needs of each child such as learning styles, interest, needs, strengths, and student's ideas. Such strategies include systematic instruction based on the likelihood that learners' behaviour will improve after being reinforced (West & Billingsley, 2005). Other strategies are those that utilize visual teaching strategies. This study would help establish the kind of strategies teachers at Nairobi City Primary Autism Unit use in order to ensure the acquisition of skills and knowledge in the key areas of disability such as socialization, language and communication, reduction of problem behaviours and adaptive skills in order to ensure effective learning (APQI Model, 2001).

**Teaching and Learning Resources**

Educational resources refer to all factors outside and within the classroom that make teaching and learning experiences more effective (Hiuhu, 2007). These may include; teaching and learning aids, equipment, situations and activities that make it easy for a learner to learn. Findings by Bogdashina, (2006) suggest that learners with ASD have sensory processing difficulties and store most experiences on the level of literal perception. He further states that ASDs are visual learners because words are abstract and have no meaning. When teaching learners with ASD,
teachers have to accompany words with concrete objects. This study sought to establish whether teachers at Nairobi City Primary School used visually cued instruction such as use of visual aids, real objects; pictures; physical structure of the classroom, visually structured schedules and activities among others in their teaching.

1.10 Summary of the Chapter
The chapter outlined the background to the pedagogical constraints teachers encounter internationally in order to find out if teachers at the City primary Autism unit in Kenya face similar constraints. The chapter further provided the platform to review the constraints in depth in the chapter that followed based on the objectives of the study such as pedagogical constraints emanating from ASD condition, teacher/leaner resources, teacher preparedness and the teaching strategies they use in order to highlight the solutions teachers may use to overcome them.
1.11 Definition of Operational Terms

The American Psychiatric Association (1994), defines the following terms used in the study as follows:-

**Asperger’s Syndrome** is a condition that affects social interactions, mannerisms, resistance to change and sensory processing. However, there are no clinically significant speech delays in childhood (although there may be unusual speech patterns and other communicative difficulties) and no cognitive (American Psychiatric Association, 1994).

**Autism Spectrum of Disorders (ASD)** is an umbrella term that includes autistic disorder, Asperser’s Syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS or “atypical autism”). Along with Retts Syndrome and childhood disintegrative disorder, these five ASD conditions make up the broad diagnosis category of Pervasive Developmental Disorders (PDDs) (American Psychiatric Association, 1994).

**Childhood Disintegrative Disorder** means a very rare disorder, characterized by normal development through at least age two, and followed by regression and the onset of severe mental retardation (American Psychiatric Association, 1994).

**Classic Autism** is a condition that affects social interaction; speech, sensory processing and the condition may be associated with mental retardation (American Psychiatric Association, 1994).

**Constraints** are challenges faced by a teacher of learners with ASD. This may include lack of appropriate training and an understanding of ASD conditions, lack of knowledge on IEP development and resources among others.
Educational Support refers to supplementary aides and services, which enable a child with disabilities to benefit from special education (Bunsen in Gabriels & Hill, 2002).

Inclusive Education refers to the opportunity given to a child to learn in his/her neighbourhood school. All learners are welcomed into the school and learn together in a regular classroom (Autism society of America, 2006)

Pedagogy refers to all that a teacher does in class to ensure that learners with ASD learn (Magnusen, 2005).

Pervasive Developmental Disorder Not Otherwise Specified as used in this study refers to “atypical autism,” which encompasses cases where there is marked impairment of social interaction, communication and/or stereotyped behaviour or interests but full features for other PDD disorders are not met (American Psychiatric Association, 1994).

Visual Learning Environments are environments that ensure that the expectation and opportunities in the environment depict concepts that people with autism can understand, master, and enjoy (Quill 2000).

Teacher Aides are paraprofessionals who assist teachers in class to realize the objectives of an IEP (Kluth 2003)

Individualized Education Programme (IEP). It refers to an education programme developed by a multi disciplinary team and tailored for an individual learner (IDEA 1994)
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of the literature related to the study which was organized by the following themes which emanated from objectives of the research. First, the chapter looks at the background information of Autism Spectrum Disorders (ASD), which highlights the status of ASD in other countries and the challenges teachers face. Second, the chapter reviewed the challenges teachers encounter due to the Triad of impairments and how they impact on learning. Third, the chapter examines the level and type of training preparations required for teachers of learners with ASD. Fourth, the chapter examines the resources teachers use in teaching learners with ASD. Fifth, the researcher examines the curriculum and teaching strategies that are suitable for learners with ASD. Lastly the chapter summarizes the literature reviewed and highlights the gaps filled by the study.

2.1 Background Information of Autism Spectrum Disorders (ASD)

Autism Spectrum Disorders (ASD) is a complex neural developmental disorder, which is characterized by a triad of impairments marked by qualitative impairments in the area of socialization, verbal and non-verbal communication and restricted and repetitive interest or behaviours (American Psychiatric Association, 1994). The term ‘autism spectrum of disorders (ASD)’ is an umbrella term used to define specific disorders such as Autistic Disorders,
Asperger’s Disorder, Rett’s Disorder, Childhood Disintegrative Disorder and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS). These disorders are grouped together because they share common qualitative impairments on the area of social interactions, communications, and impaired imaginations (Wing, 1996). The term ‘spectrum’ refers to a continuum of development severity with Autistic Disorder being considered to be the most severe and Asperger’s Disorder considered to be least in the continuum with average or above average intellectual functioning (Perry & Condillac, 2003). However, ASD is a hidden disability and has no marked physical features and parents normally recognize a change in the behaviour, only by the age of three, with the extent of problems becoming evident later (Siegel, 1996). Educating learners with ASD poses serious challenges in such a way that even skilled and competent educators often report that they consider themselves less than fully capable of meeting the needs of these learners. This is due to the baffling nature of autistic spectrum disorders (Spears, Tollefson, & Simpson, 2001).

Teachers require an understanding of the unique cognitive, social, sensory and behavioural deficits that characterize these learners, which include limited and disordered language skills, unusual sensory processing, difficulty in combining or integrating ideas, difficulty in interpreting the underlying meaning or relationship of events they experience, problems in processing multiple sensory stimuli and resistance to unpredictability and change (Mesibov & Shea, 1996). In support of this, Simpson & Smith-Myles (1998) point to the irregular patterns of cognitive
and educational strengths and deficits, including splinter skills and isolated and discontinuous abilities, combined with behavioural symptoms, as presenting particular educational challenges, which significantly test even the best school programmes.

Learners with ASD present unique challenges to school communities the range of which there are no simple solutions. When teachers have an understanding of thinking and learning styles of the learners, it gives them an opportunity to respond creatively in school and at home (Campbell, 2003). The study further stated that many issues affecting learners with ASD are directly related to their core disabilities in communication, socialization, thinking and learning, and sensory processing. However, when the magnitude of the difficulties is so enormous schools have to work creatively in areas of difficulties such as poor organizational and social skills, poor interpersonal skills and sensory issues to help reduce chronic anxiety.

In this regard, teachers ought to understand the combination of social interaction, language difficulties, sensory, behaviour deficits and excesses, wide range of abilities and unique personalities, faced by learners at school so that teachers are able to make changes and use strategies that reduce stress and increase success (Simpson, 2005). Each learner with autism spectrum disorder is so unique that it is hard to generalize. Therefore, there is no "one size fits all" approach and each individual requires specific instructional strategies and skills to meet the diverse
challenges (Happe & Frith, 2006). It was imperative to establish in this study whether learners exhibit similar challenges due to the triad of impairments and whether teachers have an in-depth understanding of the complexities due to the disability and suggest ways in which teachers resolve these issues.

2.2 Challenges Encountered by Teachers of Learners with ASD Due to Triad of Impairment and how they Affect Learning

The common characteristics reviewed in this study were based on Wings triad of impairments which include communication and language problems, impaired imagination and social interaction difficulties.

2.2.1 Communication and Language Difficulties in Autism

Teachers of learners with ASD should have an in-depth understanding of the language and communication difficulties they face and how they impact on learning. The extent of difficulty varies among individual learners and a comprehensive assessment enables the teacher to set goals, objectives and strategies that ensures the development of both receptive and expressive skills (Simpson, 2005).

Previous studies indicate that difficulties with language and communication are one of the defining features of autism. Scheuermann & Webber (2002) suggest that language difficulties affect the development of both expressive and receptive language needed by learners in social and academic pursuits in class. Receptive
language problems in learners with ASD may lead to inability to process auditory information in class. These include lack of understanding in what is being said; inability to read facial expressions; lack of mutual or shared focus of attention; restricted vocabulary and difficulties with pragmatics of conversation. Further, the authors state that problems in receptive language lead to poor comprehension of various concepts, which impairs cognitive functioning of a learner with ASD. Expressive language problems in ASD are one of the primary identifying characteristic of ASD such as echolalia, pronoun reversal, prosody, non-verbal communication and problems with pragmatics of language.

Noens & Berckelaer-Onnes (2005) propose that approximately 33% to 50% of learners with ASD do not develop functional speech and are mute. Parents have reported initial language development that stalled or stopped entirely. However, for those who develop language, it is delayed, deviant, and typically characterized by echolalia (Bishop, 1989). Others may have very sophisticated vocabulary on topics, which interest them but are unable to apply it in other contexts (Joliffe, Lansdown & Robinson, 1992).

Other findings indicate that learners with ASD demonstrate impairments with the pragmatic aspects of language, which includes lack of joint attention skills and lack of motivation to maintain attention. Both skills are critical skills for development of language and social learning (Jordan, 1997). Rapin & Dunn (2003) suggest that lack of initiation and motivation leads to decreased
opportunities for learning latency when responding to directions or learning materials, and an inability to imitate the actions of another person or small group of individuals. For example, when approached by another student, this child may ignore or seem oblivious to the overture making it hard for interaction.

In addition, these learners may lack ability to comprehend simple topics despite their wealth of words. According to Lord Rhea (1997), some persons with ASD may have a large vocabulary, but not understand simple comments or directions from others. Similarly, he or she may also have strong word decoding skills, but struggle with reading comprehension. Although the extent of these difficulties will vary in individual learners, all learners with autism spectrum disorder find verbal information a challenge and have difficulty in following multiple verbal instructions (Quill, 2000).

Empirical studies by Joliffe, Lansdown & Robinson (1992) on strategies for overcoming communication challenges for teachers indicate that the success for overcoming communication difficulties depends on the assessed needs of the individual learner. Most importantly, skills that significantly influence learning and participation in academic and community settings require language comprehension, evidenced by responding to and the ability to follow verbal directions, which is imperative for functioning in-group activities (Quill, 2000). If teachers are not equipped with relevant information on how to deal with language difficulties, they are bound to encounter challenges when teaching important
skills which influence school functioning and also lead to independent functioning and development of meaningful relationships (Sigafoos & Drasgow, 2003).

The researcher found it necessary to find out the nature of communication and language difficulties encountered by learners and whether teachers were able to assess these challenges and suggest ways to alleviate them.

2.2.2 Impaired Imagination

Impaired imagination is inability to make sense of past and present experiences (Wing, 1996). It manifests itself in unusual behaviour such as restricted range of interests, preoccupation with one specific interest or object and inability to play creatively with objects, toys and other children; resistance to change, insistence on sameness, unusual responses to sensory stimuli, stereotypic and repetitive mannerism such as finger flicking, rocking and spinning objects; and inability to imitate other children (Jordan, 1999). Teachers of learners with ASD should be versed with the bizarre behaviours and sensory problems in order to mitigate the effects of the disability, respond creatively and ensure that it does not interfere with learning. The literature reviewed attempts to shed light on the learner’s impaired imagination and suggests strategies teachers may use to alleviate them.

Behaviour Challenges

Research has shown some of the behaviour characteristics manifested in learners with ASD include ritualistic activities, self-injurious and self-stimulatory behaviours while others may seem deviant, cheeky, rude or non-compliant (Weru,
Behaviours in learners with ASD serve several purposes such as communication, self-regulation and release tension, among others. These behaviour challenges are a concern for teachers because they disrupt learning of both the learner and other learners. Teachers who have an understanding of the ASD condition will be able to successfully understand the function of the behaviour and apply the relevant remedial strategies in class to manage these behaviours and prevent them from escalating (Scheurman & Webber, 2002).

Programmes for behaviour change will include teaching of social and communication skills (and assistance to generalize) as well as specific ways of coping with stress. To be effective, these newly taught behaviours often need to be scripted and rehearsed in order to be internalized and be generalized in natural situations (Scheurmann & Webber, 2002). Other strategies suggested by Moyes (2002) advise teachers to observe learners carefully to identify the triggers of difficult behaviour, to stay calm and try to re-direct, rather than confront the behaviour and to keep a note in the profile of what works. When learners become distressed, they usually need a safe and quiet area to calm down.

Zarkowska & Clement (2000), attribute behaviour challenges to the ASD condition such as difficulties in understanding social information, self-expression, thinking and sensory overload in all senses. A teacher who is unable to establish functional behaviour analysis and set up proactive strategies for managing behaviour will be faced with many challenges in class. These include organizing
the classroom environment to create and maintain a safe environment to reduce sensory overload, and minimizing difficulties that emanate from the ASD condition. Others include improving language understanding, teaching them how to read emotional cues and structuring routine to make events more predictable. This study sought to find out the nature of behaviour difficulties exhibited in order to suggest ways to minimise them.

**Sensory Challenges**

Studies have shown that many learners with autism spectrum disorder have a different sensory experience of the world. As Cesaroni & Garber (1991) explain, this may involve any of the senses and the pattern of sensitivities, such that learners may be over reactive (hypersensitive) to things or under reactive (hyposensitive). This may change across settings and over time. Some learners with autism spectrum disorder may only be able to use or focus on one sensory channel at a time and may have difficulty identifying which sense is receiving a message. For example, for some learners, ordinary sounds and smells, things they see or taste, or being touched will be aversive and even physically or emotionally painful (Grandin, 1995).

Emmons & Anderson (2005), argue that sensory overload is the single biggest problem for learners with ASD in the school setting. Therefore, positive learning outcomes will depend on the teacher creating sufficient personal space for the learner, giving the learner time to process instructions and time to recover after an
overload. The authors' further state that it is necessary to allow learners with ASD to experience success from their efforts, and teachers should motivate them with appropriate rewards.

Emmons & Anderson (2005), argue that teachers ought to closely observe and obtain information from parents in order to understand the triggers of sensory challenges at home and in school. In particular, they should look at resources, sounds or textures, which might be creating aversive experiences. Similarly, Cesaroni & Gaber (1991), suggest empathizing with the learner in order to identify the sensory challenges they may be facing and then work with them to minimize the impact. The teacher should identify a place in the classroom that accommodates any sensory sensitivity like placing a child away from the window and harsh lighting if the learner is sensitive to light. The other way is to place the learner away from computer fans if the learner is sensitive to noise (Emmons & Anderson, 2005).

A teacher who is unable to deal with sensory issues will face serious challenges in class. It was important to establish in this study the nature of sensory issues exhibited by learners with ASD and how they interfere with learning and suggest ways of eliminating them in order to enhance learning. Other difficulties include lack of empathy and literal mindedness. An individual may also exhibit some special difficulties such as comprehending time and space and unusual cognitive processes.
Cognitive Deficits

Some learners with ASD have cognitive deficits, which greatly impair their understanding of information received by the brain and their performance in academic pursuits (Happe & Frith, 2006). This is demonstrated by their inability to attend to multiple stimuli or environmental cues (Quill, 2000). This means that those learners may attend to specific parts or aspects of a situation without regard for the context within which the situation occurs (Happe & Frith, 2006). Happe & Frith assert that over-selective attention, or attention to parts rather than whole, limits an individual’s ability to understand the “big picture” in academic and social settings. It also inhibits an individual’s ability to integrate new information with previous experiences and translate knowledge into meaningful learning.

Furthermore, this may also keep these individuals from attending to and processing important aspects of the educational environment (Quill, 2000). This observation is especially true as situations become complex (Reed & Gibson, 2005). Learners with ASD may also experience difficulties in coding and categorizing information and tend to remember things by location in space rather than through concept comprehension, while others cannot control the speed or numbers accessed (Schuler, 1995).

Some of the learners with ASD may be gifted in some areas and may have splinter skills or islands of precocity. The areas of precocity may include ability to design machines while another child may have one or a few areas of particular
interest, for example, Disney animations or electronics. These special interests are usually highly motivating for the student and when incorporated into the academic programme provide many opportunities for learning (Grandin, 1995).

Powell & Jordan (1997) posits that teachers who have an understanding of cognitive deficits are able to make adaptations while teaching learners with ASD. The authors further argue that teachers need to decide on and retain the main objective of the lesson as well as be flexible in how learners receive instructions or demonstrate their knowledge. Likewise, teachers ought to find ways to separate tasks such as thinking and planning from writing or presenting. The researcher sought to find out the nature and extent of cognitive deficits and excesses learners exhibit in order to establish ways teachers use to reduce them.

2.2.3 Social Interaction Challenges

Majority of learners with autism spectrum disorder lack social skills development which is one of the central features of ASD (Hobson, 1989). This makes them see the world from their own point of view, may prefer objects to human company and appear to lack responsiveness to others (Siegel, 1996). Social skills encompass every aspect of daily living and therefore, lack of it makes it difficult for learners with ASD to participate in class. Likewise, education is a social activity, which involves many interactions among the learners and chances are that they may experience challenges in social interaction, which finally affect meaningful learning. Challenges in the social skills may be attributed to inability
to understand the mental states of others, commonly known as Theory of Mind (ToM) (Bogdashina, 2006). Grandin (1999) suggests learners with ASD have difficulty in developing empathy or responding appropriately to the emotional state of others around them. They use the same process for storing social messages as they do factual messages and are therefore, unable to generalize what they learn and apply this knowledge to other settings.

Grandin (1999) suggests that it is important for teachers to build a relationship with the learner through providing activities in class, which teaches them social skills like sharing, turn-taking and listening. Other strategies include teaching and explaining in a systematic manner social messages, social rules and conduct, ensuring the learner has the opportunity to balance structured opportunities for socializing and the need for quiet times to avoid "overload". Quill (2000), suggests that a teacher who does not include objectives for social skills training in class, will end up with children who have limited opportunities to socialize and learn from their peers. The researcher intended to establish the nature of social challenges encountered and find out ways teachers assist learners improve their social skills.

The triad of impairments affects learners with ASD in school in diverse ways such as lack of understanding of what is being said, inability to share and resistance to change. Teachers require an in-depth understanding of the triad in-order to face these challenges.
2.3 Level and Type of Training Preparation Required for Teachers of Learners with ASD

The US Government Professional Educator Standards Board proposes that there is a need to establish policies and requirements for the preparation and certification of education professionals in autism. They propose that teachers should be competent in their professional knowledge and practice. The National Research Council (2001) states that the preparation of teachers needed to serve learners with ASD, is the most significant challenge facing the autism field. In particular, they need to have in their passion a foundation of basic education combined with specialty skills in the area of autism.

Teachers of ASD need to possess skills, knowledge and attitudes necessary to help students with diverse needs and abilities. Other expectations include career-long professional development and multiple approaches that are research-based (National Research Council, 2001). IDEA (2004), on qualities of teachers of learners with ASD, recommends that teachers should acquire additional curricula content and possess relevant skills such as effective collaboration and consultation skills.

IDEA further recommends that teachers should have skills in facilitating transitions across age, settings and knowledge of strategies to address communication, physical and sensory needs. Other requirements include an ability to develop and incorporate an appropriate curriculum, knowledge of
effective evidence-based instructional techniques and strategies and ability to assess and develop behaviour plans.

The government of Kenya offers training for teachers on specialist programme for learners with autism of which about forty teachers have so far graduated as of October, 2011 from Kenya Institute of Special Education (KISE bulletin, 2011). The fulltime programme constitutes of the following basic areas: basic information on definition, characteristics of learners with autism; communication and social skills for persons with autism; strategies for teaching these learners; management of ASD, perceptual training, adapted Physical Education, psychosocial aspects, speech training; and behaviour modification (Kenya Institute of Special Education curriculum guide, 2009).

Despite these great strides in preparing teachers who handle learners with ASD, the researcher felt that the number of specially trained teachers for learners with ASD may be inadequate for the growing numbers of assessed children. The present study sought to establish the current situation on the ground whether teachers of learners with ASD possess in their skills pre-service and in-service service programmes specifically for learners with ASD and if the number of teachers trained is adequate.

**Teacher Aides**

According to Kluth (2003), teacher aides or teacher assistants who work in classes
of learners with ASDs play a crucial role of assisting class teachers in the implementation of individual and group programmes that are based on the needs of the individual learner. Their roles should be clearly defined and are expected to work under the supervision of the class teacher and are not to usurp the role of the class teacher. Teachers in conjunction with other specialists, design an appropriate Individual Education programme (IEP). Kluth further states that it is the teachers’ professional as well as legal responsibility, to ensure that the IEP is implemented.

Teacher aides perform a variety of functions such as providing children with personal care and help in shaping appropriate behaviour. Other crucial roles include developing independent living skills, facilitating interaction with others and help stimulate communication. Doyle (2008) states that teacher aides, if given the appropriate supervision and staff development opportunities, can contribute significantly to planning and delivery of an educational programme.

The United States Department of Education (USDOE) (2008) has given guidelines on some of the expectations of a teacher aide as follows: to be educated at a certificate level, be involved in professional development and are expected to be knowledgeable in the characteristics of learner with ASD. One of the focuses of this study was to find out whether those given the responsibility of assisting teachers of learners with ASD possess such attributes.
2.4 Educational Resources Required for Learners with ASD

Educational resources for learners with ASD are the supplementary aids and services required by a child with ASD to benefit in education settings where they have been placed. According to Gabriels & Hill (2002), educational resources should address the needs found in the triad of impairments such as social interaction, communication and impaired imagination needs.

2.4.1 Educational Resources for Communication

As discussed earlier, teachers of learners with ASD experience communication challenges. A teacher faced with a non-communicating learner requires resources to support learners with ASD to communicate better. These include Picture Exchange Communication System (PECS), Bliss symbols, pictograms, media and ideograms (Frost & Bondy, 1994). PECS was created in early 1990s as a training package to help non-verbal learners with ASD to initiate communication and to express their needs in a visual and structured way.

Bliss symbols are a visual presentation of line drawings, which are semi-pictorial presentation of concepts and ideas. For example, a symbol for emotions may consist of a heart. Ideograms are graphic symbols that represent an idea, for example, signs used in airports where people are to get meaning from symbols and find their way with ease. Voice output communication aids are high technology devices like mini laptops with a capacity to help a mute learner to get help by vocalizing a need or by typing words, phrase or sentences (Quill, 2000).
The present study sought to find out the resources available which enable a learner with ASD to express their needs especially due to their communication difficulties.

2.4.2 Resources for Social Interaction

Resources that help improve on social interaction include structured play, comic strip conversation, social stories, use of peer friends, and giggle time. Structured play refers to particular plays that may be organized by the teacher along certain themes to enable a learner with ASD to interact. Examples of structured play include exploratory play, problem-solving, manipulative and socializing plays. Other examples include cue cards, social scripts, video modelling, social encyclopaedias and conversation books used as support material in development of social skills (Quill, 2000; Sonders, 2003).

In 1990s, Carol Gray developed social stories and Comic strip conversations. Social stories were developed to help people with autism understand social situations. While Comic strip conversations are simple drawings developed to illustrate a conversation between two or more people. Comic strip conversation were intended to teach learners with ASD to understand that other people have emotions and that they may have a different perspective on issues that may differ from theirs. Circle of friends is intended to teach about friendship, groups and rules for social interactions while Giggle time is a medium of teaching children through the medium of play (Sonders, 2003). The researcher wanted to find out
the nature of resources teachers use to enable learners understand the perspectives of others and engage in meaningful interactions.

### 2.4.3 Impaired Imagination

Imagination and creativity, is very important aspect in learning and can be enhanced by use of games and physical exercises. Richman (2001) recommends games that involve the use of colour, letters, matching and body parts puzzles should be used for improving academic skills. Sensory integration consists of exercises, massages, extreme brushing and other activities given to a learner with ASD to relax and help stimulate the brain by occupational therapist.

Similarly, Quill (2000) suggests a variety of organizational strategies such as organizing space, expectations and routines to assist learners with ASD since they experience challenges in the classroom environment due to social and sensory issues. This involves structuring the environments in such a way to include physical boundaries that clearly indicate what activities occur in each of the classroom working area which is clearly marked (Hewitt, 2005).

Other sensory activities include the use of visual timetables, which incorporate visually presented activities for a given day for an individual. Visual teaching materials help reduce the need for verbal instruction while highly organized tasks help focus learner’s attention (Scheuermann & Webber, 2002). The present study hoped to establish the nature and ways in which teachers use resources in class in
a meaningful way to reduce sensory issues, manage behaviour problems and improve on the learner’s creativity.

2.5 Curriculum and Teaching Strategies for Learners with ASD

2.5.1 Curriculum for Learners with ASD

Carpenter & Ashdon (1996) observe that many teachers believe that the National Curriculum focuses on average learners in mainstream schools and is not an appropriate vehicle for the teaching of learners with ASD and instead, they need significant amounts of teaching in areas outside the National Curriculum such as communication and social abilities. The skills taught to these learners should not focus on prescribed curriculum but rather focus on the individual needs, abilities, interests, aptitudes and long-term goals of the learner (Potter & Whittacker, 2001). This can only be achieved by use of an Individualized Education Programme (IEP) in which the teacher decides what to teach. Scheurmann & Webber (2002) indicate that the goals of educating learners with autism differ slightly such as living a productive and fulfilling life and being independent in life.

2.5.2 Teaching Strategies for Learners with ASD

National Research Council (2001), states that effective education for learners with ASD is the use of multiple approaches such as systematic instruction, visual teaching strategies to make information comprehensible for learners with autism and behavioural approaches such as ABA to help improve the cognitive, social
communication and behaviour characteristics described earlier.

2.5.2.1 Multi-Sensory Method for Learners with ASD

Findings indicate that learning involves the use of senses. The mind cannot understand any information that has not passed through the sense organs. Multi-sensory methods are teaching methods that utilize several senses to reinforce teaching (Lerner, 2000). Bogdashina (2005) posits that senses provide learners with the ability to receive sights (vision), sounds (hearing), touch (tactile), smell (olfactory) which is inborn and ready to interpret and comprehend the environment present in many learners. However, in learners with autism, it is not that the senses of these learners do not work, but they work differently. There are no two autistic learners who have the exactly same pattern of sensory perceptual experiences.

Grandin (1995) argues that learners with autism learn differently from normally developing individuals and remember information that is in a visual format. Learners have difficulty comprehending oral and written information. They are unable to filter incoming information and perceive all stimuli around them. This normally leads to sensory overload and may lead to shut-down. Others excel in visual spatial tasks and may recall simple information but may experience difficulties recalling complex information.

Other perceptual problems include fragmented perception where learners are
unable to get a full picture of what they are seeing, hearing or feeling instead they process bits of information, for example, where other people may see a room, learners with ASD may see a door handle, wall or table. Bogdashina (2006), further states that fragmented perception may lead to delay in processing information which may require a great amount of time and effort to interpret the whole to make sense of the world. For example, they may experience delay in hearing and ability to process information, which may take seconds or minutes or in extreme cases days, weeks or months to process. Other problems they experience include senses being too acute (hypersensitivity), or not working (hyposensitivity).

According to Grandin,(1999) ASDs experience a continuum of sensory processing problems where some of them fixate at first stage of perception (literal perception), perceive fractured or disjointed images and some may experience slight abnormality at the other end. This presents them with challenges especially understanding complex issues. Teachers ought to have an understanding that no one single method of teaching these learners is successful and teachers may need to present a lesson by more than one learning channel or modalities such as visual, auditory kinaesthetic or tactile (VAKT). The strategies below have been recommended (Kurtz, 2008).

2.5.2.2 Visual Cued Instructions

Visual Cued Instructions is the use of visual cues such as objects, photographs,
pictographs, written language or videos to present information in visual forms for assisting learners with ASD to attend, to organize and understand abstract information (Quill, 2000). Visual teaching strategies promote increased learning and independence and on task behaviour in learners with ASD (Heflin & Alberta, 2001). Learners with ASD are better able to attend to, process and remember visual-spatial material, as verbal language is transient and easily forgotten (Waterhouse, 1990).

Learners with ASD require concrete reminders because when information is presented visually, the learner is more likely to complete steps with little or no assistance (Grandin, 2006). Visually presented information reduces confusion for learners and enhances understanding. Examples of visually cued instructions include visual schedules, cue cards and social scripts (Quill, 2000).

2.5.2.3 IEP for Learners with ASD

Individuals with Disabilities Education Act (IDEA) (2004) mandate that Individual Education Programme (IEP) be developed by a collaborative team consisting of class teacher, parents, teacher aides and other professionals who specifically work with the child, administrators, and if possible, the child. The IEP for a child with autism should address all areas of concern including academic achievement, social and adaptive behaviours, development of fine and gross motor skills and communication skills. Support services such as occupational therapy to address sensory needs and use of speech therapist may also be
considered depending on the specific needs of the learner. The curriculum content for these learners targets the acquisition of functional skills such as social skills, domestic skills, community living skills, leisure and recreational skills, motor skills, and vocational skills (Scheurmann & Webber, 2002). There is need to target prerequisite skills such as attending, imitating, discrimination to make learning possible. Other requisite skills include object manipulation, motor skills, turn-taking, motor skills sharing, and direction following (Richman, 2001).

2.5.2.4 Applied Behaviour Analysis

Another teaching strategy is Applied Behaviour Analysis (ABA). ABA is defined as the process of systematically applying interventions based upon the principles of behaviour theory to improve socially significant behaviours, including reading, academics, social skills, communication, and adaptive living skills, to a meaningful degree, and to demonstrate that the interventions employed are responsible for the improvement in behaviour (Sulzer-Azaroff & Mayer, 1991).

ABA is based on the fact that pleasant consequences can promote good behaviour and unpleasant consequences such as punishment can deter bad behaviour (Hallahan & Kauffman, 1976). This technique emphasizes direct, continuous instruction to help learners learn new skills. It entails behaviours that can be observed and counted directly and then reinforced. Applied behaviour analysis is an efficient and effective method of instruction because it focuses on adapting
some materials and activities for students with autism.

2.5.2.5 Discrete Trial Instruction

Discrete Trial Instruction (DTI) is an effective instructional format used in applied behaviour analysis for learners with ASD to teach specific skills in an intensive, efficient manner. Skills are taught in highly structured, one to one format providing clear concise instruction, an additional prompt and explicit reinforcement (Iovanne et al., 2003). During DTI, learners have multiple opportunities to respond to a direction or cue presented by a teacher. The teacher then uses systematic prompting (that is, least-to-most prompting, error correction) and reinforcement to increase accuracy and independence (Kates-McElrath & Axelrod, 2006; Leblanc, Ricciardi, & Luiselli, 2005).

2.5.2.6 Promoting

Prompting is an instructional tool that increases learners’ abilities to accurately complete a variety of tasks and leads to higher rates of reinforcement (Heckaman, Alber, Hooper, & Heward, 1998). That is, when learners receive prompts for task completion, they exhibit fewer errors, leading to less time spent on tasks and higher rates of reinforcement. Prompting strategies include time delay, least prompting strategy, simultaneous prompting, and graduated guidance (Heflin & Alberto, 2001; Snell & Brown, 2006; Worely & Schuster, 1997).

In a system of least prompting, the teacher provides the initial direction or cue
followed by prompts that gradually increase in intensity (Collins, 2007). Snell & Brown (2006) suggest a specific procedure when using a system of least prompts. The procedure begins by determining the target skill and a series of two to four prompts. The teacher cues the learner to complete the task. If the learner does not respond within a specified amount of time, or begins to respond incorrectly, the teacher provides a prompt. The teacher gradually increases the prompt intensity until the learner successfully completes the task. The learner receives reinforcement after accurately completing the task. In general, most prompting systems appear effective for teaching a variety of skills.

2.5.2.7 Peer Tutoring

Wagner (1999) posits that peer tutoring approach allows socially competent peers to learn the use of effective teaching techniques and positive reinforcement to teach their classmates with ASD. Research has demonstrated that peers can help teach academic and social skills to learners with autism. For this to be successful, activities have to be appropriately structured, training has to be made available to peers, and teachers have to actively prompt and reinforce the interactions between learners with autism and their peers.

2.5.2.8 Task Analysis

Task analysis is a teaching method, which involves the breaking of skills into sub-skills or content into sub-content that is easy for learners to follow in a step-by-step way (Richman, 2001). Task analysis provides a list of essential sub-
behaviours required for the mastery of a task or activity. It enables the learner to attempt the task even though it looks difficult.

2.6 Inclusion of Services for Learners with Autism

Shaddock (2003) posits that inclusive education is the practice of placing learners with ASD within the regular classroom where all learners have the chance to interact with and learn from their peers. Historically, learners with autism tended to be segregated from their peers and even from society as a whole. Given the potential complexities of regular education settings for at least some learners, it may be preferable to put the focus on providing learners with ASD appropriate education to meet their needs rather than assuming that inclusion in a regular classroom is the optimum placement for all learners with ASD at all stages of their education.

2.7 Summary of Literature Review and Gaps to be filled in the Study

The review of literature has attempted to outline a number of areas that could be improved in education with regard to meeting the challenges teachers face when educating learners with autistic spectrum disorders. Literature reviewed elsewhere indicates teachers encounter challenges related to their understanding of triad of impairments. Other constraints are due to lack of specialized teaching methods, for example, ABA, visually cued instructions and peer tutoring which are specialized strategies that require intensive training. Other teaching strategies are the development and implementation of Individualized Education Programme
(IEP) for learners with ASD. This is a yearly plan towards overcoming the identified difficulties of a learner with ASD. In Kenya, these learners may be wrongly placed and being taught by teachers whose pre-service education may not be specific to the teaching of these learners. The chapter that follows addresses the methodology adopted in the study.
CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the design, variables, location of the study, target
population, sample size and sampling procedures, research instruments, piloting,
validity & reliability, data collection techniques, data analysis, logistical and
ethical considerations.

3.1 Research Design

The design adopted for this research was a qualitative design using a descriptive
case study method. The qualitative case study was used to provide a detailed and
intensive analysis of a single case and to provide insight, experiences and
generate new understanding or explanations of a phenomenon (Bryman, 2008).
Likewise, the case study was hoped to provide a rich repertoire of information
which would give insight to the research objectives. The data obtained was
expected to generate new understandings, and explanations. This study was
carried out in City Primary School in Nairobi, where these learners with ASD are
being educated.

3.2 Variables

3.2.1 Dependent Variable

In this study, the dependent variable of the study was teaching learners with ASD
conditions, which may interfere with learning and cause constraints to teachers.
3.2.2 Independent Variables

The independent variables under the study included: the level and type of training of teachers; challenges the teachers face while teaching learners with ASD; the choice of curriculum and instructional strategies used; and, appropriateness and frequency of use of resources when teaching learners with ASD.

To determine the level of training that teachers at City Primary School, in Nairobi had attained, the study sought to establish their academic and professional qualifications, whether they participated in continuing education programmes including in-service training to update themselves with new skills in the area of ASD. The type of training that the teachers at City Primary School had attained was done by examining the areas teachers specialized in and the relevant experience they had in the area of ASD. In absence of sufficient and relevant training, the teacher would experience constraints in teaching learners with ASD.

The second independent variable sought to establish the existence of a curriculum and instructional strategies used when teaching learners with autism. The researcher sought to find out the existence of a curriculum and in teaching learners with autism at City Primary School in Nairobi. To determine the instructional strategies used, the study sought to find out whether teachers use instructional strategies specific to learners with ASD such as Individualized Education Programme (IEP), Applied Behaviour Analysis (ABA), Picture
Exchange Communication System (PECS), multi-sensory teaching, Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), among others. The study also sought to determine the criteria used for selecting a particular instructional strategy, if any. This would enable the researcher to determine whether the choice of a particular instructional strategy was based on individual learners’ assessed needs, learning style and cognitive ability. In absence of the aforementioned curriculum and instructional strategies, the teacher would experience pedagogical constraints.

The third independent variable studied was resources used in teaching learners with ASD. This involved examining the availability, appropriateness and the frequency of use by teachers of learners with ASD. The right choice of resources would enhance learner’s cognitive ability, learning styles and therefore, improve learning. The non-existence or failure to use appropriate teaching resources would possibly cause pedagogical constraints in teaching learners with ASD.

The last independent variable was the challenges the teachers face while teaching learners with ASD. The researcher sought to find out the nature and type of challenges the teachers faced. In articulating the challenges they faced, the researcher would determine if teachers had an understanding of the complexities of ASD condition caused by the ‘triad’ of impairment -social, communication and impaired imagination (Wing, 1996).
3.3 Location of the Study

The study was undertaken at the Autism Unit of City Primary School located in Starehe constituency in Nairobi County. The Autism Unit was selected for the study because it was the first programme to provide education for learners with ASD.

3.4 Target Population

The population of interest constituted one (1) head teacher, one (1) parents' co-ordinator, and all the six (6) teachers and six (6) teacher aides at Autism Unit at City Primary School Nairobi.

3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

The study adapted purposive sampling of the whole population. Purposive or non-probability sampling is where the focus is on in-depth information and not making inferences or generalization (Mugenda & Mugenda, 2003). City Primary Autism Unit, Nairobi County was purposively selected for this study. In order to provide the intended in-depth information regarding pedagogical constraints teachers face while teaching learners with ASD.

3.5.2 Sample Size

The sample size comprised of six (6) teachers and six (6) teacher aides, one (1) head teacher, and one (1) parents co-ordinator who were fourteen in number.
Table 3.1 below presents the target population at Nairobi City Primary School.

### Table 3.1: Population of investigated respondents

<table>
<thead>
<tr>
<th>Strata (Category of staff)</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents' Coordinator</td>
<td>1</td>
</tr>
<tr>
<td>Head teacher</td>
<td>1</td>
</tr>
<tr>
<td>Class teachers</td>
<td>6</td>
</tr>
<tr>
<td>Teacher aides</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
</tr>
</tbody>
</table>

3.6 Construction of Research Instruments

Primary data were collected by use of teachers' survey, interviews and observation checklist, which was developed by the researcher.

Four research instruments were used which included a questionnaire prepared for teachers, a structured interview guide for the head teacher and Parents coordinator, an interview guide for teacher aides, and an observation checklist to corroborate information given in the questionnaires by teachers in the autism unit at Nairobi's City Primary School.

3.6.1 Teachers Questionnaire

The teachers' questionnaire (see Appendix 2) had three sections. Section one which had ten (10) items was to find out background information of each teacher, specifically their pedagogical preparations in terms of qualifications and
experience in teaching of learners with autism and the challenges the teachers encounter. Section two which had five (5) items was on resources used in teaching learners with ASD. Section three which had four items was on curriculum and instructional strategies used by teachers.

A questionnaire was preferred because it is low on cost, free from bias of the researcher, respondents have adequate time to give well thought out answers and the results are more dependable and reliable (Kothari, 2004). Both structured and open-ended questions were used for this study. Structured or close-ended questions are accompanied by a list of possible alternatives from which the respondents select the answer. Unstructured or open-ended questions refer to questions that give the respondent complete freedom of response (Mugenda & Mugenda, 2003). The questionnaire was made by the researcher, tested, and validated in a pilot study at Vanessa Grant Special School in Nakuru.

3.6.2 Interview Guide for Parents’ Coordinator and Head teacher
The structured interview guide aimed at exploring the role of parents in support of teaching of learners with ASD. The items of the interview were guided by the objectives of the study.

3.6.3 Interview Guide for Teacher Aides
The interview guide was used to conduct discussions with teacher-aides with the aim of gaining an understanding of their training and the kind of challenges they
encounter as they assist teachers in class and how they overcome these challenges.

3.6.4 Observation Checklist

The purpose of this instrument was to enhance and clarify what the teachers had indicated on the questionnaire about the instructional strategies and curriculum they use to meet the challenges of learners with autism; and to identify the type of learning materials and other relevant classroom activities undertaken in class. Data obtained during the observation were used to corroborate information obtained from the teachers’ questionnaire.

3.7 Pilot Study

The Piloting was carried out at Vanessa Grant Special School in Nakuru on two randomly selected respondents. A raffle design method was used to select two (2) teachers who were to participate in the piloting of the study. The piloting of the tools helped to correct ambiguities and refine the tool in order to collect adequate data. The changes made in the instrument included removing inadequacies and ambiguities in the tools. For example, the teachers’ tool was not clear in some areas and therefore, could not generate in-depth information.

The checklist was also refined in line with the APQI model requirements as well as creating space for responses as well as removing all the misinterpretation found in the questions. It was also used to check on the level of language used for
purposes of the current study.

3.7.1 Validity

This is a non-statistical method used in validating the content employed in the questionnaires, interview guide and the observation checklist (Orodho, 2005).

For the purposes of enhancing content validity, the piloting of the research instruments was undertaken based on the research objectives. For face validity, the researcher used a panel of two supervisors who gave a feedback and recommendations on whether the set of items in the research tools, accurately represented the variables under the study. Their recommendations were incorporated in the final questionnaires (Orodho, 2005).

3.7.2 Reliability

To ensure reliability of the instruments of the study, the following steps were undertaken. The instruments were administered to the same people after a span of two weeks and a comparison of the results of the test was done to establish the extent to which the contents of the instruments were consistent in eliciting the same response. Important suggestions, omissions and corrections led to changes being effected in the data collection instruments. It also led to their reorganization in line with the new suggestions given. A reliability coefficient of 0.80 was felt to be good for this study.
3.8 Data Collection Techniques

During the first visit the researcher explained the purpose and objectives of the study, and the researcher was granted permission to collect data, upon which the questionnaires were distributed to six teachers at the Autism unit to be collected within the week. During the second visit, the researcher conducted interviews with the teacher aides, the head teacher and the parents’ coordinator with the help of a research assistant. On the third visit, the researcher carried out observations during teaching in all the six classes, using an observation checklist for each class, for a period of at least twenty minutes. The observations were carried out to enable the researcher to corroborate findings from the questionnaires.

3.9 Data Analysis

Data collected in this study was qualitative in nature. Qualitative data included those obtained through questionnaires, interviews and observation checklist on pedagogical preparations of teachers of learners with autism, the challenges they encounter, curriculum and instructional strategies and use of resources.

Interviews and observations were conducted by the researcher to seek detailed information and to explore some of the issues in depth. They provided a more complete picture of what happened in the program and quotes from the interviewees added credibility to the information. According to Boyce & Neale, (2006) an in-depth interviewing is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular situation. Marshall & Rossman (1999)
posits that observation technique provides researchers with ways to observe events that informants may be unable or unwilling to share when doing so would be impolitic, impolite, or insensitive, and observe situations informants have described in interviews, thereby making them aware of distortions or inaccuracies in description provided by those informants. The qualitative data collected through interviews and observation guides was first converted to a write up to create descriptive, multi-dimensional categories for preliminary framework for analysis. A summary was written to capture the main concept of the views of the parents' coordinator, teachers and teacher aides in the hope of making some inferences and possible conclusions.

All the data collected were examined for completeness, comprehensibility, consistency and reliability. It was then processed manually because it involved a small group of people. There are several steps involved when processing the data, which include: editing, coding, and classification. Kothari (2004), informs that editing of data involves examining raw data to detect errors and omissions. This was done by seeking clarifications by use of phone in order to ensure the data were complete. The data were then checked for consistency, well arranged and uniformly entered to facilitate coding and tabulation.

Coding refers to the process of assigning numerals or other symbols to answers so that the responses can be put into a limited number of categories based on the research problems of mutual exclusiveness. For this study, hand coding was done
along the margin with a coloured pen to indicate which question was answering which objective. After classification, the data were ready for tabulation. Tabulation is the process of summarizing raw data and displaying the same in compact form (like tables) for further analysis (Kothari, 2004). For this study, hand tabulation was preferred because the numbers of enquiries were few. After tabulation, the data were ready for descriptive analysis.

In carrying out the content analysis, words and phrases or events that appear similar were grouped together and analysed in order to gain an understanding of the emerging common themes related to the variables of the study. After the data were analysed, descriptive statistics such as percentages and frequencies were used for analysis according to the objectives of the study and presented in form of tables, frequencies and percentages and then was evaluated for any usefulness in answering the research questions under study.

3.10 Logistical and Ethical Considerations

Before commencement of the study, the researcher obtained a research permit from the Ministry of Education (MoE) Science and Technology research section through the director Graduate School Kenyatta University. The researcher also sought permission and consent of head teacher City Primary School and the parents’ coordinator at the Autism Society of Kenya.
3.11 Summary of the chapter

The chapter provides the research design best suited to collect in-depth data to answer the research questions. The chapter that follows provides the results, analysis and discussions generated from data.
CHAPTER FOUR
DATA RESULTS, ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents the results of the study findings, interpretation and discussions on pedagogical constraints teachers encounter in educating learners with autism spectrum disorders in Nairobi City Primary School. The presentation and analysis of the results of the study was done in relation to the research questions as follows.

i. What was the level and type of training of teachers handling learners with ASD?

ii. What were the challenges encountered by teachers dealing with the learners with ASD condition in City Primary School, Nairobi County?

iii. Which were the resources used while teaching learners with ASD?

iv. What was the exact curriculum for learners with ASD and what instructional strategies do teachers use at City Primary School, Nairobi.

4.1 Methods of Data Analysis

Descriptive analysis was used to present the qualitative data from interview guide, observation checklist and questionnaire. The respondents comprised teachers, teacher aides, school principal and parents’ coordinator. The research questions were derived from objectives of the study which included level and type of training for teachers, challenges teachers encounter, availability and use of teaching and learning resources, availability and use of a curriculum and
instructional strategies for learners with ASD.

Content analysis was used for qualitative data from open-ended questions in questionnaire and from the interviews guide. An in-depth interview was conducted with some of the respondents and quotes from some of them were recorded within the context in which they are used. Key points that emerged from the qualitative data were categorized, and presented in table form for ease of analysis. The results of this study are described in two main sections. The first section contains the description of the case study school. The second section is an analysis of quantitative and qualitative data and answers to all research questions. Finally, a summary of this chapter is presented.

4.2 Description of the Case Study School

Nairobi's City Primary School selected for this study is situated in City Primary School, in Starehe constituency, Nairobi County. The school is under the Ministry of Education (MoE) and comprises the regular primary school, the Autism unit and the unit for intellectually challenged. The primary section comprises the administration block, several storied buildings, a hall and a large sports ground. The Autism unit building structures comprises of a storied building which houses the classrooms. Another block houses the vocational classes for tailoring and Arts, a dining hall and an ablution block. The autism unit community consists of 90 learners and 6 teachers, 6 teacher aides, 8 occupational therapists and 5 support staff.
4.3. Background Information of the Respondents

The respondents comprised teachers employed by Teachers Service Commission (TSC), teacher aides, the head teacher of the City Primary School and the parents' coordinator who is the Director of Autism Society of Kenya (ASK).

4.3.1 Level and Type of Training Attained by Teachers of Learners with ASD

The study sought to establish their level of education, professional qualification and type of specialization they had attained. The researcher also sought to establish the experience that teachers of learners with ASD had attained, and if they had participated in continuing education programmes to update their skills. The Figure 4.1, 4.2 and 4.3 as well as Table 4.1 and 4.2 below summarises the findings relating to the level and type of training obtained.

Figure 4.1: Level of Education for Teachers in City Primary Autism Unit.

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>67%</td>
</tr>
<tr>
<td>Secondary</td>
<td>33%</td>
</tr>
</tbody>
</table>
Four (67%) out of six teachers had attained a first degree, while two (33%) of them had secondary school level of education. None had primary school level of education. This indicates that all the teachers in City Primary School Autism Unit had at least a secondary school level of education.

**Table 4.1: Professional Qualifications of Teachers**

<table>
<thead>
<tr>
<th>Teacher training levels</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIPLOMA (SNE)</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>B.Ed (SNE)</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>M.Ed</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>

From the Table 4.1 above, teachers at City Primary School Autism Unit had professional qualification ranging from diploma to master’s degree in Special Needs Education. Three (50%) out of six respondents had Bachelor of Education (Special Needs Education), two (33%) had diploma in Special Needs Education while one teacher (17%) had a master’s degree in Special Needs Education.
Teachers in City Primary School Autism Unit were trained in different areas of Special Needs Education. Two (33%) respondents were trained in the area of Inclusive Education and Mental Disabilities, while one (17%) was trained in Visual Impairment and another one (17%) was trained in Early Childhood Education. Corroborated information revealed there was one teacher with specialized training in the area of autism at diploma level.

On the findings regarding level of education, professional qualifications, and area of specialization, it was revealed that majority of the teachers had basic foundation in education as well as general training in Special Needs Education. The respondents however did not have specialized training in the area of teaching learners with ASD, except for one teacher who was trained in autism at diploma level. Through an interview, the researcher further established that the head teacher in-charge of the primary section as well as the autism unit of the school was not trained in Special Needs Education.
The inference here is that even though the teachers have basic academic education and Special Needs Education, they do not possess specialized skills to teach learners with ASD and are likely to encounter constraints in teaching these learners. According to Mesibov & Shea (1996), teachers of learners with ASD require an understanding of the unique cognitive, social, sensory and behavioural deficits that characterize these learners. Further, the APQI model (2001) guidelines for personnel serving learners with ASD, recommends that teachers should have specialized training with specific content on autism, such as characteristics of autism, assessment methods, development of IEPs, environmental adaptations and accommodations together with instructional methods in order to meet the unique needs of those learners.

The US Government Professional Educator Standards Board (2008) and The National Research Council (2001) further support this and propose that teachers of learners with ASD should be competent in professional knowledge and practice and should possess in their training a foundation of basic education combined with specialty skills in the area of autism.

4.3.2 Teachers’ Professional Improvement

Three (50%) teachers out of six respondents indicated that they had engaged in in-service training after joining City Primary Autism Unit. The other half signified that they had not attended any in-service training since joining the City Primary Autism Unit.
The observation made by the researcher on benefits accrued from in-service programmes indicates that three (50%) out of six of the respondents felt that the in-service courses they had attended were beneficial to them. Three (50%) teachers had not responded to the question because they had not participated in any in-service course for teaching learners with ASD. Their responses on whether they had participated in-service training and whether they had benefited from the program were as follows: -

- That the continued experience prepares the respondent on what instruction to provide based on the IEP.
- It helped them refresh the knowledge acquired in learning process.
- One of the respondents was able to improve on the services offered and learnt new skills of taking care of learners with autism.
- The respondents learnt methods to teach learners for example, breaking of tasks and acquired new information.

The results were analysed and tabulated in Table 4.2 below.

<table>
<thead>
<tr>
<th>Nature of benefits</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of teaching / learning skills</td>
<td>4</td>
<td>67</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>
The findings indicate that four (67%) out of the six respondents benefitted from the in-service training in the area of teaching / learning strategies while two (33%) of them did not respond to the question. Findings in respect to teachers' participation in continuing education and on benefits accrued from the courses attended were that the respondents indicated that they benefitted from the in-service training offered by the school. The result on benefits and the nature of benefits indicated by the teachers was corroborated in the interview with the head teacher and the parents' coordinator indicating that the training was a one-two day's workshop arranged by the Autism Society of Kenya.

The in-service designed by the Ministry of Education at Kenya Institute of Special Education (KISE) for teachers of learners with ASD is a three months intensive programme that covers a wide range of topics that include teaching strategies, social and communication skills, characteristics of ASD (MOE Revised Curriculum Guide for Autism, 2003). Here, the inference is that the nature of training, duration and content was not adequate for an in-depth coverage of the recommended syllabus for in-service training as recommended by the Ministry of Education for teachers of learners with ASD.

The APQI model (2001) also recommends that teachers should participate in continuing professional development in order to upgrade their knowledge and skills to suit the needs of their learners. The Autism Awareness Joint Report by The Professional Educator Standards Board (2008) recommends that in-service
programmes should be developed from an assessment of the needs of teachers of learners and the programmes developed in collaboration with professionals, personnel from various universities, as well as national and local experts to provide training in areas of identified needs. This should be done by developing training and competency-based personnel preparation models for autism spectrum disorders. The topics advocated for include development of IEPs, behaviour strategies, development of social and communication skills, accommodations, visual teaching strategies and structured environments as in TEACCH. To meet the needs of generalist and special education teachers, the Board further recommend the use of different training delivery models including on-site and online learning, such as video-conferencing.

4.3.3 Experience and Self-Assessment of Teachers Ability
Findings on teachers’ self-assessment of their ability in teaching children with ASD at the Autism Unit in City Primary School indicated that all six (100%) teachers felt competent to teach them. The reasons given by the respondents for their high rating on their competency to guide learners with autism included perceptions on the following: their ability to guide learners on different activities related to their needs, their high level of education and experience, their ability to change the learners’ behaviour though challenging and their ability to guide the children on different activities -except the therapy part of care. Other respondents stated that they felt competent because they were able to train children for transition to the next level, give reports, discuss their performances with their
parents and help them to socialize.

The respondents’ self-assessment on competency in teaching learners with ASD may be overrated. Spears et al., (2001) argue that because of the ASD complexities, educating learners with ASD poses such serious challenges that even the most skilled and competent educators often report that they consider themselves less than fully capable of meeting the needs of these learners. It is also apparent that the nature of training required for personnel handling learners with ASD as stipulated in the APQI model is rigorous and none of them had undergone such kind of training. The researcher further observed that only one of the respondents was trained in the area of autism.

4.3.4 Teachers’ Prior Experience of Working with Learners with ASD

The research indicated that prior to their deployment at City Primary School, three (50%) out of the six respondents had prior experience working with learners with ASD condition while three (50%) had no experience.

Figure 4.3: Experience of Teachers Working with Learners with ASD

Experience of teachers

- Less than 1 year: 17%
- 1-3 years: 66%
- No response: 17%
In terms of teachers' working experience with learners with ASD, findings indicated that four (66%) of the teachers had 1 to 3 years of experience at City Primary, one teacher had less than one year of experience while one did not respond to the question. This meant that all respondents were familiar with the learners and the learning environment. The researcher however observed in class that the teachers encountered challenges while teaching children with ASD. The inference here is that although the teachers were familiar with the nature of ASD condition, the heterogeneity of ASD condition and lack of specialized training in the area of autism may have posed challenges to the teachers.

Happe & Frith (2006) and Simpson (2005) stipulate that each learner with autism spectrum disorder is so unique that it is hard to generalize. In this regard, teachers ought to have an in-depth understanding of the nature of ASD which presents itself in a combination of social interaction and language difficulties, sensory and behaviour deficits and excesses, and a wide range of abilities and unique personalities so that teachers are able to make changes and use strategies that reduce stress and increase success.

4.4 Challenges Encountered by Teachers of Learners with ASD

The researcher sought to find out the nature and type of challenges teachers encountered while teaching learners at the Autism Unit of City Primary School. Figures 4.4 (pg81 and 4.5 (pg83) present the challenges experienced by teachers while Tables 4.3 and 4.4 summarizes the suggestions for overcoming those
All the six (100%) teachers at the Autism Unit of City Primary School indicated that they encountered challenges while teaching learners with ASD. The responses indicated the nature of challenges encountered to include: challenging behaviour, lack of adequate teaching/learning resources and protective clothing, lack of syllabus for children with ASD, large number of learners in one class, high expectation from parents who demand excellent performance from their children in spite of their disability, communication and social problems, sensory issues, lack of attention and imitation skills, lack of adequate personnel and failure by parents to follow advice on prescribed diet.

The categorization and analyses of the findings are presented in figure 4.4 below.

**Figure 4.4: The Nature of challenges Experienced by Teachers**
The findings indicate that major challenges encountered by the respondents emanated from the triad of impairment in the area of impaired imagination at a frequency of (18%), lack of resources at (18%), lack of collaboration at (17%) and inadequacy of personnel at (17%). Other challenges were reported to emanate from the triad of impairment within the areas of social at (13%) and communication skills at a frequency of (9%) respectively. Lastly, challenges such as parents' expectations and cultural beliefs were each cited at a frequency of (4%) by the respondents.

From the findings indicated above, it emerged that all teachers faced challenges while teaching learners with ASD. The nature of challenges they reported included those in the areas of impaired imagination which comprises cognitive deficits, unusual behaviours and sensory issues which are visible and therefore, easy to assess. By reporting less on social and communication difficulties, it indicates that the respondents lacked knowledge of characteristics of learners with ASD. Training would have exposed them to the learners' deficits in all areas of the triad of impairments (Wing, 1996) and would have enabled them to understand the unique and puzzling nature of ASD (Spears, Tollfson, and Simpson, 2001). The APQI model (2001) on guidelines for teacher training, stipulates that teachers should have skills in individualized evaluation which constitutes a thorough diagnostic educational assessment using a comprehensive multi-disciplinary approach to identify student strengths and weaknesses.
4.4.1 Other Challenges

It emerged that there were other challenges teachers faced when teaching learners with ASD. These were understood by the researcher to fall within the categories of teacher-learner ratio and availability of teacher aides.

4.4.1.1 Teacher-Learner Ratio

The teacher learner ratio is considered an important factor in teaching children with ASD and the researcher sought to find out whether it was a significant constraint at Nairobi City Primary School.

Figure 4.5: Number of Learners per Class

Figure 4.5 above indicate that four of the respondents (66%) reported that the number of learners per class ranged from 7 to 10 children whereas one respondent (17%) had more than 10 learners and another one respondent (17%) with 4-6 learners in class.

With a teacher ratio of over 4 learners to a teacher, and with highest number of
learners reported in some classes as ten, teachers were bound to face constraints. The Kotchung Report on Special Education Appraisal Exercise (2003) on staffing of Special Needs Education (SNE) programme recommends a ratio of 1:1 for learners with autism in Kenya. The Kotchung report is in agreement with the APQI model (2001) which states that teachers should be available in a ratio sufficient to provide the support necessary to accomplish Individualized Education Programme (IEP) goals in general education classes or self-contained classes in a ratio of 1:1 or 2:1 as determined by the IEP team.

Given the chronic shortage of specialized teachers in the area of ASD in Kenya, the appropriate pupil-teacher ratio should be considered on the basis of the needs of students and the setting in which they are receiving instructions and educational services. The instructions should be provided in individualized, small group or large group settings as recommended by the No Child Left Behind Act of 2001.

4.4.1.2 Availability of Teacher Aides in Classes

Findings on availability of teachers’ aides in the Autism Unit of City Primary School indicate that all the six (100%) respondents reported that they were assisted by teacher aides in all classes of learners with autism at City Primary School. The interview with the teacher aides revealed that half of the teacher aides had interacted with learners with autism before joining the City Primary School autism unit for a duration ranging from 3 months to 2 years. The researcher
observed that each class had one teacher and a teacher aide.

The role of the teacher aides depended on the age and functioning level of the learners as reported by the teacher aides. The roles of teacher aides recorded included assisting the learners with activities introduced by the teacher; working as teacher substitutes when teachers were absent; assisting learners in activities of daily living; team teaching with teachers in class; assisting teachers in preparing class activities; and assisting teachers in supporting learners in outdoor activities. The teacher aides also reported that they were also in charge of ushering children in school and handing them over to parents after school.

From the information gathered by the interview guide and corroborated information, it emerged that five (83%) of the respondents had secondary education while one (17%) respondent had not gone beyond class eight. Four (67%) respondents had some training in Special Needs Education with three respondents having attended the Distance Learning in-service programme provided by KISE. It also emerged that teacher aides also play the role of class teachers as they reported that they team-teach with classroom teachers and stood in for teachers when absent.

Corroborated information on challenges encountered by teacher aides seem to agree with the teachers' observations in the area of Activities of Daily Living (ADL) and impaired imagination and very little information on communication challenges.
The inference from this information is that the role of paraprofessionals is not clear and since they do not have the teaching methods, they may not be able to deliver appropriate instructions and this conflict of roles may have a negative impact on the learners and contribute to teacher constraints. Teacher aides, as paraprofessional educators, are used to help support learners with autism under the instructions of the class teacher, and should not be given responsibilities in teaching as it is the teacher’s professional and legal responsibility to do so (Kluth, 2003).

4.4.2 Strategies used by Teachers to Overcome Challenges

The researcher further investigated the strategies used by the teachers to overcome the challenges. Tables 4.3 and 4.4 present the frequency of the responses by teachers.

Table 4.3: Strategies used by Teachers for Overcoming the Challenges

<table>
<thead>
<tr>
<th>Suggested strategy</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher/parent collaboration</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Sensory integration</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Improvisation of teaching materials</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Use of behaviour modification strategies</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Use of verbal and total communication</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Reporting to administration</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Findings in Table 4.3 above indicates that respondents preferred the involvement of parents at a frequency of four (40 %) as a strategy for overcoming challenges while those who preferred reporting to the administration had a frequency of two (20%). The use of sensory integration, improvisation of teaching materials, use of behaviour modification and total communication respectively was preferred at a frequency of one(10%). The respondents’ preference for parents’ involvement in managing challenges of learners with ASD is supported by Bunsen in Gabriels & Hill (2002) who recommends the involvement of parents as a best practice. This view is also supported by the APQI model (2001) on family involvement and support where they recognize parents as valued full partners in the development and implementation of the child’s IEP.

**Table 4.4: Other Recommendations for Managing the Challenges**

<table>
<thead>
<tr>
<th>Suggested recommendations</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide more teachers</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Teachers/teacher collaboration</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Government provision of learning materials and funds</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Awareness creation</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Organized support groups for the parents</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Continuing education for teachers and teacher aides</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Other recommendations provided by the respondents on managing challenges included suggestions for teacher/teacher collaboration, government support in the provision of learning materials, creation of awareness, creation of support groups and organizing courses in order to form support groups for the parents each of which occurred at a frequency of two (20%). Suggestions for continuing education for teachers and teacher aides and provision of more teachers occurred each at a frequency of one which represent (10%).

4.5 Teaching and Learning Resources

The researcher sought to find out whether there were constraints related to teaching/learning resources at City Primary School Autism Unit. The study sought to find out the availability, adequacy, appropriateness and use of the resources. Figure 4.6 and Table 4.5 provide the results on availability and type of teaching/learning resources.

4.5.1 Availability and use of Teaching/Learning Resources for Teachers

All the six respondents indicated that they had access to and used teaching/learning resources at City Primary School Autism Unit. The respondents were required to indicate the type of resources that they used in class which included:- Velcro-boards, Beads, blocks, pegboards, buttoning boards, zipping boards, lacing boards, charts, picture books, blocks, jigsaws, water paint colours, crayons, pencil books, modelling clay, utensils, shoe laces, balls, toys.
The researcher categorized the resources according to the purpose they were intended to serve for a learner with ASD. Out of the six respondents, one (10%) indicated that the resources available were meant for communication purpose, two respondents (33%) indicated the resources were meant for social skills development, and three respondents (57%) specified that the resources were for development of cognition, behaviour and sensory integration. The results were presented below in Figure 4.6.

**Figure 4.6: Type and Purpose of Resources**

The researcher categorized the resources according to the purpose they were intended to serve for a learner with ASD. Out of the six respondents, one (10%) indicated that the resources available were meant for communication purpose, two respondents (33%) indicated the resources were meant for social skills development, and three respondents (57%) specified that the resources were for development of cognition, behaviour and sensory integration. The results were presented below in Figure 4.6.

**Adequacy of Teaching/Learning Resources at City Primary School Autism Unit**

Four (66%) respondents indicated that the teaching/learning resources in City Primary Autism Unit were not adequate while one (17%) respondent indicated the materials were adequate. One (17%) respondent refrained from answering the question.
Table 4.5: Recommendations made by Teachers

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources should be matched with number of learners</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Size of tangible materials should be large enough for ease of handling by learners.</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Government to provide teaching/learning resources and ensure sufficiency</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>Involvement of parents and other stakeholders in provision of materials</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Teachers to Improvise in teaching materials</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4.5 presents the frequency of recommendations for improvement of resources. Suggestions from the respondents for the Government to provide teaching/learning resources occurred at a frequency of three (37.5) while recommendations for involvement of parents and other stakeholders for provision of materials occurred at frequency of two (25%). Other recommendation given included suggestions for teachers to improvise the learning resources, resources to be matched with number of learners and that the size of tangible materials to be large enough for ease of handling by learners, which each occurred at frequency of one (12.5%).
The researcher used a checklist to establish the availability of resources, appropriate use and adequacy of resources and found that most of the required resources were appealing and created a lot of interest and that their use was dictated to by the subject being taught and the functioning level of the learners. The research found that the resources were not adequate while some were being shared between classes and teachers frequently improvised teaching/learning resources such as charts and cards.

The researcher also observed that the classroom lacked well-defined areas with clear boundaries to indicate the specific activities to be carried out in each area of the classroom, that there were no clear class routines, no evidence of communication boards and symbols, no visual schedules and that there was very little learner-learner activities. For example, there were no fine arts area or play area and the class timetable had written words but no accompanying visuals to indicate the activity.

The teaching/learning resources are important for learners with ASD because they learn best using the visual modality. These learners with ASD are also characterized with complex disorders in the triad of impairments and the teacher should utilize the resources in class in order to address those impairments (Bogdashina, 2005; Gradin, 1999). The researcher felt that inadequate and inappropriate use of teaching/learning resources could pose great challenge to teachers teaching learners with autism in City Primary School. The inference for
this is that non-verbal learners may not be able to learn because the teacher does not appear to use total means of communication in class such as exaggerated gestures, signing, use of visual supports and assistive devices.

According to Hiuhu (2007), Quill (2000) and Bunsen in Gabriels & Hill (2002), teaching/learning resources are supplementary aids and services required by a child in educational settings and therefore learners with autism require visual aids such as cards, photos and other assistive devices in order to learn. In support of development of communication resources for learners with ASD, Frost & Bondy (1994) developed the Picture Exchange Communication System (PECS) which is a training package to help non-verbal learners to initiate communication and express their needs in visual and structural way. Equally, recommendations by the APQI model (2001) on instructional activities state that the school should provide a variety of developmentally and functionally appropriate activities, experiences and materials that assist the learner to engage in meaningful learning.

4.6 Teaching Strategies

The researcher sought to find out the constraints related to availability and use of curriculum and whether the unit had a curriculum for use and for deriving a syllabus to meet the specific needs of learners with ASD. She also explored the teaching strategies that teachers use and their appropriateness to address the needs of learners with ASD.
4.6.1 Availability of Curriculum for Learners with Autism in the School

Respondents were asked whether a curriculum for learners with autism was available in the school. Four respondents (66%) reported that there was no curriculum while one respondent (17%) reported that a curriculum was available while one (17%) did not respond to the question.

This meant that the teachers were not curriculum guided in the activities and content they selected for their learners. Carpenter & Ashdon (1996) argue that a curriculum for learners with autism should emphasize communication and social ability of the learners and should also address the individual's needs. Scheuermann and Webber (2002) define curriculum as what is taught and includes skills, activities, strategies, concepts and content. They further suggest that curriculum for learners with ASD should be based on individual needs and abilities and should address the long-term goals. Teachers must also participate in the curriculum development process because they are the implementers. In this regard, the researcher felt that the absence of a curriculum that failed to meet the aforementioned requirements would cause challenges to teachers of learners with ASD.

4.6.2 Availability of Syllabus

The findings on the availability of the syllabus were that three (50%) of the respondents indicated there was an existing syllabus for use by teachers of learners with ASD, while two respondents (33%) indicated there was no syllabus
available with one teacher (17%) failing to respond. A syllabus is derived from the curriculum and therefore in view of the previous responses from the majority (four) out of six, the researcher made an inference that majority of the respondents do not understand the meaning and purpose of a syllabus.

4.6.3 Syllabus Addressing the Needs of Learners with ASD
The findings indicate that three (50%) of the respondents felt that the curriculum addressed the needs of learners with ASD while two (33%) indicated that the syllabus did not address the need. One (17%) of the teachers did not respond. The previous findings and inferences in regard to availability of curriculum and syllabus, however, invalidate the responses because of lack of consistency on the meaning and understanding of the content of the syllabus. Further to this, the data collected through the observation checklist indicated that there was no curriculum and no syllabus in use from KIE or other legal authority. The IEP was being used extensively as a substitute of the curriculum to develop the content for the learning activities and the teachers appeared to concentrate on ADL skills, basic writing, basic number work and creative art in the content of IEPs.

In their explanations of the answers they gave, three of the respondents (50%) stated that there was a syllabus that addressed the needs for learners with autism because it was from the syllabus the teachers developed the IEP and instructional materials. Two (33%) of the teachers failed to respond while one 17% clearly stated that there was no syllabus in place.
The Government of Kenya through Kenya Institute of Education (KIE) has a syllabus guide for development of communication skills for learners with autism. Nevertheless, it appears from the classroom observations and interviews that teachers from City Primary Autism Unit do not use the recommended syllabus. The practice at City Primary School is short of the requirements stipulated in the APQI model guide on curriculum which emphasizes the development of content in attention to social stimuli, imitation skills, communication and language for both non-verbal and verbal, social relationships with adults and peers, symbolic play, imagination and creativity, self-regulation, skills to meet the learning standards and vocational skills.

4.6.4 Availability of I.E.P

The researcher established that all teachers (100%) used IEPs for their learners. This information was further corroborated through the interviews and observation checklist.

Figure 4.7: Source of IEPs for Learners

Findings indicate that three (50%) of the respondents developed the IEP as a team
of teachers while two (33%) of the respondents indicated that they individually developed the IEP. One (17%) respondent pointed to the use of a multi-disciplinary approach.

4.6.5 Frequency of Use of IEP

The findings on the frequency of use of IEPs indicated that four (67%) of the respondents used IEPs in their classes all the time and only two (33%) of them reported using IEPs occasionally in teaching learners with autism.

In view of the information provided by the respondents in regard to availability, source and frequency of use and the observation checklist used by the researcher, it was established that all teachers used an IEP even though it appeared not to have been developed from the learners' present level of performance and it did not cover all the areas of learners' needs. In addition, there was no evidence of formal approach or policy on development of the IEP at the school as the findings indicated varied approaches.

Four (67%) respondents indicated that they used the IEPs all the time but collaborated information by the researcher from observations in class indicated that the IEPs were generally available but rarely used with some of them not updated as required. The researcher's scrutiny of the IEPs formulated by majority of the teachers indicated that the goals and objectives were not in tandem with the learners' present level of performance.
From the observations made by the researcher, some of the teachers could be facing challenges in implementing the IEPs since the unit does not have one formal method of developing an IEP for learners with autism. In addition, the teachers’ failure to implement and monitor the IEPs as expected, would lead to a failure to address the learner’s needs and therefore the teacher would face constraints in class.

The teachers’ lack of specialized training in the area of ASD could have contributed to the evident lack of a process for development of the IEPs and their implementation. The content of the IEPs appeared to be inconsistent with the learners’ present level of performance and insufficient in addressing the unique and diverse needs of the learner. The limitations in specialized knowledge and skills in development of the IEP could have been mitigated by applying a multi-disciplinary approach. This approach addresses all the needs of the learner since it is drawn by a team of experts from various disciplines, the parent and family concerned and the individual learners where possible (APQI model, 2001; IDEA, 1994).

4.6.6 Application of Multi-Sensory Approach

The findings indicate that five (83%) of the teachers use the multi-sensory approach to teaching learners with ASD, while one (17%) respondent did not respond to the question. On explanations of how the teachers use the multi-sensory approach, three (50%) teachers indicated that it depends on the learners
needs while two (33%) of the respondents indicated that it depended on subjects being taught.

The above explanations given by the respondents indicated that they were not clear with what multi-sensory approach entailed. This could mean that despite them reporting using it in class, it could be inappropriately done and not yielding the expected results with learners who have complexities brought about by autism spectrum disorders (ASD). These pose serious challenges for teachers who are unable to use teaching activities which help to develop sensory integration as some of the learners with ASD are hypersensitive in some modalities while others are hyposensitive (Bogdashina, 2006). The opinion of the researcher is that if teachers are not skilled and knowledgeable in the use of multi-sensory approach, it would lead to sensory overload which may lead to shut down in learners, causing behaviour difficulties in class which may lead to constraints.

The APQI model advocates that the instructional activities should be adapted to the different range of ages, abilities and learning styles. For a teacher to use the best learning style, the teacher needs to assess and adapt the best sensory modality that the learner prefers most to learn. The process of learning uses the senses to receive sensory information from the surrounding then these are sent to the brain, organized and interpreted to form meaning. Learners with ASD have sensory processing difficulties and require sensory integration for them to learn (Kranowitz, 2003). For example, some children are sensitive to touch or to noise
or light and if a teacher is not able to detect the oversensitivity of the learner then, the teacher will not be able to select the right resources, right activities and will also not be able to arrange the classroom environment to meet those needs. The APQI further supports this by stating that the classroom should be structured on the learner's strengths and minimize those factors that may interfere with learning. For example, the teacher may use visual schedules and sound-proof walls.

Findings on other teaching methods of learners with ASD are summarized in Tables 4.6, 4.7 and Figure 4.8.

**Figure 4.8: Teaching Methods in Use**

The findings indicate that the respondents used Applied Behaviour Analysis at a frequency of 40%, Picture exchange communication system and TEACH 20% each of the time. The responses were from four (67%) of the teachers while two (33%) did not respond to the question. Observation in class by the researcher
indicated that teachers used direct instruction and task analysis most of the time. The instructional strategies were related to learners’ age, functional ability but were rarely related to the learners learning styles.

**Table 4.6: Considerations made by Teachers in the Selection and Use of Teaching strategies**

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pupils</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Availability of materials</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>ASD condition</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Individual needs</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Ability of learner</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
</tr>
</tbody>
</table>

The consideration most cited by the respondents was ability of the learner with a frequency of six (50%) while the ASD condition and number of learners in a class had a frequency of two each (17%) while availability of resources and individual needs occurred had a frequency count of two (17%) each.

**Table 4.7 Recommendations of other Teaching Methods**

<table>
<thead>
<tr>
<th>Teachers’ recommendations of other teaching methods for learners with ASD</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modelling</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>Prompting –physical</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Other teaching strategies</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>
The researcher sought to find out from the teachers whether they knew other teaching methods for learners with ASD. Multiple responses were required. The findings from Table 4.7 gave the frequencies for the response of other teaching methods as modelling with a frequency of two (50%) prompting and other teaching strategies at frequency of one (25%) each. For the rest of the respondents, the suggestions were not clear or no suggestions were given.

The above results indicated that majority of the teachers at City Primary Autism Unit were not familiar with other methods for teaching learners with ASD, such as prescriptive approach, direct instructions, exploratory learning, Higashi approach and Sonrise programme. In view of the teachers lack in basic training in teaching strategies for learners with ASD, the teachers are bound to face constraints.

The teaching methods should be focused on the individual needs, abilities, interests, aptitudes and long-term goals of the learner (Potter & Whittaker, 2001). Although the respondents reported using various methods for teaching learners with autism, the researcher through observation in class established that most teachers did not use the research-based methodologies such as ABA, PECS and TEACCH as they had indicated. Where they appeared to apply such methods as task analysis, the methods were sporadic, inconsistent and used in an insufficient way. This could be due to their lack of specialized training.
The respondents were requested to suggest other teaching strategies suitable for learners with ASD. Their recommendations included singing and modelling parts of the body which are not teaching strategies but pre-school learning activities. Other teaching methods the respondents suggested such as discussions in class may not work well with learners with ASD because some of the learners were non-verbal while others lacked social skills to engage in group teaching. Hobson (1989) states that learners with ASD lack responsiveness to other learners. They may not be able to interact among themselves and this affects meaningful learning. Also, discussion method may not be productive due to the fact that these learners have communication and language difficulties (Besckerlaes & Onnes, 2005).

4.7 Summary of Chapter

The chapter provides answers to research questions and discusses the pedagogical constrains and ways of overcoming them. The chapter that follows gives conclusions derived from the data and the recommendations for overcoming pedagogical constrains teachers of learners with ASD encounter.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction
This chapter summarizes the findings on pedagogical constraints the teachers encounter in educating children with ASD and provides conclusions and recommendations of meeting those challenges and suggests areas for further research.

5.1 Summary of Research Findings
The study intended to find out the pedagogical constraints teachers encounter when teaching learners with ASD in the City Primary Autism Unit in Nairobi. The summary of the research findings are presented in-line with the objectives of the study which were:

a) To establish the level and type of training of teachers of learners with ASD.

b) To identify the challenges teachers face when teaching learners with ASD in City Primary School, Nairobi.

c) To find out adequacy and use of resources in teaching learners with ASD.

d) To determine existence of curriculum and instructional strategies used at City Primary School, Nairobi.

The summary of the research findings of the study in regard to the aforementioned areas were as follows:
5.1.1 Constraints related to Teachers’ Level and Type of Training

Four out of six teachers had academic qualifications ranging from diploma to master’s in education and their areas of training and specialization were in diverse areas of Special Needs Education such as mental disabilities, visual impairment, inclusive education and early childhood education but not specialised in ASD. The study also revealed that even though the teachers had some experience teaching learners with ASD, the teachers had not attended substantial in-service training in the area of autism and therefore were bound to experience constraints in teaching learners with ASD because they did not have the required specialized training, (cf 4.3)

5.1.2 Constraints Emanating from Teachers Understanding of Triad of Impairments

All teachers encountered challenges while teaching learners with ASD at the autism unit in City Primary School. The major challenges emanated from their limited understanding of the core characteristic in triad of impairments such as social interaction difficulties, communication and language problems and impaired imagination for learners with ASD. Other challenges included understaffing, inadequate resources and limited involvement of parents, (cf 4.4).

5.1.3 Constraints Related to Availability and use of Resources

The resources were not adequate for all learners and the learning environment
was not structured to accommodate the learner needs. There was clear absence of resources and activities to address the core characteristics in the triad of impairments. For example, the resources and activities for non-verbal learners were few and there were no structured play to encourage peer interaction.

5.1.4 Constraints Related to Curriculum and Instructional Strategies

There were no curriculum and no syllabus for learners with ASD. All the teachers had IEPs for all learners. The IEPs were either individually developed or formulated by a team of teachers but not developed by a multi-disciplinary team. The goals of the IEPs appeared not to be in tandem with the learner’s present level of performance. The IEPs were rarely used in class and the IEPs were not updated. The teachers were not knowledgeable in research-based teaching strategies which are suitable for teaching learners with ASD. For example, they did not appear to understand the recommended teaching methodologies that are evidence- based such ABA, PECS and TEACCH, (cf 4.6).

5.2 Conclusions

In view of the findings of the study in regard to constraints related to teachers’ level and type of training, the teachers’ pre-service and in-service professional preparation was not specific or adequate and there was no evidence of substantial engagement of teachers in continuing education and hence the teachers were bound to face pedagogical constraints.
In regard to constraints emanating from teachers understanding of triad of impairments, it is evident that teachers were not knowledgeable in the unique needs of learners with ASD and therefore, did not have the capacity to address the individual needs of each learner with ASD. Therefore, the teachers appeared to face constraints in teaching learners with ASD.

In consideration of constraints related to availability and use of resources, despite the inadequacy of the resources, the teacher’s capability of choice and use of learning resources and activities were limited in addressing the individual difficulties of learners with ASD. Hence teachers were bound to face challenges in teaching learners with ASD.

Lastly, in view of constraints related to curriculum and instructional strategies, with no curriculum and no syllabus in existence and no properly developed IEPs, teachers were not able to address the critical areas of concern for an individual learner with ASD condition. Therefore, the teachers were likely to face constraints in teaching learners with ASD.

5.3 Recommendations

In view of the research findings and conclusions, the researcher provides the following recommendations:

i. The Ministry of Education, universities and teacher training institutions should ensure that teachers of learners with ASD should possess competency
in the area of autism and therefore, it is recommended that their training should include a thorough understanding of the unique cognitive, social, and sensory, communication and language difficulties and an understanding of the behavioural deficits that characterize these learners. It is further recommended that the teacher should have specialized training with specific content on ASD, such as the characteristics of ASD, assessment methods, developing of IEPs, environmental adaptations and accommodations, instructional methods, curriculum development, strategies to improve social skills and strategies to improve communication skills. The teachers should also be trained to possess behaviour management skills and crisis and intervention skills in order to meet the unique needs of those learners.

ii. The Teachers Service Commission (TSC) should deploy more teachers to autism units where there are non-specialized teachers in the area of autism. The Ministry of Education should ensure that teachers attend in-service programmes designed by the government. Due to the limited capacity in the institutions for higher learning, it is recommended that the government resort to other modes of training such as e-learning to reach and train more teachers in the area of autism.

iii. Teachers in autism units need to participate in continuing professional development in order to upgrade their knowledge and skills to suit the needs of their learners.
iv. The government in collaboration with professionals, personnel from various universities, as well as international and national experts should develop in-service programmes based on assessed training needs to provide research-based methodologies such as ABA, PECS and TEACCH.

v. The parents should be encouraged to work with teachers in the development and implementation of the child’s IEP.

vi. The Teachers Service commission should deploy adequate teachers for the school Managers to maintain the proposed teacher-pupil ratio as recommended in the Kotchung Report.

vii. The Ministry of Education should consider developing training programmes for teacher-aides and other support staff involved in providing support in the teaching of learners with ASD.

viii. The school managers should be encouraged to provide a variety of developmentally and functionally appropriate activities, experiences and materials that engage learners in meaningful learning.

ix. The Kenya Institute of Education (KIE) in corroboration with professional and experts from institutions of higher learning should review the curriculum based on the triad of impairment to enlarge and enrich the content of the
There Ministry of Education should devise monitoring mechanisms to ensure that IEPs are developed by multi-disciplinary teams, updated as required and implemented in line with concerns raised.

5.4 Suggestions for Further Research

Having looked at the constraints that teachers face while teaching learners with autism in City Primary School autism unit, the researcher felt there is a need for further studies to be done on:

a) Impact of the triad of impairments on learning.

b) The role of paraprofessionals in the teaching and learning of learners with autism.

c) Teaching methods for learners with autism.

d) Teaching/learning resources for learners with ASD.

e) The findings from such studies would add much to the body of knowledge in the area of teaching learners with ASD.
REFERENCES


APPENDIX 1: Letter of Introduction

JOAN NYAGICHUHI KARIUKI
P. O BOX 43844
Kenyatta University
NAIROBI
Date

The Head teacher
Nairobi City Primary School
P.O BOX 456
NAIROBI

Dear Madam,

RE: PERMISSION FOR DATA COLLECTION

I am a postgraduate student in the department of Special Needs Education of Kenyatta University, undertaking the degree of Master of Education. I am carrying out a research entitled PEDAGOGICAL CONSTRAINTS TEACHERS ENCOUNTER IN TEACHING LEARNERS WITH AUTISM. You have been selected to be part of this study and I kindly request you to assist me in completing the attached questionnaire. Kindly fill in all the parts of the questionnaire. The document will be collected within a period of one week. The information given will be purely used for the purpose of this research and will be treated with confidence.

Your assistance and cooperation will be highly appreciated.

Yours faithfully,

Joan Nyagichuki Kariuki
E55/6330/03
APPENDIX 2: Questionnaire for Teachers

Dear sirs/madam

My Name is Joan Nyagichuhi Kariuki a Masters student in the Department of Special Needs Education, Kenyatta University.

The purpose of this study is to research on Pedagogical Constraints Teachers Encounter in Teaching Learners with ASD. The information obtained will be treated with great confidence. Please answer all questions by putting a tick in the space provided and give explanations whenever necessary.

SECTION ONE: PEDAGOGICAL PREPARATIONS

1. What is your highest academic level? (Tick as appropriate)
   (a) Primary level [ ]
   (b) Secondary school level [ ]
   (c) College [ ]
   (d) University level [ ]
   (e) Others specify .................................................................

2. What is your professional qualification?
   P1 [ ] S1 [ ] DIP. Ed [ ] B.Ed [ ] M.ed [ ]
   Others please specify ...............................................................
3. Indicate your area of specialty/specialties

4. (i) Before you were deployed to this unit, had you interacted with learners with Autism Spectrum of Disorders (ASD)?
   Yes [ ] No [ ]
   ii) If yes, specify how long.
   iii) For how long have you taught at the unit?
   (a) Less than 1 years [ ]
   (b) 1-3 years [ ]
   (c) 6yrs and above [ ]

5. What is the number of learners in your class?
   i. 1-3 [ ] 4-6 [ ] 6-9 [ ] above 10 [ ]
   ii. Do you employ team teaching in your class?
   iii. Do you have teacher aides in your class?
   iv. What role do they play in class?

6. i) How would you rate yourself as a teacher of learners with ASD?
   (a) Competent [ ]
   (b) Not competent [ ]
   (d) Not sure [ ]
   ii) Please explain your response above ___________________________________________
7. Have you attended any in-service course for learners with autism after joining the unit?
   Yes [ ]   (b) No [ ]

   ii) If yes, how regularly do you attend the in-service courses?

   iii) Do you feel the course benefited you in terms of service delivery?

   iv) Please explain your answer above ____________________________

8. (i) Do you face any challenges when teaching learners with autism in your class
   Yes [ ]   No[ ]

   ii) If yes, please indicate the nature of challenges experienced________________

   __________________________________________________________

   __________________________________________________________

9. What strategies do you use when solving the problems mentioned above?
   __________________________________________________________

   __________________________________________________________

10. What recommendations would you suggest in order to manage the challenges faced by teachers teaching learners with ASD?
   __________________________________________________________

   __________________________________________________________

SECTION TWO: Resources Used In Teaching

11. (i) Do you use teaching resources when teaching learners in your class?
Yes [ ] No [ ]

ii) if yes, what teaching resources do you use?

iii) Are the teaching resources in the unit adequate?

Yes [ ] No [ ]

iv) Please explain your answer?

v) What recommendations would you make for the improvement of the teaching resources of learners with autism?

SECTION THREE: Teaching Strategies

12 i) Does the unit have a curriculum for learner with autism?

Yes [ ] No [ ]

ii) Do you have a syllabus that you follow as you prepare to teach?

Yes [ ] No [ ]

iii) Do you think the syllabus meets the needs of learners with ASD?

Yes [ ] No [ ]

iv) Please explain your answer

13 i) Do you have an IEP for every learner in your class?

Yes [ ] No [ ]
ii) Who develops the IEP for learners with autism in your class?
   a) Self [ ]
   b) A team of teachers [ ]
   c) Multi-disciplinary team [ ]

14 i) Do you employ multi-sensory approach while teaching your learners?
   Yes [ ] No [ ]
   ii) Please explain how you use the approach in teaching your learners

15 i) Which of the following teaching methods do you use in your class?
   (You may tick more than one answer)
   a) Applied Behaviour Analysis (ABA) [ ]
   b) PECS [ ]
   c) Task analysis [ ]
   d) TEACCH [ ]
   ii) What considerations do you put in place while selecting the teaching strategy to use in your class?

iii) From your experience as a teacher of learners with autism what other teaching methods would you recommend?
APPENDIX 3: Interview Guide for Head Teacher

SECTION ONE

1. For how long have you been in the school?

2. Are you trained in Special Needs Education?

3. What is your area of specialization?

4. What support do you give to ensure learners with autism in your school get quality learning?

5. What major problems do you encounter teaching learners with autism spectrum disorders as a supervisor of learners with autism spectrum disorders?

6. In your opinion, what challenges do teachers teaching learners with ASD face?

7. How do you encourage positive interaction within the school community for the benefit of learners with Special Needs?

8. What recommendations would you give for minimizing the challenges above?
9. Do you think teachers of learners with autism require teacher development courses tailored to the services they offer?

10. How do you obtain the relevant resources that are tailored to meet the What teaching strategies would be most effective for teaching learners with autism?
APPENDIX 4: Interview Guide for Teacher Aides

1. i) What is your level of education?

   ii) Are you trained in SNE? YES [ ] NO [ ]

   iii) Taking care of children with autism, I have worked for

   Below 5 years [ ]
   6 -10 years [ ]
   11 Years and above [ ]

2) i) Had you interacted with children with autism before? YES [ ] NO [ ]

   ii) If yes, for how long ________________________________

3) What are your roles as a teacher aide in class?

   ____________________________________________________

   ____________________________________________________

4) i) What challenges do you encounter as you work with children with autism?

   ____________________________________________________

   ____________________________________________________

   ____________________________________________________

   (ii) How do you manage the above challenges?

   ____________________________________________________
APPENDIX 5: Observation Checklist

Observation Checklist

Class ____________________________________________

Subject __________________________________________

Time ____________________________________________

Topic ____________________________________________

Number of learners in class _________________________

Number of teachers in class _________________________

Teacher aides available in class _______________________

Objective _________________________________________

1. Lesson preparation

   a. Does the teacher have schemes of work?

      a. Yes [ ] No [ ]

   b. Does the teacher have an IEP?

      a. Yes [ ] No [ ]

   c. Does the teacher have a lesson plan?

      Yes [ ] No [ ]

2. a) Resources and materials used in teaching learners

<table>
<thead>
<tr>
<th>Resources</th>
<th>Available</th>
<th>Not available</th>
<th>In use</th>
<th>Not in use</th>
<th>Adequate</th>
<th>Not adequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social interaction</td>
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<tr>
<td>Communication</td>
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<tr>
<td>Impaired imagination</td>
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b) Are resource materials indicated against each topic?
Yes [ ] No [ ]
c) What are the materials used e.g. chalkboard, cards, charts, photos?


d) Others specify


3. Class management

a. How does the teacher organize the pupils while teaching?

   i) Whole class teaching? [ ]

   ii) Individual? [ ]

   iii) Group teaching [ ]

b. When learners are working on their own does the teacher:-

   i) Give individual support? [ ]

   ii) Physical support? [ ]

   iii) Sits on her/his desk and wait for the learners to do the things on their own? [ ]

4. Instructional preparation used to teach learners with autism
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<th>Item</th>
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<td><strong>CURRICULUM:</strong></td>
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<tr>
<td>1) The curriculum contains a written statement of goals and philosophy from which instructional objectives, methods, and activities proceed.</td>
<td>Yes no</td>
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<tr>
<td>2) The curriculum focuses on maximizing independent functioning in home, school, vocational, and community settings...</td>
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<tr>
<td>3) The curriculum is adapted to the different ages, abilities, and learning styles of students with autism.</td>
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<td>4) The curriculum emphasizes the development of:</td>
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<td>a. attention to social stimuli,</td>
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<td>b. imitation skills,</td>
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<tr>
<td>c) communication and language,</td>
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<tr>
<td>d) social relationships,</td>
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<tr>
<td>e) symbolic play, imagination, and creativity,</td>
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</table>
f) self-regulation,
g) skills to meet the learning standards,
h) Vocational skills.

5) With respect to communication, the curriculum emphasizes the development of a functional communication system for both verbal and nonverbal learners with autism.

6) With respect to social relationships, the curriculum emphasizes the development of social interaction skills with adults and peers for a range of occasions and environments.

7) The curriculum focuses on the maintenance and generalization of learned skills to more complex environments.

SYLLABUS

SCHEME OF WORK

Activities: The programme provides a variety of developmentally and functionally appropriate activities,
experiences, and materials that engage
students in meaningful learning.

1) Instructional activities:
   a) enhance response opportunities,
   b) are appealing and interesting,
   c) promote active engagement of the
      student,
   d) focus on basic skills before more
      complex skills,
   e) provide multiple opportunities for
      practicing skills identified on the IEP,
   f) Are (whenever possible) embedded
      within ongoing and natural routines of
      home, school, vocational, and
      community settings.

2) Activities use a variety of
   instructional formats—one-to-one
   instruction, small group instruction,
   learners-initiated interactions, teacher-
   directed interactions, play, peer-
   mediated instruction—based upon the
   skill to be taught and the individual
needs of the student...

3) IEP goals and instructional methods are compatible and complementary when the programme uses components of different intervention approaches...

4) Instructional activities are adapted to the range of ages, abilities, and learning styles of students with autism...

5) Daily instruction is provided to meet the individual communication needs of students with autism.

LESSON PLAN

INSTRUCTIONAL METHODS:

(INDICATE THE TEACHING METHODS USED)

Teaching methods reflect the unique needs of students with autism and are varied depending on developmental appropriateness and individual strengths and needs.

1) Instructional methods are adapted to the range of ages, abilities, and learning
styles of students with autism. . .

2) Instructional methods reflect empirically validated practices or solid evidence that demonstrates effectiveness over time.

3) The degree of structure and intensity of teaching are geared to the functional abilities of the student. . .

4) Instructional methods:
   a) Emphasize the use of naturally occurring reinforcers,
   b) Promote high rates of successful performance,
   c) Encourage communication and social interaction,
   d) Encourage the spontaneous use of learned skills in different settings.

5) As instruction proceeds, an effort is made to teach students to cope with the distractions and disruptions that are an inevitable part of daily living. . .

6) There is a clear plan showing
methods for systematically promoting the maintenance and generalization of learned skills to new and different environments...

### PROGRESS RECORD

#### INSTRUCTIONAL ENVIRONMENTS:

Educational environments provide a structure that builds on a student’s strengths while minimizing those factors that most interfere with learning.

1) Environments are initially simplified to help students recognize relevant information.

2) When needed (particularly for younger students), classrooms have defined areas that provide clear visual boundaries for specific activities.

3) Environmental supports (e.g., the use of visual schedules) are available that facilitate the student’s ability to:

a) predict events and activities,
b) anticipate change,
c) understand expectations.

4) Communication toward and with students:
   a) is geared to their language abilities,
   b) is clear and relevant,
   c) encourages dialogue (when appropriate), rather than being largely directive.

Records of work covered

IEP

Structure of IEP

1) The IEP identifies developmental, health, social-emotional, and behavioural needs.

2) Is the IEP being implemented in class

3) Is the IEP addressing the following areas
   a) communication,
   b) social interaction,
   c) behaviour and emotional development,
d) play and use of leisure time.

4) Do the goals and objectives: well stated
   a) relate directly to the student's present level of performance and identified needs,
   b) reflect parental input and family concerns,
   c) are observable and measurable, relate to long-term,
   d) are selected to achieve long-term outcome
   e) does the IEP have all the administrative details

5) The IEP identifies programme modifications, including environmental and instructional adaptations and accommodations that are needed to support the student.

6) "Parent counselling and training" is indicated as a related service as appropriate.
7) Augmentative and alternative communication systems are considered for students with limited verbal abilities.

8) Opportunities for interaction with nondisabled peers are provided as appropriate

**PROGRESS RECORD**

The programme uses a collaborative, ongoing, systematic process for assessing student progress.

1) The programme provides regular and ongoing assessment of each student’s progress on his/her specific IEP goals and objectives.

2) Student progress is summarized and reviewed by an educational team.

3) Students are assessed and the instructional programme is refined when:
   a) target objectives have been achieved,
   b) progress is not observed after an
appropriate trial period,
c) target objectives have not been achieved after an appropriate trial period,
d) there is an unexpected change in a student's behaviour or health status,
e) significant changes occur in the home, school, vocational, or community setting.

4) The programme routinely reports to the CPSE or CSE when there is a need to consider modifications to the IEP.

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<th>Other observation (specify)</th>
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10(a) Behaviour Modification

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<tr>
<td>1) The programme has a school-wide behavioural system that:</td>
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<td>a) defines expectations for appropriate behaviour in all instructional settings</td>
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<tr>
<td>b) uses proactive approaches to managing behaviour</td>
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<tr>
<td>c) has established strategies for crisis intervention</td>
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<tr>
<td>d) Provides training for staff in recommended behavioural strategies</td>
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<tr>
<td>2) A FBA is used to direct intervention planning for persistent challenging behaviours.</td>
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<td>3) Multiple methods (e.g., direct observations, functional analysis, rating scales, and interviews) are used in conducting the FBA.</td>
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<tr>
<td>4) The FBA identifies both immediate</td>
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(e.g., request to perform a task) and more distant (e.g., poor sleeping habits) factors that increase challenging behaviours.

5) The FBA identifies one or more functions for the challenging behaviours.

6) Environmental accommodations and adaptations are used to prevent or minimize occurrences of the problem behaviour.

7) Instruction in alternative, appropriate skills (e.g., communication, social, or self-regulatory skills) is routinely incorporated into behaviour intervention plans.

8) Behavioural interventions are based on positive supports and strategies.

9) Behaviour intervention plans focus on long-term outcomes (e.g., making new friends, participating in extracurricular activities).
10 (b) What are some of the inappropriate behaviours that are exhibited in class that can affect learning? 

(c) Does the teacher manage undesirable behaviour?

Yes [ ] No [ ]

(d) What strategies does the teacher use?

i. Shaping [ ]

ii. Prompting [ ]

iii. Time out [ ]

iv. Any other (specify) 

Indicate any other relevant observation

__________________________________________________________________________

11) Communication

Does the teacher make use of pictures/pictorials to communicate with the learners who are mute?

Yes [ ] No [ ]

12) Class schedule

Does the teacher use class schedule to make events predictable?

Yes [ ] No [ ]

Does the teacher use individual schedule to make learners know what to expect?

Yes [ ] No [ ]
Others specify

13) Assessment of learning activities

What learning activities are the learners involved in?

Cognitive [ ] Psychomotor [ ] Affective [ ]

14) Does the teacher individualize the learner's activities?

Yes [ ] No [ ]

15) Does the teacher reinforce the learners?

Yes [ ] No [ ]

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<tr>
<td>16. PERSONNEL PREPARATION (teachers, teacher aides and assistants, administrators)</td>
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<tr>
<td>1) Staff are knowledgeable and skilled in the areas of expertise specific to autism, including:</td>
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<tr>
<td>a) Characteristics of autism.</td>
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<tr>
<td>b) Familiarity with assessment methods.</td>
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<tr>
<td>c) Developing IEPs to meet the unique</td>
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needs of each student.

d) Curriculum, environmental adaptations and accommodations, and instructional methods

e) Strategies to improve communication and social interaction skills

f) classroom and individual behaviour management techniques

2) Does the staff participate in continuing professional development (e.g., consultation, workshops, conferences) designed to further develop their knowledge and skills.

3) Are Staff available in a ratio sufficient to provide the support necessary to accomplish IEP goals.

4) Teachers and related service providers have access to students’ IEPs and are informed of their responsibilities for implementation.

5) Paraprofessionals receive specific and direct instruction and supervision
regarding their IEP responsibilities to the student.

6) Ongoing support and technical assistance are available to resolve concerns related to learning and behaviour.
NCST/RCD/14/012/390

Joan Nyagichuhi Kariuki
Kenyatta University
P.O.Box 43844-00100 •
Nairobi

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Pedagogical constraints encountered by teachers teaching children with autism spectrum disorders: A case of Nairobi City Primary School,” I am pleased to inform you that you have been authorized to undertake research in Nairobi City Primary School for a period ending 31st May, 2012.

You are advised to report to the Headteacher, Nairobi City Primary School before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. M. K. RUGUTT, PHD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The Headteacher
Nairobi City Primary School
Nairobi.