PEER-MEDIATED SUPPORT STRATEGIES FOR ENHANCING SOCIAL INTERACTION SKILLS OF CHILDREN WITH AUTISM SPECTRUM DISORDERS IN PUBLIC PRIMARY SCHOOLS, MIGORI COUNTY, KENYA

OGOGO JOYCE ACHIENG

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A RESEARCH THESIS SUBMITTED IN FULFILMENT OF THE AWARD OF A DEGREE OF DOCTOR OF PHILOSOPHY IN SPECIAL NEEDS EDUCATION, IN THE SCHOOL OF EDUCATION OF KENYATTA UNIVERSITY

MAY, 2019
DECLARATION

I confirm that this thesis is my original work and has not been presented in any other university/institution. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works including the internet, the sources are specially accredited through referencing in accordance with anti-plagiarism regulations.

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Ogogo Joyce Achieng

REG: E83/30505/2015

We confirm that the work reported in this thesis was carried out by the candidate under our supervision as the University Supervisors.

Signature: …………………………… Date: ………………………………………

Prof. Geoffrey Kamau Karugu

Department of Special Needs Education

Kenyatta University

Signature: …………………………… Date: ………………………………………

Dr. Joel Chomba WA Munyi

Department of Special Needs Education

Kenyatta University
DEDICATION

This thesis is dedicated to my loving husband Bernhards Charles Kogolla, whose encouragement, inspiration and financial support motivated me to reach this far; our children, Finn Judy Anyango, Brian Harrold Otieno and James Jayden Ogogolla for their prayers, patience and support during my Ph.D. studies.
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Thanks to my research assistant Mr. Renus Otieno Ogogo; Mr. Lawrence Alaro who assisted me in analyzing the statistical data.

Finally, my heartfelt gratitude goes to my husband Bernhards Charles Kogolla, our children Finn Judy Anyango, Brian Harrold Otieno and James Jayden Ogogolla, for their patience and understanding during the period of my study. To my parents, the late Amplato Ogogo Ouya and Judith Odundo; my late brothers Christopher Were, Peter Ouya, Barnabas Agar, and Nick Okoth, you planted in me the spirit that has made me what I am today, through your prayers and support offered throughout my early education cycle; I am deeply indebted to you. May your souls rest in serene eternity of peace.

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ABA</td>
<td>Applied Behavior Analysis</td>
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<tr>
<td>ASD</td>
<td>Autism Spectrum Disorders</td>
</tr>
<tr>
<td>CDE</td>
<td>County Director of Education</td>
</tr>
<tr>
<td>DI</td>
<td>Direct Instruction</td>
</tr>
<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual of Mental Disorders, 5th edition</td>
</tr>
<tr>
<td>EARC</td>
<td>Educational Assessment and Resource Centre</td>
</tr>
<tr>
<td>EBP</td>
<td>Evidence – Based Practice</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>HCAS</td>
<td>Home and Community Activities Scale</td>
</tr>
<tr>
<td>IEP</td>
<td>Individualized Education Programme</td>
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<tr>
<td>IBM</td>
<td>International Business Machines</td>
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<tr>
<td>IDEA</td>
<td>Individuals with Disability Education Act</td>
</tr>
<tr>
<td>IPG</td>
<td>Integrated Play Ground</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>KICD</td>
<td>Kenya Institute of Curriculum Development</td>
</tr>
<tr>
<td>KISE</td>
<td>Kenya Institute of Special Education</td>
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<tr>
<td>MOE</td>
<td>Ministry of Education</td>
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<tr>
<td>NACOSTI</td>
<td>National Council for Science, Technology and Innovation</td>
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<tr>
<td>OLT</td>
<td>Observational Learning Theory</td>
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<tr>
<td>PASW</td>
<td>Predictive Analysis Software</td>
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<tr>
<td>PMI</td>
<td>Peer Mediated Implemented</td>
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<tr>
<td>PRT</td>
<td>Pivotal Response Training</td>
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<tr>
<td>SCDE</td>
<td>Sub-County Director of Education</td>
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<tr>
<td>SNE</td>
<td>Special Needs Education</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>TEACCH</td>
<td>Treatment and Education of Autistic and Related Communication of Handicapped Children</td>
</tr>
<tr>
<td>TSC</td>
<td>Teachers Service Commission</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
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A fundamental feature of social life is social interaction, or the ways in which people act with other people and react to how other people are acting, which is a deficit in learners with Autism Spectrum Disorders in Public Primary Schools in Kenya. It sought to establish peer-mediated strategies enhancing social interactions of children with Autism in Migori County, Kenya. The objectives were: peer-mediated strategies currently used by teachers, the extent to which play activities enhance social interactions of children with ASD, the influence of peer buddy approach on social interactions of children with ASD, the effect of peer networks on social interactions of children with ASD, and investigation of peer implemented pivotal response training on enhancement of social interactions in children with ASD. Observational Learning Theory was adopted and a descriptive survey design in this study. The sample size constituted 30% of target population: 10 schools, 10 head teachers and 37 assistant teachers. Thirty-four children with Autism and 64 typically developing peers also participated in this study. Five Educational Assessment and Resource Centre coordinators from each Sub-County education office in Migori County and 5 parents of children with Autism also participated in the study. The sampling techniques used in this study were stratified random sampling and purposive sampling. Mixed method approach was used to gather data. The research instruments used were questionnaires, interview schedule, Focus Group Discussion, and observation checklists. Piloting of the study was done at Senye Primary school in Nyatike Sub-County and analysis of instruments revealed a reliability of 0.80. Validity of the instruments was judged by the experts. The data collected was analyzed using both descriptive and inferential statistics. The main techniques used to analyze the data were Predictive Analysis Software (PASW) formerly Statistical Package for the Social Sciences (SPSS) software version 22 and Chi-Square. The major findings of this study were that peer-mediated strategies such as play activities, peer buddy approach, peer networks, and peer-implemented pivotal response training, enhanced social interactions of children with Autism Spectrum Disorders. This study recommended that: Ministry of Education should develop programmes to ensure retention of children with Autism in public primary schools and initiate a competence-based curriculum that allows children with Autism to learn at their own pace and interest; parents of children with Autism should be trained on peer-mediated strategies to use with their children to enhance social interactions at home; the findings of this study should inform active formulation of policies and legislation relevant to the plight of children with Autism; Teacher Training Institutions and Universities should incorporate in their curriculum peer-mediated strategies enhancing social interactions in children with Autism to promote inclusion. Further research should be carried out in all counties in Kenya on peer-mediated strategies enhancing social interactions in children with Autism. In addition, further research should consider other areas of functioning in children with Autism. A similar study should be conducted in special schools serving children with Autism in Kenya.
CHAPTER ONE
INTRODUCTION AND BACKGROUND/CONTEXTUALIZATION OF THE STUDY

1.1 Introduction

This chapter covers the background to the study, statement of the problem, the purpose of the study, objectives of the study, research questions and hypotheses. The significance of the study, delimitations and limitations are also discussed. The chapter also includes assumptions of the study, theoretical framework and conceptual framework, and operational definition of key terms.

1.2 Background to the Study

The term autism (Autism Spectrum Disorders), which has been in use for about 100 years, is derived from the Greek word “autos” which means ‘self.’ Bleuler (1911), a Swiss psychiatrist, was the first person to use the term to refer to a group of symptoms of schizophrenia. Around 1940s, researchers in the United States of America began to use the term "autism" to describe children with emotional or social problems. An Austrian psychiatrist Leo Kanner, a doctor from John Hopkins University in U.S.A, used the term autism to describe the withdrawn behavior of several children he studied in 1943. In Germany almost the same time, Hans Asperger who was a scientist, identified a similar condition which is today referred to as Asperger’s syndrome.

Later in the United States of America, Individuals with Disabilities Education Act (IDEA, 1997), defined Autism (Autism Spectrum Disorders) as a developmental disability significantly affecting verbal and non-verbal communication and social interaction, generally evident before age three years. This United States of America
Act and the work of these researchers make it evidently clear that, social interaction is a major challenge for children with Autism Spectrum Disorders, (IDEA, 1997).

According a report by World Health Organization (WHO, 2018), it is estimated that worldwide 1 in 160 children has an ASD. This estimate represents an average figure, and reported prevalence varies substantially across studies. Based on epidemiological studies conducted over the past 50 years, the prevalence of ASD appears to be increasing globally. There are many possible explanations for this apparent increase, including improved awareness, expansion of diagnostic criteria, better diagnostic tools and improved reporting. In Kenya ASD remains a devastating and complex developmental disorder affecting approximately 4% of the Kenyan population. ASD mainly affects three areas of functioning in human beings namely communications skills, social interaction skills and behavioral deficit (Autism Society of Kenya, 2007).

A fundamental feature of social life is social interactions, or the ways in which people act with other people and react to how other people are acting. John Donne (2000), remarked that no one is an island. This means that all individuals, except those who choose to live truly alone, interact with other individuals virtually every day and often many times in any one day. For social order, a prerequisite for any society, to be possible, effective social interactions must be possible (Turner, 2010). Autism Spectrum Disorders (ASD) is a neurodevelopmental disorder characterized by deficits in social interaction. Social interaction deficits include impairments in aspects of joint attention and social reciprocity, as well as challenges in the use of verbal and nonverbal communicative behaviors for social interactions (DSM-5, 2013).
People with ASD have difficulty establishing and maintaining relationships. They do not respond to many of the non-verbal forms of communication like facial expressions, physical gestures and eye contact that many of us take for granted. They are unable to understand and express their needs just as they are unable to interpret and understand the needs of others. This impairs their ability to share interests and activities with other people (Turner, 2010). For this reason, they are likely to appear distant and aloof. Their difficulties with social interactions may manifest in the following ways: limited use and understanding of non-verbal communication such as eye gaze, facial expression and gesture; difficulties forming and sustaining friendships; lack of seeking to share enjoyment, interests and activities with other people and difficulties with social and emotional responsiveness (Samuel, Gallagher, James, Coleman, Mary & Anasta, 2014).

In a related study, Carter and Kennedy (2006), conducted a study on promoting access to the general curriculum using peer support strategies in U.S.A. The study discussed peer support interventions influence on youth with severe disabilities as regards academic achievement. The study findings showed that peer support interventions when included in the curriculum, had a positive effect on the social and academic achievements of youths living with disabilities. This study, however, focused on youths and learners with special needs in general as opposed to primary school children with ASD. It is for this reason that this study focused on the peer-mediated strategies being implemented using the general curriculum in Migori County, in public primary schools serving children with ASD, therefore, addressed the gap.
Peer-mediated strategies basically involve the use of socially competent peers to model and reinforce appropriate social behavior. Promoting peer effort is an important component of such interventions and can be accomplished by altering peer expectations regarding their classmates with ASD (O’Roak & State, 2008). Peer-mediated strategies include play activities, peer buddy approach, peer networks and peer implemented pivotal response training among others. Teaching peer-mediated strategies lead to social interactions in children with ASD, hence social skills development in children with ASD (Disalvo, 2002).

Previous studies in the U.S.A have shown that children with ASD engage in less social interactions towards their typically developing peers and, as a result, they end up being isolated and excluded from peers. They stress that social skill deficits such as impaired communication and failure to build and sustain peer relationships are common features of children with ASD (Bass & Mulick, 2007; Ayvazo, 2010).

According to Jackson and Campbell (2009) in the U.S.A, social skills are the ability to reciprocate other people’s affection and the ability to adapt social behaviors on a day to day context. Previous literature has shown that prerequisite skills like orienting towards others, eye contact, and responding to others appropriately can successfully be adopted by children with ASD. However, the big question that remained unanswered from these previous studies was whether social skills could be successfully adopted by children with ASD, following the acquisition of the prerequisite skills (Jones, 2007).

According to Kennedy and Shukla, 1995, Pollard, 1998, Scott, Clark and Brady, 2000, in their study in the U.S.A, possessing social competence is fundamental to
leading a normal healthy life. American Psychiatric Association (1994), asserts that inadequate social skills impinge on development increasing behavior problems that result from not having appropriate skills for social interactions. Bandura (1999), stated that lack of social skills leads to increased likelihood for maladaptive behavior later in life. On the other hand, Belchic and Harns (1994), contend that lack of social skills decrease the positive developmental support and learning opportunities found in successful peer relationship.

Other studies in the U.S.A have shown that children with ASD are poorly accepted by their peers and are often not engaged with them. Young children with ASD initiate social interactions less often with typically developing peers, are less proximal and engaged with peers, show more non-social behaviors, and score less than expected on teacher ratings and standardized measures of social behavior (Koegel, Koegel, & Frea, 2001; McConnell, 2002). The difficulties children with ASD show in social interactions with peers may be due to a number of factors including lack of social skills and social understanding, and the low frequency of experience with typically developing peers. Although caregivers make extraordinary attempts to provide the children with opportunities for social interactions, Chamberlain, Fowler, Barnett, Gold, Wadsworth, Knowles and Jackson (2015), contend that when children with ASD are observed in the presence of other children, they make fewer attempts to engage with them and are less responsive to others’ bids for social interaction. According to Sigman and Ruskin, 1999 these missed opportunities are likely to affect children's social status in a group, particularly in their classroom social structure.

Evidently, the benefits of social relationships are well documented among typically developing children. Having friends has been shown to be associated with pro-social
skills (Gest, Graham-Bermann, and Hartup, 2001; Ladd, 2005), as well as increased academic achievement, reduced school dropout, and reduced risk of later adjustment problems (Brendgen, Wanner, Morin, & Vitaro, 2005; Middleton, Zollinger, & Keene, 1986). Observation made by Wolfberg and Schuler, 1993; Rogers, 2000 show that increased social interactions among children have also been reported to improve both social play behavior, as well as language skills.

Similarly, early reports on inclusive classrooms in the U.S.A have been encouraging, showing that children with ASD who are included in typical classrooms show improvements in their social initiations, and the ability to generalize learned social skills in school (Carr & Darcy, 1990; Harrower & Dunlap, 2001). In inclusive classrooms, typically developing peers can be social role models, encouraging the maintenance and generalization of social skills that are often not achieved when using an adult as a role model in a clinical intervention (Carr & Darcy, 1990; Roeyers, 1996; Shearer, Kohler, Buchan, & McCullough, 1996).

Moreover, to teach appropriate social and play skills, the use of support system that teaches typically developing peers to improve the social skills of children with ASD is encouraged. This study was conducted at Kent State University in U.S.A. This system is called Integrated Play Ground (IPG); a method where by environments are physically arranged to foster social interactions, communication and play experience. In this approach, small groups play together under the guidance of an adult; the play guide (teacher) encourages the target child to interact with typical peers. The integrated playground model aims at, increasing the motivation to socialize and play with peers and, reducing stereotyped and isolated play. The IPG program includes
specific methods for designing, implementing, and guiding playground; the teacher should prepare a timetable for groups to meet (Sansosti, 2010).

In Britain, a study on obtaining the views of children and young people with Autism Spectrum Disorder about their experience of daily life and social care support, results of their study indicate that in social play, a child with ASD can learn about other people, obvious skills, compromising and negotiation, co-operating in tasks and to adapt and accommodate the demands of others (Preece & Jordan 2010).

In Tanzania, a study by Mwakalinga (2012), revealed that many children with ASD have difficulties engaging fully in play. Sometimes, the skills that they have learnt seem to be less adoptable than in other children. Mostly children with ASD engaged in simple repetitive actions; much of their play stereotyped and involved self-stimulatory activities. She added that play is an activity which needs to be encouraged in its own right because it provides an excellent context for teaching and learning. Children need direct teaching to develop more advanced play behavior. It is important to teach the child to play with others because it is an important part of activity in individual curriculum.

In Kenya, a study by Matasio (2012), interrogated inclusive education for children with ASD with a special focus on the challenges facing teachers at City Primary School in Nairobi, County, Kenya. This school was selected to participate in the study because it was the first school that rolled out inclusive education for children with ASD in Kenya. The study findings revealed that there were specific policy guidelines on inclusive education in Kenya. However, there was lack of curriculum for the special units that hindered teaching of children with ASD. The study recommended
that the Ministry of Education (MoE) put more effort to develop a curriculum for children with ASD, especially in integrated schools.

Another study by Njenga (2011), investigated the curriculum barriers to the implementation of inclusion of children with ASD, through a case study of City Primary School in Nairobi County, Kenya. The purpose of the study was to understand the curriculum barriers in the enforcement of learning for children with ASD. The study specifically sought to document the adaptations made to the curriculum to suit children with ASD. The study findings revealed that 92% of the teachers interviewed indicated that they needed to be trained on special needs while 70% of the teachers felt that the curriculum needed to be amended to accommodate children with ASD. The school under study had adopted Direct Instructions (D.I) and Individualized Educational Programme (I.E.P) to assist children with ASD in learning. Njenga (2011), therefore recommended that changes be made to the curriculum to accommodate children with ASD through a concerted effort between stakeholders, Kenya Institute of Special Education (K.I.S.E) and the government. This study was interested in finding out the peer-mediated strategies used by teachers in Migori County when implementing the curriculum for children with ASD.

In Kenya, peer-mediated strategies in enhancing social interactions of children with ASD have not been well researched on. Most literature is unpublished hence not evidence–based. It was with this view that the researcher sought to find out if peer-mediated strategies could enhance social interactions of children with ASD in Migori County, Kenya.
1.3 Statement of Problem

A child with Autism Spectrum Disorders experiences deficits in social interactions on a day to day basis, have restricted interaction and patterns of behavior which are repetitive, not limited to interests and activities. These deficits in a child with ASD can cause clinically significant impairments in occupational, social and other vital areas of a child’s functioning. The extent of impairment differs in children, in that while some children might be severely disabled others could be mildly impaired (Cappadocia, Weiss, & Pepler, 2012).

Despite the challenges faced by children with ASD in acquiring, enjoying and sustaining social relationships, social skills remain a significant part of a child. One of the barriers that have been identified to influence negatively the social development of children with ASD is the absence of peer involvement in the social interactions. A typical child is seen to engage more with other typical peers far more than their peers with ASD (Fowler, 2009).

Previous studies revealed that when peer-mediated strategies were introduced, there were improvements in social skills hence development of an all rounded personality. The reviewed studies targeted youth and other age groups, therefore, did not address the area of interest of this study which is social interactions of children with ASD (Graves & Ward, 2012).

This study looked at peer-mediated strategies enhancing social interactions in children with ASD in Migori County, Kenya. It was against this background that the study established peer-mediated strategies in enhancing social interactions in children with ASD, focusing on Migori County, Kenya and thereby made scientific inferences.
1.4 Purpose of the Study

The study sought to establish peer-mediated strategies for enhancing social interactions in children with ASD in Public Primary Schools in Migori County, Kenya.

1.5 Objectives of the Study

The following objectives guided the study:

i. To evaluate peer-mediated strategies currently used by teachers to enhance social interactions of children with ASD in selected Primary Schools in Migori County.

ii. To investigate the extent to which play activities enhance social interactions of children with ASD in Migori County.

iii. To establish the relationship between peer buddy approaches and social interactions of children with ASD in Migori County.

iv. To determine the relationship between peer networks and social interactions of children with ASD in Migori County.

v. To investigate peer implemented pivotal response training in enhancing social interactions in children with ASD in Migori County.

1.6 Research Questions

This study was guided by the following research questions:

i. How do peer-mediated strategies currently used by teachers in selected primary schools in Migori County enhance social interactions of children with ASD?

ii. To what extent do play activities enhance social interactions of children with ASD in Migori County?
iii. How does peer buddy approach enhance social interactions of children with ASD in Migori County?

iv. What is the relationship between peer networks and social interactions of children with ASD in Migori County?

v. How does peer implemented pivotal response training enhance social interactions in children with ASD in Migori County?

1.6.1 Research Hypotheses

This study was based on the following alternative hypotheses

i. $H_1$: There is significant relationship between play activities and enhanced social interactions of children with ASD in Migori County.

ii. $H_1$: There is significant relationship between peer buddy approach and enhanced social interactions of children with ASD in Migori County.

iii. $H_1$: There is significant relationship between peer networks and enhanced social interactions of children with ASD in Migori County.

iv. $H_1$: There is significant relationship between peer implemented pivotal response training and enhanced social interactions in children with ASD in Migori County.

1.7 Significance of the Study

The study aimed at establishing peer mediated strategies enhancing social interactions of children with ASD in Public Primary schools in Migori County. This study might be useful to children, teachers, parents, government agencies and policy makers. Children might benefit from social interaction both typically developing children and children with ASD. The study might increase knowledge about peer-mediated strategies in the enhancement of social interactions among children with ASD, hence provision of appropriate advice, care and treatment for the children with ASD. Parents
might benefit by knowing the peer-mediated strategies which they can use with their children with ASD to enhance social interactions at home. The results of this study may be useful to teachers in that they can incorporate the peer mediated strategies in their teaching to help children with ASD in enhancing social interactions hence improved academic achievement.

Government agencies and policy makers might find the results of this study important in informing active formulation of national policies and legislation that might be relevant and sensitive to the plight of children with ASD.

Future and current academicians and scholars might find the findings and recommendations of this study valuable as it would extend the level of knowledge available on peer-mediated strategies for enhanced social interactions of children with ASD. Teacher training institutions might also benefit from this study especially in this era of inclusion by incorporating the peer-mediated strategies enhancing social interactions in their curriculum.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations of the Study

The generalization of data could be limited due to instrumentations since these were researchers instruments prepared locally which were not standardized. Threats to internal and external validity such as selection and instrumentation might be a challenge to this study. Another challenge was that the study might not be generalized to the whole of Kenya to the target population because it was only conducted in one County (Migori County). Therefore, could only be generalized in Migori County to the target population.
1.8.2 Delimitations of the Study

This study targeted children with ASD in public primary schools with their typically developing peers therefore those children with ASD in special schools were not included in this study. This study did not include all public primary schools in Migori County but only primary schools serving children with ASD. This study covered social interactions of Children with ASD but did not cover other areas of need among children with ASD such as deficits in adaptive behavior and deficits in communication skills. This study targeted children with Autism Spectrum Disorders (ASD) in the mainstream school with high functioning autism therefore children with ASD on the lower functioning were not included.

1.9 Assumptions of the Study

The assumptions of this study were that:

i. The variables under study interplayed in the direction required by the theory.

ii. The information given by the participants would be reliable.

iii. The target population was currently enhancing social interactions of the children with ASD through the application of peer-mediated strategies namely: play activities, peer buddy approach, peer networks, and peer implemented pivotal response training.

iv. The study would determine the relationship of peer-mediated strategies and enhanced social interactions of children with ASD and their typically developing peers.

1.10 Theoretical and Conceptual Framework

The Observational Learning Theory (OLT) guided this study and described the phenomenon under study.
1.10.1 Theoretical Framework.

The Observational Learning Theory (OLT) by Slavin (2009). The Observational Learning Theory (OLT) states that children with special needs can learn desired behaviors from their peers through observation and social interactions. In addition, they can also benefit academically from social interactions. It is the view of this theory that typically developing peers are the best teachers. Using social interactions and active experience in learning enables children to exchange knowledge among them. In the process of social interaction, the children acquired social communication skills that they would possess as adults (Jackson & Campbell, 2009).

The Observational Learning Theory further articulates that communication skills acquired during the social interactions and observation of peers would be useful when the children need to discuss effectively the various issues that they came across as life progressed. Even children with special needs could offer educational knowledge to their peers; if the students learnt that they could teach others and learn from others, they would have a sense of belonging, pride, and responsibility (Maione & Mirenda, 2006). The theory proposed that children who were slower in learning be put in working groups with typical children. When children worked in groups and engaged in discussions of different ideas, they could observe, learn and develop faster. Peer learning helps children to build effective listening and communication skills that would transform their lives. This theory was relevant to this study in that it described the process of learning through imitating others, retaining the information, and then later replicating the behaviors that were observed.
1.10.2 Conceptual Framework

The framework shows the relationship between the independent and the dependent variables identified in the theoretical framework as presented in Figure 1. (1)

**Independent Variables**

Peer mediated strategies
- Singing
- Jumping
- Dancing

Play Activities
- Sensory motor play
- Constructive play
- Pretend play

Peer Buddy Approach
- Organizing play
- Sharing
- Providing assistance
- Providing affection

Peer Networks
- Conversations
- Providing instructions

Peer Implemented Pivotal Response Training
- Role play
- Taking turns
- Providing narration for play activities
- Encouraging conversations

**Intervening Variables**

- Curriculum
- Government policies
- Environment
- Level of autism
- Role of family

**Dependent Variables**

Social Interaction
- Ability to start and sustain a conversation
- Ability to follow instructions
- Development improvement

*Figure 1.1: Relationship between Peer-mediated Strategies and Social interactions in Children with Autism*

Note: means relationship

Source: Researcher’s Own (2019)
Figure 1.1 shows the interplay between the main independent variable and other variables such as play activities, peer buddy approach, peer implemented pivotal response training leading to dependent variables which is enhanced social interactions that brings the ability to start and sustain a conversation, ability to follow instruction, development and improvement of social skills. There are also intervening variables such as government policies, curriculum, environment and role of the family.
1.11 Operational Definition of Key Terms

**Autism**: A mental condition that manifests from childhood, characterized by difficulty in communicating and forming meaningful relationships with other people evidenced before age three.

**Peer-mediated Strategies (PMS)**: It is a strategy in special education where typically developing peers are trained to provide necessary tutoring in educational, behavioral, and social concerns to children with ASD.

**Peer Buddy Approach**: Assigning a socially competent child with a child with ASD, to stay with, talk to and play with a child with ASD focus on pairs of a child with Autism Spectrum Disorders and typically developing peer.

**Peer- Implemented Pivotal Response**: Using role-play techniques to train typical peers to provide children with Autism Spectrum Disorders with social reinforcement.

**Peer-Mediated Strategies**: Typical peers being trained on how to interact with their peers with Autism Spectrum Disorders.

**Peer Networks**: A network of support for children with involving Autism Spectrum Disorders their competent social peers.

**Play activities**: The creation of a supportive environment to optimize interaction between children with Autism Spectrum Disorders and their typical peers.
**Social interaction skills:** Ability to reciprocate other people’s affection and the ability to adapt social behaviors on a day to day context.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter discusses relevant literature in line with the following objectives: peer-mediated strategies currently used by teachers, the extent to which play activities enhance social interactions of children with ASD, the influence of peer buddy approach on social interactions of children with ASD, the effect of peer networks on social interactions of children with ASD, and investigation of peer implemented pivotal response training on enhancement of social interactions in children with ASD and finally a summary.

2.2 Peer Mediated Strategies

Peer-mediated strategies involve typical peers being trained on how to interact with their peers with ASD. This training involves social behaviors that will simplify responding and interacting with children with ASD. In peer-mediated interventions, a typically developing child or a group of typically developing children are trained on strategies that they will use to deliver specific treatment to the targeted peers with ASD (Maione & Mirenda, 2006). Although adults supervise the intervention of peer-mediated strategies, they are not required to interfere when the children are interacting. Peer-mediated strategies involve children who have positive play skills and are socially responsive. Some of the peer-mediated strategies include peer networks, peer buddy intervention, play activities, and peer implemented pivotal response training (Roak & State, 2008).
2.2.1 Peer-Mediated Strategies Used by teachers to enhance Social Interactions of Children with ASD

Rodriguez-Medina, Martin-Anton, Carbonero, and Ovejero (2016), carried a pilot study on peer-mediated intervention for the development of social interaction skills in high-functioning Autism Spectrum Disorders in Morocco, Bulgaria and Romania. Using a single-case design, the study evaluated an intervention applied in recess to improve the social interaction skills of a student with high-functioning ASD mediated by his peers without ASD, in second grade of elementary school. This intervention included different strategies to initiate the peers without ASD, using direct instruction, modeling, and social reinforcement carried out in the recess setting. After 14 sessions, changes were observed in the rates of initiating and responding to interactions, and a negative trend in the percentage of time that the student maintained low-intensity interactions or was alone. The findings also showed that teachers and family perceived improvements in social skills, more peer acceptance, and increase in the frequency and duration of social interactions. The reviewed study used a single-case design but the current study used descriptive survey design.

Linda, Jacquelyn, Amanda, and Christine (2016), evaluated effective peer-mediated strategies for improving the conversational skills of adolescents with ASD using PMI model on the conversational outcomes of three high school students with ASD using a multiple baseline across participants’ design. The study carried a 10-minute video record of samples of the focus students’ lunch conversations with their peers across baseline, training (involving all three strategies), and post training conditions. Five group training sessions were used to train peers in all three components. Daily feedback to peers,
implemented just prior to lunch ranged from 14–18 sessions, with an average of 15 sessions across the three students. The results indicated substantial increases in overall conversational engagement with an increase of frequency of conversational acts across focus students increased from an average of 22 per session during baseline to 64 acts during post-training. The average length of each conversation (a measure of sustained engagement) increased as well, from a mere 3.5 acts per conversation during baseline to 7.4 during post-training sessions. Substantial improvements were also noted for the two targeted conversational skills, average non-obligatory acts per session increased from 2.9 during baseline to 36.6 during post-training. These are impressive gains for passive communicators whose conversational acts during baseline mostly consisted of obligatory responses. The reviewed study was conducted among the adolescence with Autism Spectrum Disorders while this study concentrated on peer mediated strategies among children with ASD and their typically developing peers in Migori County.

Laurie, Jennifer, and Katie (2010), investigated the peer-mediated instruction and intervention strategies for students with Autism Spectrum Disorders in the U.S.A. In this intervention approach, developing peers are typically taught ways to interact with and help children and youth with Autism Spectrum Disorders acquire new social skills by increasing social opportunities in natural environments. The findings revealed that a characteristic child with ASD often require direct intervention to increase their social skill use with adults and peers. The research also showed that PMI can be effectively used to increase the social interactions of learners with ASD with others. Therefore, typically developing peers across the age range are taught ways to interact with and support the social development of students with ASD. When implemented effectively, the
quality and quantity of social interactions between students with ASD and their peers’ increases and can lead to more positive outcomes for children and youth with ASD. The reviewed study was conducted in the U.S.A and it involved use of children and youth as the participants but the current study was conducted among children with ASD in Migori County.

Brandon (2012), carried out a study on the effects of a peer-mediated social skills intervention on the social communication behavior of children with Autism Spectrum Disorders at recess for the degree program in Applied Behavioral Science and the Graduate Faculty of the University of Kansas in U.S.A. The study incorporated several social skills-teaching procedures from the literature (direct instruction, priming, prompting, peer-mediation, contingent reinforcement, and token economies) to target social skills for four children with ASD (ages 5-8) directly in the recess setting. All participants had been diagnosed with an ASD by the age of 5. For each participant, parent consent was obtained in advance. Participants attended public elementary schools, grades K through 2, and were selected based on reports and observations of social behavior deficits in the recess setting (in spite of inclusion in pull-out social skills groups at school). Elements of Peer Networks and Pivotal Response Training (two types of social skills intervention packages in the literature) were included. Results showed significant increases in social communication between focus children and their peers, as well as generalization of skills to non-intervention recesses. The reviewed study used a sorted peer mediated strategies which concurred with the current study such as peer networks and peer implemented pivotal response training to enhance social interactions of children with Autism Spectrum Disorders.
In another study, Owen-DeSchryver, Carr, Cale, and Blakeley-Smith (2008), evaluated the impact of a peer training intervention on social interactions among three students with Autism Spectrum Disorders (ASD) and their typical peers in suburban Long Island, New York. Two second graders and one fourth grader with ASD participated. For each student with ASD, two to four typically developing peers participated in training sessions that targeted increased social interactions. Data collected during lunchtime and recess showed that the peer training intervention generally resulted in increased initiations by trained peers as well as increased initiations and responses by students with ASD. Unexpectedly, untrained peers also showed increased initiations. The reviewed study was conducted in the U.S.A using a small sample size unlike the current study which was conducted in Kenya with a larger sample size.

Leslie, Debra, Jorge, and Daniel (2001), evaluated peer mediation and monitoring strategies to improve initiations and social skills for students with ASD. Four students with Autism Spectrum Disorders and a group of typically developing peers were taught to use and monitor social skills while playing games to increase initiations and social interaction skills. Social skills targeted for training included requesting, commenting, and sharing. A multiple baseline design across skills, with a counterbalanced reversal design, was used to document effects for student interactions with peers. In addition, alternating conditions for self-monitoring and peer-monitoring of skill usage were implemented to compare the two strategies. Results indicated that adult teaching and peer mediation of skills, paired with reinforcement for skill use and student monitoring, increased initiations and social interaction time with peers during intervention, as well as use of the targeted social skills. Little difference was noted between self- and peer-monitoring
strategies. The reviewed study on peer mediated strategies used multiple baseline design across skills while the current study used descriptive survey design to establish peer mediated strategies used in Migori County.

According to Stokes (2010), a child who is living with Autism Spectrum Disorders needs to be supported in various social skills (application, comprehension and recognition) on how to interact with individual, in person or in a group set up. The children with Autism Spectrum Disorders also need social skills training to generalize skill learnt in the past from complex supportive contexts to less structured settings and eventually to real life settings. It is worth noting that children with ASD do not learn social relations by watching what others are doing or by participating in social events (Bass & Mulick, 2007). The children with ASD have difficulty recognizing the information being passed around in social events or by watching other people. According to Njenga (2011), and Matasio (2012), other effective ways of teaching children with ASD social interactions are, use of social stories, role play, video-taping/audio-taping, and comic strip conversations. The current study looked at Peer-mediated strategies used by teachers in public schools serving children with ASD in Migori County while the reviewed studies were in other parts of the World.

2.3 Play Activities and Social Interactions of Children with ASD

During play activities, an adult provides a structured environment and supervises interactions between children with ASD and their typically developing peers. The main part of this approach involves the creation of a supportive environment to optimize interactions as opposed to the interference by adults. Other vital facets of this method are
well-designed play spaces that allow for accessibility, settings that have been naturally integrated, availability of the game equipment and materials that will enhance interactions (Ormond & Seltzer, 2004). So this study used varied play activities to enhance social interactions of children with ASD.

Play activities are also founded on consistent schedule and routine, matching of play activities to the level of development of a child, and using a small number of peers who are familiar to the child. An adult is required to monitor the play situation for evidence of the development of social skills, coach the peers, interpret for the peers, and to encourage the children to engage in activities that are more advanced to improve their current abilities (Poisson, 2010).

A study of children with Autism Spectrum Disorders by Wheeler and Huang (2006), sampled twelve boys at seven years of age by using an exploratory approach. The study revealed that the boys diagnosed with ASD who had very little appropriate play displayed a high degree of repetitive play coupled with little to not being able to express themselves in any language. After the same boys were subjected to play activities, all participants nearly doubled the amount of interactions with their peers. Also, all participants were more functional in play and engaged in less repetitive play, and all but one child engaged in identical improvement outside the experimental setting. The study, therefore, indicated that the behavior gains were due to treatment and that play activities were effective. The reviewed study used an exploratory approach while the current study used a descriptive survey design.
Graves and Ward (2012), studied the impact of play activities on educational outcomes for learners with emotional and behavioral disabilities. The study adopted a descriptive design and targeted 58 learners. The study discussed the problems encountered by children with special needs when they have to participate in regular classroom even though play activities strategies are employed. The findings indicated that children with special needs might find inclusion problematic and therefore affected their academic performance. However, the study indicates that inclusion can be effective and practical within the confines of proper training and resources. The study by Grave and Ward (2012), however, did not discuss the influence of play activities on the social interactions of children with Autism Spectrum Disorders. The study was general to children with special needs and how play activities affected their academic achievement.

Amir, Nekoo, Elaheh, Masih, Ramin, and Vahid (2015), investigated children with Autism Spectrum Disorders and patterns of participation in daily physical and play activities. A total sample of 83 children (53 boys and 31 girls) with high functioning ASD (IQ > 70) aged 6 to 15 years (Mean = 9.8, SD = 1.8) were recruited from four ASD specific schools in Tehran. All of the subjects had received a clinical diagnosis of ASD (Autism, Asperger’s, or pervasive developmental disorder, not otherwise specified) by a child psychiatrist or clinical psychologist and the diagnosis was confirmed using the revised Autism Diagnostic Interview (ADI-R). Results indicated that only 10 (12%) of children with ASD were physically active. Children were predominantly engaged in solitary play rather than social play activities. Gender, family income, and household structure were found to be associated with activity scores. In conclusion, findings indicated a low rate of physical activity participation in children with ASD that is closely
associated with socio-demographic variables. The reviewed study looked at play activities in relation to socio-demographic variables but the current study looked at play activities and social interactions of children with ASD.

Chleien, Rynders, Mustonen, and Fox (2012), explored the effects of utilizing 4 social levels of play (isolate, dyadic, group, and team) on the appropriate play behavior of children in special education classes (SECs) for students with Autism Spectrum Disorders in a leisure education/physical education program. Recreation activities representing the 4 social levels of play were implemented during 10-min periods within a multi element design. Seventeen children in SECs who exhibited social withdrawal and severe communication disorders and 21 same-age peers without disabilities, who were trained to participate in the activities, served as SECs. Team, group, and dyadic play activities all showed a higher percentage of appropriate play behaviors in children with ASD than was shown in isolate play activities. Suggestions are made for the development of recreation and play curricula to serve individuals with ASD in integrated settings. The reviewed study looked at only 4 social levels of play but the current study looked at varied play activities to determine the most preferred by children with ASD that enhanced their social interactions.

Julie and Eugene (2009), conducted a case study research in an integrated preschool setting, which included children with a variety of disabilities as well as children who were considered to be typically developing. The subject of the study was a 3-year-old boy who at 2 years of age had been diagnosed as having ASD and a “global delay,” meaning he had a delay in all areas of development. Participant observation research was used in
the study. Play skills were taught in a structured teaching method, which was modeled after Treatment and Education of Autistic and Related Communication Handicapped Children, otherwise known as division TEACCH. Researchers sought answers to questions such as, “If play strategies are taught (such as how to play with age-appropriate toys), what would be the effect on social interactions of the child with ASD with typically developing peers?” Observations were conducted during structured teaching, free choice play time, and group activities. At the end of the nine-week period, the data were analyzed by looking at the patterns and categories that emerged. In assessing the results of teaching play strategies in an integrated preschool setting, significant changes were observed in how engaged in social play with adults and peers. The results of the study also showed the development of the child’s ability to engage with other peers and with play materials. Baseline data indicated that child’s play behavior and interactions with peers were not typical for his age. The reviewed study used a small sample size but the current study used a larger sample size and the findings revealed that play activities enhanced social interactions.

Mengxian and Shihui (2017), carried a clinical study on the effects of structured physical activity program on social interactions and communication for children with Autism Spectrum Disorders. The purpose of the study was to investigate the effects of structured physical activity program on social interactions and communication of children with ASD. Fifty children with ASD from a special school were randomly divided into experimental and control groups. Twenty five children with ASD were placed in the experimental group, and the other 25 children as the control group participated in regular physical activity. A total of forty-one participants completed the study. A 12-week
structured physical activity program was implemented with a total of 24 exercise sessions targeting social interactions and communication of children with ASD, and a quasi-experimental design was used for this study. Data were collected using quantitative and qualitative instruments. The results showed that an overall improvement in social skills and social interactions for the experimental group across interim and post tests and significant improvements appeared in communication, cooperation, social interactions, and self-control sub-domains. The study concluded that the special structured physical activity program positively influenced social interactions and communication skills of children with ASD, especially in social skills, communication, prompt response, and frequency of expression. The reviewed study used quasi-experiment as a research design while the current study used descriptive survey design.

Rotheram-Fuller, Kasari, Chamberlain, and Locke (2010), carried an evaluation of social involvement like play by children with Autism Spectrum Disorders in elementary school classrooms. Seventy-nine with ASD were randomly-selected, gender-matched peers (88.6% male) in 75 early (K-1), middle (2nd–3rd), and late (4th–5th) elementary classrooms across 30 schools completed social network involving play activity surveys examining each child’s reciprocal friendships, peer rejection, acceptance, and social involvement. The results showed that across grade levels, peers less frequently reciprocated friendships with children with ASD than students in the matched sample. While children with ASD were not more likely to be rejected by peers, they were less accepted and had fewer reciprocal friendships than matched peers at each grade level. Although 48.1% of children with ASD were involved in the play activities of their classrooms, children with ASD were more likely to be isolated or peripheral to social relationships within the
classroom across all grade levels, and this difference is even more dramatic in later elementary grades. The reviewed study used a Cross-sectional study design across grades starting from Kindergarten to 5th grade but the current study used descriptive survey design in all classes from kindergarten to grade eight.

Wolfberg, Bottema-Beutel, and DeWitt (2016), examined the nature of play and the developmental and socio-cultural problems it presents to children with Autism Spectrum Disorders. They used Integrated Play Groups (IPGs), focusing on their conceptual design and the interventional approach to them, called guided participation. They highlighted innovative uses of IPGs for older populations and discussed Integrated Teen Social Groups. The findings established that children with ASD face distinct challenges in social and imaginary play, which place them at high risk of being excluded by peers. Without explicit support, they are likely to remain isolated from peers and the consistent interactive play that encourages developmental growth. The study summarized research and development efforts and discussed the implications of IPGs for the future.

Little, Sideris, Ausderau, and Baranek, (2014), empirically derived the dimensions of play activity participation among a sample of school-age children with Autism Spectrum Disorders (n = 713). Additionally, they examined the associations between dimensions of activity participation and child characteristics (i.e., chronological age, Autism severity, gender) and family demographics (i.e., maternal education). Exploratory factor analysis was used to determine the factors on the Home and Community Activities Scale (HCAS). Multiple regressions were used to examine the extent to which child characteristics and family demographics were related to HCAS dimensions. A six-factor model best
characterized by play activity participation among the school-age children with ASD, and child characteristics and family demographics were differentially associated with HCAS dimensions. The findings have implications for how play activities may be categorized for children with ASD and suggest that the frequency of specific play activities is affected by child characteristics and maternal education. The reviewed study considered child characteristics and maternal education as contributing factors in play activities for children with ASD which contradicted the current study.

Nicola, Sara, Caroline, Ruth, and Brenda, (2005), investigated possible changes in social play and initiations in 8 boys (5- to 7-years old) with Autism Spectrum Disorders (ASD) who were moving from an old to a new school playground that was designed specifically to enhance playful peer interaction. Each boy was observed for half an hour over three occasions in old and new setting. The playgrounds differed in design, spatial density and identity of potential play partners. As hypothesized, frequency of group play and overall social initiations increased significantly in the new setting. The study concluded that playgrounds with appropriate levels of physical challenge and support for both structured, imaginative play and solitary observation may support peer interactions in children with ASD. The reviewed study had a small sample size of only eight participants while the current study had a larger sample size.

In summary, the studies reviewed for this objective therefore beg the question as to whether play activities influence the social interactions of children with ASD. It is on this basis that this study sought to fill the gap by investigating the influence of play activities on social interactions of children with Autism Spectrum Disorders in Migori County.
2.4 Peer Buddy Approach and Social Interactions of Children with ASD

Peer buddy approach focuses on pairing of a child with Autism Spectrum Disorders and typically developing peer as opposed to a group of children. Peer buddy approach, as the name suggests, refers to assigning a socially competent child to a child with ASD. The peer is instructed to stay with, talk to and play with a child with ASD (Orsmond, Krauss & Seltzer, 2004). Laushay and Heflin (2000), investigated this approach with two 5-year-old children diagnosed with ASD. Both the study participants had language and could read at Kindergarten level but showed difficulty in socializing with their peers. The study adopted an exploratory approach to determine the findings. Using the peer buddy approach, the children under study were able to increase their social interactions by 36% and 38% respectively during the treatment, as compared with the baseline findings in which the children were simply integrated but did not have a peer buddy. The conclusions of the study showed that peer buddy approach was an effective intervention that could improve the social behavior of a child with ASD. The reviewed study used exploratory design and a small sample size but the current study used survey design and a larger sample size.

A study by Fowler (2009), sought to evaluate peer-mediated social skills training for a child with Asperger’s syndrome and peers. A multiple probe design was employed to evaluate the influence of peer-mediated intervention on peers and target child. The study used one child with Asperger’s syndrome and five of his typically developing peers who were in fact classmates. The study findings showed that peer buddy system when used independently, increased the level of social interactions of a child with Asperger’s syndrome as well as the peers. When individual training was combined with peer buddy
training, the social interactions improved further. The study revealed that peer-mediated intervention procedures implemented for a child with Asperger’s syndrome appeared to be effective as regards to improving the social interactions of a child. The study by Fowler (2009), focused on Asperger’s syndrome even though the context was on the peer buddy approach. The study, therefore, did not address the importance of peer buddy approach on the social interactions of children with ASD. It is on this basis that this study sought to bridge that gap by focusing on children with ASD as regards to the role of peer buddy approach on the social interactions.

Kretzmann (2012), conducted a study on facilitating peer engagement between children with ASD and their typically developing classmates in school through peer buddy approach. The study was a descriptive design that incorporated 120 respondents. The study investigated the effort to improve peer engagement at an elementary school for children with ASD through peer buddy approach strategy. The study employed a wait-list-controlled design that was effective during recess and lunch breaks. Staff members were required to facilitate peer engagement for children and assist in rating their experience. The study findings revealed that the children with ASD response to typically developing peer were increased when they were engaged. In fact, the children with ASD were found to play with typically developing peers and to enjoy their lunch and recess experience than those who were put in the wait-list group. The study by Kretzmann (2012), was a comparative study of children who had been paired with their typically developing peers and another group who were put on a wait-list.
Being a comparative study, the researcher was not able to control for all other factors that might have differed in the two groups, therefore, creating a potential gap in the study findings. This current study investigated the phenomena of peer buddy approach using a descriptive design. This study finding addresses the shortfalls in the study by Kretzmann (2012).

Locke, Fuller and Kasari (2012), examined the social impact of being a typical peer buddy model as part of a social skills intervention for children with Autism Spectrum Disorders (ASD). Participants were drawn from a randomized-controlled-treatment trial that examined the effects of targeted interventions on the social interactions of 60 elementary-aged children with ASD. Results demonstrated that typical peer buddy models had higher social interaction centrality, received friendships, friendship quality, and less loneliness than non-peer buddy models. Peer buddy models were also more likely to be connected with children with ASD than non-peer buddy models at baseline and exit. These results suggest that typical peers can be socially connected to children with ASD, as well as other classmates, and maintain a strong and positive role within the classroom. The reviewed study used a smaller sample size as compared to the current study that used a larger sample size.

Sawitree (2013), carried a research on the development of social interactions of children with Autism Spectrum Disorders in inclusive classrooms because children with ASD had marked impairments (peer buddy) in social interactions. The research method used was research and development approaches (R&D). The target groups consisted of 3 children with ASD at elementary level and 5 children with ASD at secondary level studying in a
full inclusive setting at Demonstration School, Khon Kaen University, Thailand. The data were analyzed via content analysis, cross case analysis and analytical description method. The research findings were as follows: children with ASD showed increased development of social interactions in both communication skills and group activities as a result of peer buddy approach. Moreover, students in normal classroom generally accepted and helped children with ASD in regular activities. Teachers and parents also collaborated in the development of social interactions of children with ASD. The impact of development of peer buddy approaches on social interactions had direct positive impact on the learning of children with ASD in inclusive classrooms. The reviewed study was conducted in both elementary and secondary schools while the current study was conducted at the primary school level only.

Janette (2012), investigated whether pairing a typically developing peer (a peer buddy) with a child with ASD and providing individualized training to the peer buddy would increase responding and compliance from the child with ASD (i.e. peer buddy system) in a summer camp setting. Also, a second purpose was to see if the typically developing peers were able to master and correctly implement the three step process taught during one-on-one training. Using a multiple baseline across participants’ design, the study examined the effects of one-on-one training on the fidelity of the peers’ implementation of the intervention and the effects of the intervention on the response of children with ASD. The findings showed that the peers were able to demonstrate high fidelity for providing a clear instruction and providing a prompt if needed, but they did not demonstrate high fidelity for providing social praise. Response from children with ASD improved after the peers received one-on-one training. This study extended the current
literature on the importance of fidelity of peers implementing the procedures, the necessary training for those peers to maintain good fidelity, and the research that peer mediated interventions increase socially desirable response from children with ASD.

Kathleen (2010), sought to examine the effects of peer-mediated intervention in promoting social skills for children with disabilities. The study was to, first examine peer mediators’ use of PMI during baseline and intervention; second, to examine the effects of PMI in increasing positive social behaviors and decreasing negative social behaviors of the target children; and third, to examine whether the social skills for target children improved from baseline to intervention following implementation of PMI. A multiple baseline design across participants was used to examine the effectiveness of PMI with three target children. Six children served as peer mediators and were responsible for implementing PMI strategies. Dependent variables were identified measuring child attributes essential to the social area of development (i.e., positive social behaviors) and those that were not desired or considered socially not acceptable (i.e., negative social behaviors). Overall, results of the study indicate peer mediators implemented PMI successfully and with fidelity and little training. Target children increased positive social behaviors and decreased negative social behaviors from baseline to intervention. In addition, target children stayed the same or increased their social skills from baseline (pre) to intervention (post). The reviewed study used a multiple baseline design across participants while this study used a descriptive survey design.

Kristi (2011), sought to examine the effects of using a peer buddy system to increase interactions between students with special needs and their typically developing peers. As
a methodology, students with disabilities in a self-contained elementary classroom were given peer mentors to encourage and motivate them to become more active socially. The peers modeled appropriate behavior and social skills during special area classes. The four students who volunteered to act as mentors met with the special education teacher and discussed the plan of action. As a result of the intervention, the students with disabilities approached their typically developing peers more frequently. The students with disabilities grew in many ways socially, emotionally and cognitively. The mentors gained knowledge of the peer mentor system as well as knowledge of students with disabilities. The results showed that students with disabilities could increase their interaction with typically developing peers as a result of participating in a peer buddy program. The reviewed study involved only one class of students with general disabilities while the current study was conducted in 37 public primary schools specifically serving children with ASD.

Lisa (2013), investigated the effect of a class wide peer-mediated intervention on the social interactions of students with low-functioning Autism Spectrum Disorders and the perceptions of typically developing peers in San Francisco in USA. The study used mixed methodology to examine the effects of a class wide peer-mediated intervention on the social interactions of students with low functioning ASD and typically-developing peers. A single subject design was employed in which students with low-functioning ASD were grouped with typically developing peers for a shared reading activity. The study alternated between baseline and intervention stages in which students were taught to stay, read, and talk with their buddy. Results of the study indicated that three of the four participants with low-functioning ASD increased their interactions with typically
developing peers from each baseline to intervention stage. Results of a perception survey indicated that typically developing students held a high positive perception of their peers with ASD, while interviews revealed that typically-developing peers considered themselves to be friends with their buddies with low-functioning ASD. The reviewed study used single study research design with children with low-functioning ASD while the current study used descriptive survey design with children with high functioning ASD.

Laushey and Heflin (2000), conducted a study on enhancing social skills of Kindergarten children with Autism Spectrum Disorders through the training of multiple peers as tutors. The study used an ABAB design that involved 23 children to investigate whether peer buddy approach in which all children were trained would take off in the absence of an adult. The study findings showed that peer buddy approach increased the interaction levels of children with ASD and consequently improved the interactions of the typically developing peers even with other children. While the study by Laushey and Heflin (2000), had the absence of a teacher as a determinant, this study conducted a similar study but in the presence of a teacher in Migori County.

2.5 Peer Networks and Social Interaction of Children with ASD

Peer networks are founded on the notion that an enhanced peer understanding of children with Autism Spectrum Disorders and subsequent interest will improve social interactions. Peer network strategy thus promotes a network of support for children with ASD by involving their competent social peers (Carter & Kennedy, 2006). The peer networks provide a forum for the typically developing peers to better understand and support
children with ASD. This knowledge and skills on how to handle children with ASD are essential in that it will determine the ability of the children with ASD to interact and grow socially (Orsmond, Krauss & Seltzer 2004). As a matter of fact, a study by Poisson (2010), noted that children with ASD who are under treatment on how to socially fit will be successful only if their peers are receptive to their advances. Failure to acknowledge or reject the efforts of children with ASD might frustrate their attempts to interact and adopt typically developing peers’ social behaviors.

Gardener, Carter, Gustafson, Hochman, Harvey, Mullins and Fan (2014), examined the effects of peer networks on the social interactions of high school students with Autism Spectrum Disorders. The study recruited participants in two local high schools after receiving Institutional Review Board (IRB) and district approval to examine the efficacy and social validity of peer network interventions as an avenue for promoting social interactions and social skills for two high school students with ASD. Students were eligible for the study if they attended high school, had an educational or other diagnosis of ASD, were receiving special education services and had a reliable communication system comprised of at least 10 words. The study asked special educators to send home consent and assent forms to students meeting criteria who they anticipated would benefit from participation in a peer network group. The results of the study showed that supporting social interactions and positive peer relationships is an important element of comprehensive secondary education and transition programming. For many adolescents with Autism Spectrum Disorders (ASD), such social connections may be fairly limited apart from intentional programming. The introduction of peer networks was accompanied by substantial increases in peer interactions for both students. Adult facilitators, peer
partners, and students with ASD each considered the intervention to be acceptable and feasible to implement. The reviewed study was conducted in a secondary school setting with a small sample size while the current study was conducted in a primary school setting with a larger sample size.

Debra, Jessica, Adriana, Tammy, and Katie (2007), sought to establish the use of peer networks across multiple settings to improve social interactions for students with Autism Spectrum Disorder. A multiple probe design across activities was used to monitor the effects of peer networks and reinforcement on social interactions time for three students with ASD. The social intervention (networks) was individualized and implemented in a sequential modification fashion across 4 activities for the students, with baseline conditions remaining in effect for 2 activities. Baseline consisted of students and peers in proximity for the designated activity, with prompting and reinforcement for task completion or behaviors. Intervention consisted of the selection of a group of 2-5 peers as a support network during the activity, structuring the activity to promote interaction for a 10-20-minute time block, the use of task and social scripts, peer and target training/prompting in social skills, verbal and tangible reinforcement for peer interaction, and student feedback. Results indicated increased interaction time for all target students with generalization to non-intervention settings for two students. The reviewed study used a multiple probe design across activities while the current study used descriptive survey design.

Debra, Kathy, Linda, Ilene, Nancy, Rose, and Suzanne (2014), examined the effects of a peer networks intervention that included peer mediation and direct instruction for
Kindergarten and First-grade children with Autism Spectrum Disorders in Kansas U.S.A. Trained school staff members provided direct instruction for 56 children in the intervention group, and 39 children participated in a comparison group. Results showed children in the intervention group displayed significantly more initiations to peers than did the comparison group during non-treatment social probes and generalization probes. Treatment session data showed significant growth for total communications over baseline levels. Children in treatment also showed more growth in language and adaptive communication. Finally, teachers’ ratings of pro-social skills revealed significantly greater improvements for the intervention group. The reviewed study used Kindergarten and First-grade children with ASD in USA while the current study used children from Kindergarten to class 8 with ASD in Kenya.

Debra and Rose (2015), conducted an experimental study on (1) Peer Network Intervention on social-communication, literacy, and adaptive behaviors for young children with ASD in school settings; and (2) development activities to assess and improve the feasibility of the intervention. A total of 51 children were enrolled in the Peer Networks intervention with 39 enrolled in the comparison group. All participants had been previously diagnosed with ASD either through a clinical assessment or educationally based assessment. Findings for the first two cohorts of children for direct observations during treatment sessions showed that communications and initiations between children with ASD and their peers increased during Social Peer Networks treatment sessions and also improved over time with significant improvements from baseline probes to the end of treatment. The reviewed study was an experimental study while the current study is a descriptive survey designs.
Conrad (2016), carried a comparison of the effects of peer networks and peer video modeling on positive social interactions performed by young children with developmental disabilities. Five pre-school aged children with disabilities participated in the study. Data were collected in both the classroom and playground settings. Results suggest that Peer Network was more effective for one young child with Autism Spectrum Disorders and that the relative effect of that treatment generalized to the playground setting. Both interventions were found to be effective for a second child with a developmental delay but only in the classroom setting. Neither of the interventions was effective for a third child with ASD nor were they effective for a fourth child with a developmental delay. Finally, though not diagnosed with a Developmental Disability, Peer Network intervention was found to be more effective for one young child with speech and language impairment with relative effect of that treatment generalizing to the playground setting. The reviewed study was general to developmental disabilities while the current study was specific to children with ASD.

Diane (2007), investigated the effects of a peer network social skills intervention. The peer network training was implemented with students with Autism Spectrum Disorders (ASD) who were identified as high functioning and a network of their nondisabled peers. Three elementary school age students who attended Clay County Public Schools in Florida and who were diagnosed with ASD were selected to participate in the study. The students with ASD each had overall intellectual capabilities within the average range and deficits in social skills. The network peers were two nondisabled peers and an alternate peer who were classmates of each of the students with ASD. These students were chosen to be network peers based on socio-metric ratings provided by their classmates and by the
recommendation of their teachers endorsing that they were socially competent and good models for the students with ASD. The network social skills training included four sessions. During these sessions, social interactions as observed in conversation, taking turns, and sharing were modeled and practiced. Results of the social validity measures completed by teachers and parents estimated varied levels of improved social functioning in the students with ASD. The reviewed study was conducted in U.S.A while the current study was conducted in Kenya.

Another study by Disalvo and Oswald (2007), investigated the influence of peer networks interventions increasing social interactions of children with Autism Spectrum Disorders. A cross sectional design was adopted that incorporated over 65 respondents. The study concluded that social interventions involving peer networks were effective in improving the social interactions of children with ASD. The study proposed future studies to explore in detail which interventions are more effective and for which particular outcomes and determine which component of the strategies result in a positive effect. Following the recommendation by Disalvo and Oswald (2007), this study sought to establish in-depth influence of each peer-mediated strategy identified in this study, on the social interactions of children with ASD then made vital recommendations for policy implementation.

Huang and Wheeler (2006), conducted a study on effective interventions for individuals with high-functioning Autism Spectrum Disorders. The study reviewed several effective and evidence-based interventions that were being widely used by professionals and special educators in the U.S.A. These practices included video modeling, peer-networks, structured teaching approaches, social stories and self-monitoring strategies. The
practices were found to be effective, improving the social interactions of children with special needs in the U.S.A. The study, however, noted that children are unique therefore the strategy that might work for one child is not necessarily workable for the other. The study by Huang and Wheeler (2006), investigated multiple interventions on children with ASD in the U.S.A; among the interventions being peer networks. The study lacked the Kenyan context that would inform on the situation in Kenya. It is for this reason that this study established the influence of peer networks on the social interaction of children with ASD in Migori County.

2.6 Peer Implemented Pivotal Response Training (PRT) and Social Interactions of Children with Autism Spectrum Disorders

Wheeler and Huang (2006), described peer implemented pivotal response training as using role-play techniques to train typical peers on how to provide children with ASD with social reinforcement that may include; letting the child to pick own toys, paying attention, initiating and maintaining conversations, taking turns in play, interpreting play activities, modelling appropriate social behavior and giving cues if the target child appears uncertain. The peer implemented pivotal response training is expected to improve the social behaviors of children with ASD by providing an array of friendly models that will incorporate the target child’s preference in a natural environment. A study by Wheeler and Huang (2006), reinforced the peer implemented pivotal response approach when they conducted a survey based on two 10- year-old children with ASD who were socially nonresponsive and who had difficulty in expressive verbal abilities. After several weeks of intervention, the two boys showed progress in initiating play and social conversation with peers who were trained. The treatment gains were maintained during a
follow-up period, and one of the boys showed response generalization to untrained peers. The findings of the study were evidence that peer implemented pivotal response training enhanced social interactions of children with ASD and that the role of trained peers was key in the process of adoption of typical social interactions. Other studies whose findings reinforced the above findings were conducted by Ayvazo (2010), and Cappadocia, Weiss and Pepler (2012). However, the study findings lacked the local context hence created a gap which prompted the researcher to conduct a similar study in Migori County.

Blum-Dimaya, Reeve, Reeve, and Hoch (2010), conducted a study on teaching children with Autism Spectrum Disorders to play a video game using activity schedules and game embedded simultaneous video modeling. The study sought to investigate how pervasive and severe impairments in social interactions could be modified. The target population of the study was four children with ASD who were taught to engage in playing video games and age appropriate leisure skills. The study employed a multiple probe design to assess the effectiveness of the training. The study findings showed that the children were able to learn to play video games and a song when peer implemented pivotal response was employed. The study, therefore, concluded that peer-mediated strategies were indeed effective. The study was conducted using video game modeling that was easily accessible in developed countries. This study was conducted in Migori County where access to electricity and video game equipment are often not available. This study therefore, complemented the findings of Blum-Dimaya, et al., (2010), by discussing the context of Migori County whereby peer implemented pivotal response training using alternative methods that were available in Migori County such as role play, turn takings and narrating play activities were employed.
Another study by Kuhn, Bodkin, Devlin and Doggett (2008), interrogated the ability of peers going through special education to enforce pivotal response training with two selected children with ASD to improve social interaction. The study findings indicated that some peers with disabilities were able to implement successfully pivotal response training for children with ASD. However, the study findings lacked the local context hence the need to conduct similar studies in Kenya.

Pierce and Schreibman (2007), conducted a study on multiple peer use of pivotal response training to increase social behaviors of classmates with Autism Spectrum Disorders. The participants of the study were two children aged between seven and eight years with ASD and another eight peers. The study adopted a single case study design. The study sought to replicate earlier findings of the successful intervention of promoting social skills for children with ASD through the peer implemented pivotal response training. The study findings showed that the two children with ASD displayed improvement in social interaction while in the company of their peers with the aid of peer implemented pivotal response training. The study by Khun (2008), and Pierce and Schreibman (2007), had only two participants each, hence exposed the study to large standard deviations and un-coverage bias. The current study addressed the gaps by Laura (2008), and Pierce and Schreibman (2007), through incorporating a larger sample size that was recruited in Migori County.

In a study by Byrson (2007), described a collaborative effort that aimed at disseminating and implementing pivotal response treatment training for children with Autism Spectrum Disorders in Canada. The interventions in the study were direct training, training of
trainers and follow-ups on the children’s progress. The authors revealed that children with ASD benefited from the pivotal response training treatment especially when the community and health caregivers were trained. The study focused on capacity building of the community, teachers and health caregivers. This current study, however, did not focus on the capacity building of teachers, but rather worked with already trained teachers in Migori County and focused on peer implemented pivotal response training to enhance social interactions of children with ASD.

Laura (2008), evaluated the ability of peers in special education to implement pivotal response training (PRT) with two students with Autism Spectrum Disorders, in order to increase social interactions at the Mississippi State University. Peers were taught the strategies using modeling, role-playing, and feedback. After training, peers implemented PRT strategies with the children with ASD. Picture prompts were provided to assist peers in recalling the strategies, but were completely faded until peers could implement the procedures with no instruction from observers. Results of the study indicate improved social interactions for target students and peers. Positive changes were noted for number of opportunities for interactions, responses to peer prompts, and initiations of conversation and play. The study by Laura (2008), had only two participants hence exposed the study to large standard deviations and un-coverage bias while the current study incorporated a larger sample size that was recruited in Migori County.

Kayne (2013), in his study determined the effects of peer implemented pivotal response training on social skills for children with Autism Spectrum Disorders in California State in the U.S.A. A multiple baseline design was utilized to determine the effectiveness of
Peer implemented Pivotal Response Training strategies on the social behaviors of students with a diagnosis of ASD. Peer participants, who did not have an ASD diagnosis, were selected from a Special Day Class setting and exhibited pro-social behaviors. These peers were trained in providing PRT by the researcher and then asked to implement these strategies in one-on-one play sessions with a peer with ASD. The social behaviors targeted for increase among the students with ASD consisted of appropriate verbal initiations and appropriate verbal responding. Results demonstrated an increase in appropriate verbal responding but not initiations. The study further suggested that PRT was a possible effective strategy for increasing pro-social repertoires in students with ASD. The study revealed considerations for conducting further investigations on the use of PRT for students with social skill deficits diagnosed with ASD or without ASD.

Ainsley, Penny, Katelyn and Isabel (2015), examined the effectiveness of peer-mediated pivotal response treatment (PM-PRT) to increase social-communication skills for children with Autism Spectrum Disorders (ASD). A systematic review was conducted of all published studies examining PM-PRT in school-aged children with ASD, based on an established rubric. Five PM-PRT studies utilizing single-subject research designs were reviewed, involving 29 participants (8 with ASD and 21 peer coaches). The results showed that most studies of PM-PRT observed positive outcomes. However, this research base did not meet criteria for classification as promising or established evidence-based practice (EBP) for improving social skill deficits in children with ASD. The results from study indicated that more research was required for PM-PRT to be considered formally as EBP in order to guide clinical decisions for school psychologists and future
research. This study filled the gap by highlighting the peer implemented pivotal response training on the social interactions of children with ASD in Migori County.

Pierce and Schreibman (2005), conducted a study on increasing complex social behaviors in children with Autism Spectrum Disorders with a focus on effects of peer-implemented pivotal response training. The study used a causal design. The study participants were two children who were ten years old with ASD and typical peers. The children were exposed to peer implemented pivotal response training, and their behavior was closely observed. The study findings showed that the children displayed prolonged interactions with their peers, initiated and sustained conversations and play, and displayed an improved joint attention and language command. Same as a later study in 2007 by Pierce and Schreibman, the study had only two participants which exposed the study to large standard deviations and un-coverage bias. This study addressed the gaps by Pierce and Schreibman (2005), through incorporating a larger sample size that was recruited in Migori County.

2.7 Summary of Literature and Research Gap

The first objective of this study was on peer mediated strategies used by teachers in Migori County. The studies reviewed showed that children with Autism Spectrum Disorders had difficulty recognizing the information being passed around in social events or by watching other people, hence the need for peer mediated strategies. There is paucity of documented information on peer mediated strategies used in Kenya.
In the second objective on play activities, the studies reviewed did not discuss the influence of play activities on the social interactions of children with ASD. Some studies were general to children with special needs and how play activities affected their academic achievement. The studies, therefore, did not adequately address whether play activities influence the social interactions of children with ASD. It is on this basis that this study sought to fill the gap by investigating the role of play activities on enhancing social interactions in children with ASD in Migori County.

The third objective investigated the role of peer buddy approach. Teachers are considered an integral part of this study and, therefore, their presence is key. Some of the studies reviewed had no teacher as a determinant. It is for this reason this study was conducted by including teachers as participants in Migori County.

The fourth objective focused on role of peer networks. Most of the studies reviewed lacked the Kenyan context that would inform on the situation in Kenya. It is for this reason that this study established the role of peer networks on the social interactions of children with ASD in Migori County. The findings in this study were generalized to target population to understand the issues in Migori County, in regards to the social interactions of children with ASD.

The fifth objective looked at the peer implemented pivotal response training. Most of the studies reviewed did not sample large population therefore exposed the studies to large standard deviations and un-coverage bias. This study addressed this gap through incorporating a larger sample size that was recruited in Migori County. Most of the
studies discussed above addressed the phenomena under study though they lacked localized context, specifically the Migori context. For example, most of the studies were conducted in the United States of America and European countries with only a few studies in Kenya.

For the purpose of this study, data were collected from children with Autism Spectrum Disorders in Migori County, Kenya to establish if peer-mediated strategies could enhance social interactions of children with ASD using descriptive survey design. Also, some of the studies reviewed targeted youth and other age groups, therefore, did not address the area of interest of this current study. The targeted age groups in this study were primary school-going children with ASD and their typically developing peers.
CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction
This chapter discusses selected research design. It also describes the variables, the location of the study, target population, sampling technique and sample size, research instruments, pretesting, procedures for ascertaining reliability and validity of data, data collection techniques, data analysis, and logistical and ethical considerations.

3.2 Research Design
Mixed method approach was used to gather both qualitative and quantitative data (Creswell, 2005; Creswell, 2009). This helped in triangulation of the data to give detailed information that enabled the researcher to get detailed feedback from the respondents.
This study also adopted a descriptive survey design to establish the influence of peer-mediated strategies in enhancing social interactions of children with Autism Spectrum Disorders in Migori County, Kenya. According to Bricki and Green (2007), descriptive survey design is used to obtain information concerning the current status of the phenomena and to describe what exists in regards to variables. This study focused on measurements of behaviour and attributes of children with ASD without any experimental testing, hence descriptive survey design was the most suitable. The main characteristic of descriptive survey method is that “the researcher has no control over the variables; he/she can only report what has happened or what is happening” (Kothari, 2004).
3.3 Location of the Study

This study was carried out in ten public primary schools attended by children with Autism Spectrum Disorders in Migori County, Kenya. Migori County is a county in the former Nyanza Province of south western Kenya. Migori County is located in Western Kenya and borders Homa-Bay to the North, Kisii to the North East, Narok to the East and South East, Tanzania to the South and South West and Lake Victoria to the West. The selection of Migori County was because the researcher would be able to collect the required data due to availability of target population and that a similar research had not been carried out in that area. Statistics from Kenya National Survey for Persons with Disabilities indicate that Migori County is leading in the number of individuals with ASD hence the reason for this study. The past studies in the area of ASD by Matasio and Njenga, 2012 and 2011 respectively had been conducted in the major cities in Kenya, hence the need to conduct this study in a rural setting since many persons with ASD reside in rural than in urban areas (Njenga, 2011 & Matasio, 2012). The map of Migori County is in Appendix F (www.wikipedia.com).

3.4 Variables

According to Mugenda and Mugenda (2012), an independent variable is one that causes change in another variable and dependent variable is one that is influenced by one or more variables. The dependent variable was social interactions of children with Autism Spectrum Disorders in Migori County. This is the change expected to occur when the independent variables interplay. Intervening variables for this study were the curriculum used in public primary schools and the school environment.
3.4.1 Independent Variables

The independent variables were: play activities, peer buddy approach, peer networks and peer implemented pivotal response training.

3.4.2 Dependent Variables

The dependent variable was social interactions. The researcher used the research instruments with the teachers, pupils and parents to find out whether the final result would lead to enhanced social interactions.

3.5 Target Population

Data obtained from the Ministry of Education offices through the Educational Assessment and Resource Centre (EARC) coordinators in Migori County showed that there were a total of 35 public primary schools serving children with Autism Spectrum Disorders. Migori County has six Sub-Counties, but five Sub-Counties were involved in the main study with one Sub-County used for piloting. Thirty five head teachers of those schools were included in this study due to critical roles they play in daily management. Seventy assistant teachers included special education trained teachers who were versed in teaching of pupils with ASD and regular teachers who handled typically developing peers in the classroom. One hundred and eight pupils were also included in this study, both typically developing and pupils with ASD. They were to interact with one another in peer-mediated strategies as the researcher and teachers observed. Six Educational Assessment and Resource Centre coordinators were targeted for interview on the strategies used in schools with pupils with ASD. Fifteen parents of children with ASD were targeted to participate in Focus Group Discussion (FGD) in the selected public
primary schools. The parents were supposed to give feedback on the effects of peer-mediated strategies on social interactions of their children with ASD. This target population was chosen because they were in a better position to give the required information to make this study a success.

3.6 Sampling Techniques and Sample Size

3.6.1 Sampling Techniques

The main purpose of sampling is to secure a representative group which will enable the researcher to gain information about a population (Mugenda & Mugenda, 2013). This study employed both probability and non-probability sampling techniques. A stratified random sampling technique was used to select schools. Selection of schools to participate in this study was according to Sub-Counties hence the Sub-Counties acted as the strata. From the sub-counties, schools to participate in this study were selected using simple random sampling. To avoid biasness in the selection of schools, the lists of schools were obtained from Educational Assessment and Resource Centers (EARC) in Migori County. The sampled schools were randomly selected by writing the names of the schools on pieces of paper, folding and mixing well in a container then randomly picking from each stratum which was each Sub-County (Kothari, 2011).

Selection of Educational and Resource Centre coordinators were purposive sampling technique because each coordinator from the five Sub-Counties had to participate in this study. Participants for the Focus Group Discussions (FGD) were the parents of children with ASD from the five Sub-Counties. They were organized within the selected public primary schools on a convenient day. Parents were selected for this study using purposive
sampling technique. Only parents of children with ASD participated in this study. From each Sub-County only one parent was selected. To get one parent to participate in the FGD, the researcher wrote ‘YES’ on one piece of paper and ‘NO’ on the rest of the pieces of paper, based on the number of parents of children with ASD who were present. The pieces of paper were then mixed well and the parents randomly picked one. The parent who picked ‘YES’ participated in the FGD. Simple random sampling was used to avoid biasness in the selection of schools, teachers, parents and pupils, to participate in this study. In addition, it allowed each member of the subset an equal probability of being selected to participate in this study hence high probability of generalizing the results to the target population. The head teachers and EARC coordinators were purposively sampled to participate in the study. They were chosen because they had no others to compete with.

3.6.2 Sample Size

Out of 35 public primary schools with programs for children with Autism Spectrum Disorders, ten schools were sampled which constituted 30% of the total target population. Ten headteachers and 37 assistant teachers who interacted with the children with ASD. Thirty six pupils with ASD and 72 typically developing peers. This sample size constituted 30% of the total population of public primary schools with children with ASD. Mugenda and Mugenda (2003), opines that a sample size of between 10% and 30% will be a good representation of the entire target population, so the researcher used sample size which was representative of the target population. The sample size is shown in Table 3.1.
Table 3.1: Sample Size

<table>
<thead>
<tr>
<th>S/N</th>
<th>Sub-County</th>
<th>H/T</th>
<th>Pupils</th>
<th>Parents</th>
<th>Teachers</th>
<th>EARC</th>
<th>Total</th>
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<td>09</td>
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</table>

Source: Researcher 2019

3.7 Research Instruments

The research instruments were designed by the researcher in consultation with the supervisors. For this study, questionnaires were administered to teachers. Head teachers and EARC coordinators participated in interview schedules. Focus Group Discussions (FGD) for parents of children with Autism Spectrum Disorders was used to assess the role of peer-mediated strategies on social interactions of children with ASD. The questionnaires, interview schedules and FGD guides were designed by the researcher such that they covered respondents view on play activities, peer buddy approach, peer networks, peer implemented pivotal response training and the peer-mediated strategies being used in Migori County. Observation checklists were used by the researcher to observe the pupils participating in this study in various settings such as in classroom, in the field playing and during lunch breaks.
3.7.1 Questionnaires for Teachers

A questionnaire consisted of open-ended and closed questions which were constructed by the researcher. It had seven sections; the first section sought demographic information of the participants while the rest of the sections were related to research questions. It was meant to last for 30 minutes to be completed. According to Orodho (2012), each item in the questionnaire should be developed in line with each objective and research questions as adopted by the researcher in this study. Teachers filled questionnaires. Questionnaires were easier to administer. This tool is found in Appendix A. It had Likert scales ranging from 1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-strongly agree. Questionnaires were used to collect quantitative data for this study.

3.7.2 Interview Schedule for Head Teachers and EARC Coordinators

The advantage of interview schedules is that it allows for face to face interaction between the interviewer and the interviewee hence gives room for clarification of issues. This tool is found in Appendix B. Interview schedules were used to collect qualitative data of the study thematically. An interview guide was used to get information from the head teachers of the selected public primary schools serving children with Autism Spectrum Disorders and EARC coordinators. The purpose of the interview is to supplement data that has been collected through other methods. The interview questions were open-ended to help the researcher obtain qualitative data of the study and the interview was meant to last for thirty minutes.
3.7.3 Focus Group Discussion (FGD) for Parents

Focus Group Discussion was meant for parents of pupils with ASD to find out the social skills enhanced in their children since the introduction of peer-mediated strategies. Five parents participated in the FGD. Each of the five Sub-Counties nominated one parent to participate in the study by writing ‘Yes’ on a piece of paper and ‘NO’ in the rest of pieces of paper. The parent who picked ‘Yes’ participated in the study. FGD was meant to last for thirty minutes. The FGD guide is found in Appendix D.

3.7.4 Observation Checklist for Pupils

The researcher used cameras, videos and tape recorders to capture all the details during observation. She also used a checklist when observing the pupils in their natural settings so as to note the unfolding events showing social interactions of children with ASD during play activities, peer buddy approaches, peer network and peer-implemented pivotal response training. The observation checklist is found in Appendix E.

3.8 Pilot Study

Before the final form of the survey, research instruments were constructed to conduct a pilot study (or dress rehearsal) to determine if the items were yielding the kind of information that was needed. One school, Senye Primary in Nyatike Sub-County, Migori County was used for piloting. Senye Primary School was selected because there were children with ASD who were learning in an inclusive setting. Therefore, it gave the study a good chance to test the tools and helped pre-determine the challenges and how the actual study would be. Senye Primary School is also within the same environment where this study was conducted though it was not included in the main study. The participants
in pilot study were one head teacher, two teachers, three parents, one EARC Coordinator and ten pupils. The school was used to test for validity and reliability of the study instruments. Before piloting, the researcher trained three research assistants who helped in administering the research instruments. After piloting all the instruments such as questionnaires, interview schedules, FGD and observation checklists were analyzed both quantitatively and qualitatively. In areas that adjustments were required such as in questionnaires where some questions were ambiguous, such questions were rephrased.. Questions that were not clear to the respondents in the interview schedules and focus group discussion schedules were revisited. Time for each tool which was 30 minutes, was found to be appropriate hence not adjusted. Pre-testing the instruments helped in enhancing the validity and reliability of the instruments.

3.8.1 Validity of the Research Instruments
The study checked on content validity where the instruments measured what the test was designed to measure (Borg & Gall, 1983). Construct validity was assured through a review of research instruments by supervisors before piloting and any additional inputs were incorporated to strengthen the credibility of the study. This was important in the establishment of accuracy and trustworthiness of the research instruments.

3.8.2 Reliability of the Research Instruments
To test for the reliability of the instruments, the study employed the test-retest technique. Orodho (2004), states that reliability of a measurement concerns the degree to which a particular measuring procedure gives similar results over some repeated trials. The questionnaires administered to the respondents in the pilot school were similar to those in
the sample. According to Orodho (2004), the number in the pre-test was 10 percent of the entire sample. The questionnaires were administered to the pilot sample respondents in one school which was Senye Primary School in Nyatike Sub-County, Migori County. This exercise was done twice within one-week interval after which the researcher compared the two sets for each respondent feedback to find out whether the responses were consistent. The scores of the first and the second questionnaires were correlated using Pearson product moment correlation coefficient formula. According to Cronbach (1951), if a coefficient of 0.80 was obtained, it was deemed reliable. According to Orodho (2009), reliability coefficient of 0.75 is considered high enough to judge the reliability of the instrument. For this study, a coefficient of 0.80 was obtained hence reliability of the instruments was confirmed. The results from qualitative data from the pilot school, which was from interview schedules, observation checklists and focus group discussions were analyzed thematically based on the set objectives of the study. The questions that required adjustments were revisited to enhance dependability of the qualitative instruments.

3.9 Data Collection Techniques

The researcher participated in data collection in the sampled schools in Migori County. Three research assistants were trained by the researcher before piloting for a period of one week whereby on a daily basis the researcher trained them for two hours. The selection of researcher assistants was pegged on level of education that is one must have been a degree holder or undergoing degree studies. They also had to be computer literate and able to speak Dholuo language in order to transcribe the information from local language to English. They assisted in data collection due to the vastness of Migori
County. One research assistant was the facilitator, responsible for asking questions and probing, another was the recorder and a third was the observer and second recorder. All responses were recorded in the local language used by the respondents. FGD was majorly conducted in Dholuo which the respondents were more comfortable with. This was recorded on a digital recorder and saved on a database along with the transcripts. At the end of each session the research assistants debriefed with one another to check if they had captured all the necessary information.

The research assistants were responsible for typing the transcripts at the end of each day using their notes, recording, and translating them into English. The research assistants assigned to school teachers were required to contact the teachers and deliver the questionnaires. Each respondent was given an allowance of at least 1 week to fill the questionnaire. However, questionnaires were collected on first file basis such that if a respondent could complete the survey on the spot, the data clerk was to collect it immediately (Bowling, Bond, Jenkinson, & Lamping, 1999). The data collection period lasted five weeks because each Sub-County was given one week due to the vastness of Migori County. The researcher herself conducted interview schedules with head teachers and EARC coordinators, held Focus Group Discussions with parents of children with ASD and made observations of children with ASD both in class and during P.E lessons. The researcher employed the use of audio and video recording gadgets to capture the data. This ensured that quality data was collected in the sampled public primary schools in Migori County.
3.10 Data Analysis

After five weeks allocated for data collection elapsed, all the questionnaires were centrally checked for errors in coding and entry. Quantitative data was coded and fed into spreadsheet in Predictive Analysis Software (PASW)/Statistical Package for Social Sciences (SPSS) version 22, for analysis. The study used Chi-square test to establish the relationship between quantitative independent variables and the dependent variable. Focus group discussion and audio recordings were transcribed for analysis and thematically analyzed based on the set objectives of this study. Analyzed data from descriptive statistics was then presented with a graphical representation of frequency distribution tables, percentages, standard deviations, line graphs, bar charts and pie-charts. Results from FGD, interview schedules, and observation checklists were captured verbatim, categorized and manually reported in a narrative form. Alternative hypothesis and multiple-linear regression were used to gauge the relationship between peer-mediated strategies and social interactions of children with Autism Spectrum Disorders in Migori County.

To establish peer-mediated strategies used in enhancing social interactions of children with Autism Spectrum Disorders, a multiple linear regression model was used to establish the effect of play activities, peer buddy approach, peer network and peer implemented pivotal response training on the social interactions of children with ASD. This study used the model:

\[ Y = \text{constant} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \]

Where \( Y = \text{Enhanced social interaction} \)

\( X_1 = \text{Play activities approach} \)
\[ X_2 = \text{Peer buddy approach} \]
\[ X_3 = \text{Peer network approach} \]
\[ X_4 = \text{Peer implemented pivotal response training} \]
\[ \beta = \text{is the beta coefficient of Independent Variables} \]
\[ \varepsilon = \text{Error term} \]

To achieve this, a multiple linear regression was done on the following indicators of peer mediated strategies: play activities, peer buddy approach, peer network and peer implemented pivotal response training.

### 3.11 Logistical and Ethical Considerations

#### 3.11.1 Logistical Considerations

The researcher sought clearance from Kenyatta University. The proposal was then taken to Ethical Review Committee of Kenyatta University for ethical considerations. A permit was obtained from the National Council for Science, Technology and Innovation (NACOSTI) which enabled the researcher to collect data in the sampled schools in Migori County. The researcher explained to the respondents the purpose of the study and requested for their consent to participate in this study.

#### 3.11.2 Ethical Considerations

The researcher observed the following ethics: respect for persons and confidentiality. The vulnerable populations that is persons below 18 years and those with special needs were not involved in the study without the consent of their parents/guardians. There was respect for autonomy : participation was voluntary, and the researcher explained the purpose of this study clearly to the sampled respondents. Confidentiality
was assured at the beginning of administering the research instruments. Participants signed an informed consent. They were made to understand that their participation was voluntary and they were free to withdraw anytime they wished. They were informed that after research, all the data collected would be kept under lock and key and the computer used was only accessible to the researcher since it had a password. The respondents were assured that code names would be used and no one would identify them by name. The results of this study will be kept confidential and used for the purpose of this study only.
CHAPTER FOUR  
PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION  

4.1 Introduction  
This chapter presents the demographic information of the respondents, findings, interpretation and discussion based on the objectives, research questions and hypotheses of this study. The research was guided by five objectives namely: -  

i. To evaluate peer-mediated strategies currently used by teachers to enhance social interactions of children with Autism Spectrum Disorders in selected Public Primary Schools in Migori County.  
ii. To investigate the extent to which play activities enhance social interactions of children with ASD in Migori County.  
iii. To establish the relationship between peer buddy approaches and social interactions of children with ASD in Migori County.  
iv. To determine the relationship between peer networks and social interactions of children with ASD in Migori County.  
v. To investigate peer implemented pivotal response training in enhancement of social interactions of children with ASD in Migori County.  

Research Questions were:  

i. How do peer-mediated strategies currently used by teachers in selected primary schools in Migori County enhance social interactions of children with ASD?  
ii. To what extent do play activities enhance social interactions of children with ASD in Migori County?
iii. How does peer buddy approach enhance social interactions of children with ASD in Migori County?

iv. What is the relationship between peer networks and social interactions of children with ASD in Migori County?

ii. How does peer implemented pivotal response training enhance social interactions in children with ASD in Migori County?

Hypotheses of this study were:

ii. $H_1$: There is significant relationship between play activities and enhanced social interactions of children with ASD in Migori County.

iii. $H_1$: There is significant relationship between peer buddy approach and enhanced social interactions of children with ASD in Migori County.

iv. $H_1$: There is significant relationship between peer networks and enhanced social interactions of children with ASD in Migori County.

v. $H_1$: There is significant relationship between peer implemented pivotal response training and enhanced social interactions in children with ASD in Migori County.

4.2 General and Demographic Information

Demographic information is important in a research study as it provides data regarding research participants. It is necessary for the determination of whether the individuals in a particular study are a representative sample of the target population for generalization purposes according to Orodho (2004). For this study, the gender and the ages of the respondents were established. Thirty-seven teachers from five Sub-Counties of Migori County participated in this study. These comprised of eight teachers from Awendo Sub-County, four teachers from Kuria West and five from Kuria East Sub-Counties, ten
teachers from Migori Sub-County, and four teachers from Uriri and six from Rongo Sub-Counties. Return rate of the teachers’ questionnaires was 100% because out of thirty-seven questionnaires administered to teachers’ in public primary schools serving children with ASD, thirty-seven questionnaires were returned for analysis.

### 4.2.1 Gender of the Teachers

From the sampled schools, teachers were asked to state their gender in the questionnaires.

The findings are presented in Figure 4.1

![Figure 4.1: Gender of the Teachers](image)

As indicated in Figure 4.1, majority of the teachers were female while an eighth of the teachers were male. A quarter of the respondents did not indicate their gender. This was because it was voluntary for the teachers to include their demographic information in the questionnaires. Some of the teachers were not comfortable with disclosing their gender on the questionnaires because of reasons of confidentiality.
4.2.2 Age of the Teachers

Teachers from the sampled schools were asked to state their gender on the questionnaire. The findings are presented in Figure 4.1

Table 4.1: Age of the Teachers (N = 37)

<table>
<thead>
<tr>
<th>Age</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>40.8</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.1</td>
</tr>
<tr>
<td>Minimum</td>
<td>25</td>
</tr>
<tr>
<td>Maximum</td>
<td>51</td>
</tr>
</tbody>
</table>

As indicated in Table 4.1, the maximum age was 51 years while the minimum age was 25 years. Majority of the teachers’ ages ranged between 25 years and 51 years. Majority of the teachers were young in age.

4.3 Peer-mediated Strategies Enhancing Social Interactions in Migori County

Objective one: Sought to evaluate the peer-mediated strategies that are currently being used by teachers to enhance social interactions of children with Autism Spectrum Disorders in public primary schools in Migori County. Teachers were asked to list peer-mediated strategies used in their respective schools when dealing with children with ASD.
4.3.1 Peer-mediated Strategies Used in Selected Schools

![Graph showing teachers' responses on peer-mediated strategies](image)

**Figure 4.2:** Teachers’ Responses on Peer-mediated Strategies used when Dealing with Children with Autism (N = 37).

**Note:** *More than one response of the activity was recorded*

Figure 4.2 shows teachers’ responses on some of the activities that were used as peer-mediated strategies in their schools when dealing with children with Autism Spectrum Disorders. Less than half (40%) of the teachers ranked singing and dancing as number one preferred activity that children with ASD participated in. More than a quarter (35%) of the teachers ranked running/athletics at position two in order of preference by children with ASD. This was closely followed by playing ball games in which a quarter (25%) of the teachers ranked at position three in order of preference by children with ASD. The rest of the activities were all ranked at position four by less than a quarter (14%) of the teachers. These included: jumping, sweeping the class, catching and throwing balls,
group activities, modeling letters, dramatizing and role play. This could have been as a result of most children with ASD not knowing how to initiate a play but ham songs they hear in their surroundings. They also like activities like purposeless running hence the reason why these activities were most preferred. The results are supported by Stokes (2010) who stated that a child with ASD needs to be supported in various social skills (application, comprehension and recognition) on how to interact with individuals in person or in a group set up through peer mediated strategies.

Linda, Jacquelyn, Amanda and Christine, (2016), evaluated effective peer-mediated strategies for improving social skills and results showed that passive communicators opened up. Also, Laurie, Jennifer and Katie, (2010), investigated peer-mediated strategies for students with ASD in the U.S.A. In this study typically developing children were taught ways to interact with children with ASD hence an increase in social interactions of children with ASD. On the other hand, Brandon (2012), carried a study on effects of peer-mediated strategies on social interactions and results confirmed an increase in social skills. A study by Owen-DeSchryver, Carr, Cale and Blakeley-Smith., (2008), evaluated the impact of typically developing peers training intervention on social interactions in children with ASD. Results showed an increase in social interactions of children with ASD. The findings of this study are also consistent with a study by Leslie, Debra, Jorge, and Daniel, (2000) that evaluated peer-mediated strategies and social skills for children with ASD. The results showed an increase in social skills in children with ASD.

To reduce on solitary behavior and stereotyped behaviors, children with Autism Spectrum Disorders should be engaged in a myriad of play activities initiated by their
typically developing peers. When play activities are introduced in a classroom setting (teaching/learning activities), children with ASD can improve in social skills which can in turn lead to improved academic performance.

Table 4.2: Teachers’ Responses on Peer-Mediated Strategies when Dealing with Children with ASD (N = 37).

<table>
<thead>
<tr>
<th>Peer strategy implemented</th>
<th>SD (1)</th>
<th>D (2)</th>
<th>N(3)</th>
<th>A (4)</th>
<th>SA (5)</th>
<th>Mean ± S. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage children to play outside with developing peers</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (5.4%)</td>
<td>17 (45.9%)</td>
<td>17 (45.9%)</td>
<td>4.42 ± 0.60</td>
</tr>
<tr>
<td>Encourage physical activities among the children with ASD</td>
<td>0 (0.0%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>15 (40.5%)</td>
<td>19 (51.4%)</td>
<td>4.44 ± 0.69</td>
</tr>
<tr>
<td>Limit staying alone by assigning them roles to play with developing children</td>
<td>5 (13.5%)</td>
<td>1 (2.7%)</td>
<td>2 (5.4%)</td>
<td>16 (43.2%)</td>
<td>13 (35.1%)</td>
<td>3.86 ± 1.33</td>
</tr>
<tr>
<td>Limit staying withdrawn by assigning them roles to play with developing children</td>
<td>3 (8.1%)</td>
<td>1 (2.7%)</td>
<td>4 (10.8%)</td>
<td>22 (59.5%)</td>
<td>7 (18.9%)</td>
<td>3.83 ± 1.07</td>
</tr>
<tr>
<td>Focus on them to develop their basic learning skills by putting them in groups with typically developing peers</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>3 (8.1%)</td>
<td>15 (40.5%)</td>
<td>19 (51.4%)</td>
<td>4.51 ± 0.56</td>
</tr>
<tr>
<td>Encourage them to pair with friends to decrease solitary behavior.</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>3 (8.1%)</td>
<td>14 (37.8%)</td>
<td>20 (54.1%)</td>
<td>4.54 ± 0.56</td>
</tr>
</tbody>
</table>


Table 4.2 shows teachers’ responses on peer-mediated strategies when dealing with children with Autism Spectrum Disorders in Migori County. The findings were: less than half (45.9%) of the teachers encouraged children with ASD to play outside with typically developing peers; more than half (51.4%) of the teachers encouraged physical activities...
among the children with ASD while, more than half (59.5%) of the teachers prevented children with ASD from staying alone by assigning them roles to play with typically developing children; more than half (54.1%) of the teachers also encouraged children with ASD to pair with friends to decrease solitary behavior.

When implementing peer-mediated strategies in their schools while dealing with children with ASD, majority of the teachers agreed that they could use the following strategies: encouraging children with ASD to pair with friends to decrease solitary behavior (mean 4.54 ± 0.56); insisting on assisting children with ASD to develop their basic learning skills by putting them in groups with typically developing peers (mean 4.51 ± 0.56). These findings concur with Disalvo, (2002) who established that teaching peer-mediated strategies leads to social interactions in children with ASD, hence social skills enhancement in children with ASD.

When social skills are improved in a child with ASD, then all kinds of learning can be improved. In life a lot of learning occurs through social interactions with peers. Improved social skills in an individual can in turn make him/her cope well in the community by fulfilling the societal demands in life (Poisson, 2010).

In two sessions, the researcher carried out some observations on children with Autism Spectrum Disorders particularly those who had limited social skills and rarely initiated or responded to social interactions with peers. This was after seeking permission from parents to take videos and pictures of their children. In the first session, children were observed while carrying out their class assignments in classroom independently for 30
minutes. In the second session, during P.E lesson the researcher observed the children playing for 30 minutes. Socially competent peers were used to reinforce their classmates’ social behavior where all the children including the target children participated in rope jumping task as shown in Plate 4.1 in Appendix N page 184.

As shown in Plate 4.1 in Appendix N, when peer-mediated strategies were introduced, the researcher noticed some improvement in the social interactions of the children with ASD. As children played with ropes, they were able to run around the field, jump and sing. For children with ASD, the persistent social initiations from peers increased their social responses and heightened their social engagement as opposed to when carrying out class assignment alone. The head teachers interviewed, also confirmed that when the children participated in doing activities of daily living skills such as washing of utensils, cleaning the compound and playing together, there was a high degree of co-operation and team work among the children.

Through interviews, the head teachers were asked to state whether they noticed any improvement in social interactions of the children with ASD when the peer-mediated strategies were introduced, one head teacher had this to say:

“Peer mediated strategies yielded a lot of improvements in social interactions in my learners with autism when it was introduced. There was a high level of cooperation and team work among the learners” (15th October 2017, Awendo Sub-County)

“Peer mediated strategies have helped to improve social interactions among the learners with autism so much” (16th October 2017, Migori Sub County).
4.4 Play Activities on Social Interactions of Children with Autism Spectrum Disorders

Objective two: Sought to investigate the extent to which play activities enhanced social interactions of children with Autism Spectrum Disorders (ASD) in Migori County. To achieve this objective, teachers were asked to state play activities used with children with ASD and also to give their views on play activities leading to enhanced social interactions of children with ASD. Furthermore, teachers were asked to state the extent to which play activities enhanced social interactions of children with ASD and the role of play activities on learners with ASD.

4.4.1 Play Activities Enjoyed by Children with Autism Spectrum Disorders

The teachers were asked to indicate some play activities which children with Autism Spectrum Disorders enjoyed when interacting with their typically developing peers both in class and out of class. The teachers listed several play activities in order of preference by children with ASD and their typically developing peers. Figure 4.3 presents the findings.
Figure 4.3: Teachers’ Responses on Play Activities Enjoyed by Children with ASD (N = 37).

*Note: More than one response of the activity was recorded*

Figure 4.3 shows that while dealing with children with Autism Spectrum Disorders using play activities, slightly more than half (54.05%) of the teachers noted that the children enjoyed mainly running/athletics which was ranked number one. More than half (51.35%) of the teachers observed that children with ASD enjoyed singing which they ranked at position two in order of preference by children with ASD. This could have been as a result of most children with ASD enjoying being on motion if not seated in a solitary position. The second reason was that most children with ASD excelled in singing because they enjoyed doing one activity for a long period of time without changing. They are normally pegged to routines hence can make very good musicians when trained (Researcher, 2018).
The findings also showed that less than half (45.95%) of the teachers indicated that children with ASD enjoyed playing using balls, as throwing and catching of a ball, was ranked number three in order of preference. Less than a quarter (21.62%) of the teachers indicated that children with ASD enjoyed dancing ranked number four in order of preference. Less than a quarter of the teachers (16.22%) ranked hide and seek, and rope skipping at position five in order of preference by children with ASD. Other play activities which the teachers indicated were less preferred by children with ASD were: kicking balls (13.51%); playing on swings (10.81%), playing by looking for a ‘lost handkerchief’ (8.11%) and playing with toys (2.7%).

The findings revealed that children with ASD do not enjoy play activities requiring eye-hand coordination because one of their characteristics is poor eye-contact hence deficit in eye gaze. The study findings by Mwakalinga (2012), were convergent with the findings of this study that many children with ASD have difficulties engaging fully in play activities. Sometimes the skills that they have learnt seem to be less adoptable than in other typically developing children. Mostly, children with ASD engaged in simple repetitive actions with much of their play involving stereotyped and self-stimulatory activities. Another study by Wheeler and Huang (2006), supported the findings of the current study by indicating that behavior gains were due to treatment and that play activities were effective in enhancing social interactions in children with ASD. A study by Graves and Ward (2012), looked at play activities in relation to academic performance but did not discuss the play activities in relation to social interactions of children with ASD. Amir, Nekoo, Elaheh, Pouria, Masih, Ramin and Vahid, (2015), investigated children with ASD and patterns of participation in their daily physical and play activities.
Results indicated a low rate of physical activity in children with ASD that was closely associated with socio-demographic differences hence did not concur with the findings of the current study. At the same time, Chleien, Rynders, Mustonen, and Fox (2012), explored four levels of play on play behavior of children with ASD. Results showed a higher percentage of appropriate play behaviors in children with ASD. Mengxian and Shihui (2017), carried a clinical study on the effects of physical activity program on social interactions of children with ASD. The result showed an overall improvement in social skills and social interactions in children with ASD. In another study, Rotheram-Fuller, Kasari, Chamberlain, and Locke, (2010), carried an evaluation of social involvement like play by children with ASD in elementary schools. The results contradict the findings of the current study in that children with ASD tended to be isolated more in the later grades.

According to Wolfberg, Bottema-Beutel, and DeWitt, (2016), children with ASD face challenges in social and imaginary play and this study finding confirms the same. Little, Sideris, Ausderau, and Baranek, (2014), in their study of play activities in a sample of school-age children with ASD, confirms that play activities are affected by child characteristics and maternal education which contradicts the findings of this study. Finally, a study by Nicola, Sara, Caroline, Ruth, and Brenda, (2005), investigated social play and initiations in 8 boys with ASD. The result of the reviewed study, that the playgrounds with appropriate levels of physical challenge and support for structured, imaginative play and solitary observation supports peer interactions in children with ASD concurs with the findings of the current study.
During observation, the researcher used cameras, videos and tape-recorders to capture all the details of children with Autism Spectrum Disorders together with research assistants. This was after seeking permission from parents to take videos and pictures of their children. An observational checklist was also used to observe children with ASD in their natural settings so as to note the unfolding events during play activities. In two sessions, the researcher carried some observations on children with ASD particularly those who had limited social skills and rarely initiated or responded to social interactions with peers. In the first session, the children with ASD were observed while carrying out their class assignments in the classroom independently, for 30 minutes. In the second session, during P.E lesson the researcher observed the children with ASD playing for 30 minutes. Socially competent peers were used to reinforce their classmates’ social behavior where all the children including the target children participated in rope jumping task as shown in Plate 4.2 in Appendix O page 184.

As shown in Plate 4.2 in Appendix O, when peer-mediated strategies were introduced, the researcher noticed some improvement in the social interactions in children with ASD. As children played with ropes, they were able to run around the field, jump and sing. For the children with ASD, the persistent social initiations from peers increased their social response and heightened their social engagement as opposed to when carrying out class assignment alone. The head teachers interviewed, also confirmed that when the children with ASD participated in doing activities of daily living skills such as washing of utensils, cleaning the compound and playing together, there was a high degree of cooperation and team work among them.
The researcher also conducted interview schedules with head teachers of the schools serving children with Autism Spectrum Disorders in every Sub-County in Migori County except Nyatike Sub-County where piloting of this study was done. The head teachers were purposively sampled by the researcher on the basis that for them to participate in this study, their schools must be serving learners with ASD. An interview with head teachers on the attitude of parents of typically developing peers, on when their children play with children with ASD, they had this to say:

“They do not wholly embrace this idea”, (15th October 2017, Migori Sub-County).

“It’s fifty-fifty and some of these parents do not fully appreciate them”, (16th October 2017 Uriri Sub-County).

“Some parents have negative attitude because those pupils with autism may affect their children”, (16th October 2017, Awendo Sub-County).

“Parents of typically developing children mostly show positive attitude when their children play with their counterparts with Autism. This is as a result of sensitization done during school open days as well as support from Educational Assessment and Resource Center officials”, (16th October 2017, Kuria Sub-County).

“Most parents are not very positive; this area still needs sensitization for everybody to know that the children with autism are just like “normal” child”, (16th October 2017, Rongo Sub-County).

During interviews, the head teachers were also asked to give their opinion on the role of play activities on children with Autism Spectrum Disorders in their respective schools and they had this to say:

“Play really motivates them and makes them socialize easily with the typically developing peers”, (14th October 2017, Migori Sub-County).

“Play activities made learners with autism active and alert. It also helps children enjoy more, reduced boredom and made learning interesting to them”, (14th October 2017, Uriri Sub-County).

“Play activities assisted the students with socialization, it gave them confidence, made their muscles stronger and improved their speech.”
Play activities calmed anxiety which was mostly associated with learners who had various challenges. It also increased level of communication among the learners making their relationship to be more cohesive”, (17th October 2017, Migori Sub-County).

“Plays that involved activities like holding hands or shoulders helped hypersensitive learners get accustomed to being touched. This in turn increased their social interaction level. Play activities also enhanced physical, emotional and intellectual development in learners with autism”, (17th October 2017, Uriri Sub-County).

“In my view play activities help children enjoy more, makes learning interesting and reduces boredom”, (18th October, 2017, Awendo Sub-County).

“Play activities among learners with autism in my school yields very interesting positive impacts. It calms anxiety which is mostly associated with learners who have various challenges. It also increases level of communication among the learners making their relationship to be more cohesive. Plays that involves activities like holding hands or shoulders helps hypersensitive learners to get accustomed to being touched, this increases their social interaction level. Plays enhance physical, emotional and intellectual development in learners with autism above all”, (18th October 2017, Kuria East, Sub-County).

“Learners with autism are quite motivated by play activities and they enjoy more when they are involved in play”, (18th October 2017, Rongo Sub-County).

During interview sessions, the head teachers were also asked to give their opinion on the challenges they faced in including children with Autism Spectrum Disorders in their respective schools and they had this to say:

“I noticed that for the first time they are not accepted and seem to be isolated but with time they are accepted and they fit in the environment”, (15th October 2017, Migori Sub-County).

“In my school I face the challenge of integration i.e. mixing them with learners with normal learning abilities (15th October 2017, Awendo Sub-County). Some of these children are overlooked and are not fully accepted”, (16th October 2017, Awendo Sub-County).
“These children with Autism cannot perform equally with other pupils due to large class enrollment. Teachers can’t address adequately the needs of learners with autism”, (17th October 2017, Uriri Sub-County).

“Challenges faced in my school when including children with autism with typically developing ones are varied. These include inadequate personnel trained in autism compared to the number of learners that is in constant increase. Inadequate classrooms as learners with autism require a structured environment which needs spacious rooms. Congestions realized in our schools hinder effective inclusion as may be required. Some important facilities/equipment are very expensive and most cases not easily available e.g. hammock trampoline among others”, (18th October 2017, Migori Sub-County).

“It takes time for the “normal children” to accept these autistic children and even sit with them on the same desk, but with time, they are accepted. Some teachers are also negative hence they leave such children unattended to during class”, (18th October 2017, Kuria West Sub-County).

4.4.2 Play Activities Leading to Enhanced Social interactions

Teachers’ views and observations when play activities were introduced to children with Autism Spectrum Disorders in their classrooms and outside the classrooms were established. Using a Likert’s scale of 1 – 5 (1-Strongly disagree, 2- disagree, 3-neutral, 4-agree, 5-strongly agree), mean response on the teachers’ views on each play activity was computed by summation of the individual responses divided by the number of teachers who responded. The results were as displayed in Table 4.3.
Table 4.3: Teachers’ Responses on introduction of Play Activities to children with ASD (N=37).

<table>
<thead>
<tr>
<th>Opinion when play activities are introduced</th>
<th>SD (1)</th>
<th>D (2)</th>
<th>N(3)</th>
<th>A (4)</th>
<th>SA (5)</th>
<th>Mean ± S. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Social Interactions</td>
<td>0(0.0%)</td>
<td>1 (2.7%)</td>
<td>3(8.1%)</td>
<td>22(59.5%)</td>
<td>11(29.7%)</td>
<td>4.16± 0.69</td>
</tr>
<tr>
<td>Decrease in Solitary Behavior</td>
<td>2(5.4%)</td>
<td>3(8.1%)</td>
<td>8(21.6%)</td>
<td>21(56.8%)</td>
<td>3(8.1%)</td>
<td>3.56± 0.97</td>
</tr>
<tr>
<td>Interact with Developing Peers</td>
<td>6(16.2%)</td>
<td>2(5.4%)</td>
<td>3(8.1%)</td>
<td>15(40.5%)</td>
<td>11(29.7%)</td>
<td>3.62± 1.40</td>
</tr>
<tr>
<td>Make new friends during Play</td>
<td>1(2.7%)</td>
<td>1(2.7%)</td>
<td>6(16.2%)</td>
<td>14(37.8%)</td>
<td>15(40.5%)</td>
<td>4.11± 0.97</td>
</tr>
<tr>
<td>Use Play Activity Strategy</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (5.4%)</td>
<td>13(35.1%)</td>
<td>22(59.5%)</td>
<td>4.63± 0.49</td>
</tr>
<tr>
<td>Understand how to Initiate Play</td>
<td>7(18.9%)</td>
<td>8(21.6%)</td>
<td>5(13.5%)</td>
<td>11(29.7%)</td>
<td>6(16.2%)</td>
<td>3.03± 1.40</td>
</tr>
<tr>
<td>Respond to their Friends social initiation</td>
<td>0 (0.0%)</td>
<td>4(10.8%)</td>
<td>1(2.7%)</td>
<td>23(62.2%)</td>
<td>9(24.3%)</td>
<td>4.00± 0.85</td>
</tr>
<tr>
<td>Want to play more with friends</td>
<td>0 (0.0%)</td>
<td>3(8.1%)</td>
<td>4(10.8%)</td>
<td>8(21.6%)</td>
<td>22(59.5%)</td>
<td>4.36± 0.96</td>
</tr>
</tbody>
</table>

Note: SD-strongly disagree, D-Disagree, N-neutral, A-Agree, SA-Strongly agree, S.Dev.-Standard Deviation

As shown in Table 4.3, majority of the teachers (94.62%) would be more willing to use the play activities as a strategy with children with Autism Spectrum Disorders in their classes to enhance social interactions (mean 4.63 ± 0.49). From the study, more than three quarters of the teachers (81.1%) agreed that the children with ASD wanted to play more with their friends even after the play activity had ended (mean 4.36± 0.96) and majority of the teachers (89.2%) noticed an increase in social interactions in the children with ASD when play activities were introduced (mean 4.16 ± 0.69). It was found that slightly more than three quarters of the teachers (78.3%) realized that children with ASD
made new friends during play activities (mean 4.11 ± 0.97). More than three quarters of the teachers (86.5%) realized that children with ASD responded to their friends’ social initiations during play activities (mean 4.16 ± 0.69). Slightly less than three quarters of the teachers (70.2%) agreed that children with ASD enjoyed interacting with typically developing peers (mean 3.62 ± 1.40).

Table 4.3 indicated that when play activities were introduced to learners with Autism Spectrum Disorders, there was increase in social interactions with their typically developing peers leading to a decrease in solitary behavior because they were able to play with their peers. Majority of the teachers also supported that when play activities were introduced, they observed children with ASD showing enjoyment as they interacted with typically developing peers. This in turn led to an increase in the number of new friends among the learners with ASD. Majority of the teachers agreed that play activities were strategies worth using with learners with ASD to enhance their social interactions with typically developing peers.

The teachers further noticed that learners with ASD were able to respond to their typically developing peers’ social initiations during play activities hence leading to better academic performance. Most children with ASD were willing to continue playing even after the play activities had ended. Wheeler and Huang (2006), in their study concur with these findings that when learners with ASD were subjected to play activities, all participants nearly doubled the amount of social interactions with their typically developing peers. This study, therefore, indicated that the social skills gained by children with ASD were due to treatment and that play activities were effective.
In order to triangulate the findings, the researcher took pictures and videos as she observed children with ASD to establish the extent to which play activities enhanced social interactions after seeking permission from parents of children with ASD. The observations were made in two sessions. In the first session, children with ASD were observed while responding to academic activities introduced to all children in the classroom setting. In the second session, children with ASD were observed outside the classroom during P.E. lesson together with their typically developing peers. They participated as shown in Plate 4.3 in (Appendix P) page 184.

In (Appendix P), when there were no play activities most of the children with ASD appeared withdrawn and solitary as seen in the plate 4.3 but when play activities were introduced they were able to participate and had increased social interactions with the typically developing peers as seen on the same plate. Therefore, play activities enhanced social interactions of children with ASD together with their typically developing peers.

4.4.3 Relationship between Play Activities and Social Interactions

To establish the extent to which play activities enhanced social interactions, a Likert scale of 1 – 5 (1-strongly disagree – 5-strongly agree) was used. Teachers’ opinions on the eight items of play activities of the children with ASD were as displayed on Table 4.3 and computed for the overall summation score. The maximum score for play activity was 40 and the minimum score was 8. Similar computation was done on the four items of enhanced social interaction on a Likert scale of 1 – 3 (1-less enhanced, 2-enhanced, and 3-highly enhanced). Maximum enhanced social interaction score was therefore 12 with a minimum score of 4.
The study had hypothesized $H_1$ that there is a relationship between play activities and enhanced social interactions of children with ASD in Migori County. In order to find out whether there is an association between play activities and enhanced social interactions, the Chi-square test was performed and the findings presented in Table 4.4.

**Table 4.4: Chi-Square Test on Effects of Play Activities and Enhanced Social Interactions of Children with Autism Spectrum Disorders**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>80.629(a)</td>
<td>52</td>
<td>.007</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>67.399</td>
<td>52</td>
<td>.074</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>17.936</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: 70 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

As shown in Table 4.4, the computed Chi-square coefficient ($X^2 = 80.6$) is statistically significant because the P-value= 0.007 is less than 0.05 alpha level. Therefore, the hypothesis $H_1$ that there is a relationship between play activities and enhanced social interactions of children with ASD in Migori County was accepted. This led to the revelation that the use of play activities was related to enhanced social interactions of children with ASD. This confirmed the earlier findings in previous studies that showed that enhanced social interactions were significantly higher when play activity strategy was used with children with ASD particularly with their typically developing peers.
The researcher also used observation after she sought permission from parents of children with ASD to take pictures and video record activities their children participated in. During observation sessions, a video analysis in the classroom setting revealed that children with ASD were not attentive to teaching/learning activities in the class and instead were busy playing, hiding their heads under the desk and were withdrawn. The same children when observed outside the classroom during a P.E. lesson were very active, able to make a big circle with the typically developing peers and led them in singing a song “lalala! La, lalala! La, lalala! La”. During play activities, it was not possible to differentiate the children with ASD from the typically developing peers because they initiated play leading to high enhanced social interactions.

These findings are consistent with the findings of some previous studies in the field of ASD. A study of children with ASD by Wheeler and Huang (2006), sampled twelve boys at seven years of age by using an exploratory approach. The study revealed that the boys diagnosed with ASD had very little appropriate play skills, displayed a high degree of repetitive play and coupled with little to not being able to express themselves in any language. After the same boys were subjected to play activities, all participants nearly doubled the amount of social interactions with their typically developing peers. Also, all participants were more functional in play activities and engaged in less repetitive play. After expiry of the study, treatment was withdrawn from the boys, and further examination was conducted. It was found that initial behavior gains were not consistent when treatment was withdrawn (Wheeler & Huang, 2006).
The study, therefore, indicated that the behavior gains were due to treatment and that play activities were effective in enhancing social interactions of children with ASD. This study established the role played by teachers and parents in the development of social skills in learners with ASD and their typically developing peers. This study finding concurs with Poisson (2010), who supported that an adult is required to monitor the play situation for evidence of the development of social skills, coach the peers, interpret for the peers, and encourage the children with ASD to engage in play activities that were more advanced to improve their abilities. It was evidently clear from these findings that play as a strategy has a vital role in social interactions of children with ASD.

4.5 Peer Buddy Approach and Social Interactions

Objective three: Sought to establish the role of peer buddy approach on social interactions of children with ASD in Migori County.

4.5.1 Peer Buddy Approaches that Children with ASD Engaged In

Teachers were asked to indicate some peer buddy approaches that children with ASD enjoyed when they were interacting with their typically developing peers, both in class and out of class. The teachers listed several peer buddy activities that were the most popular among children with ASD and their typically developing peers. These were placed in a rank of 1 to 8 with 1 being the most preferred activity while 8 the least preferred activity. These were mainly activities children with ASD engaged in with their friends and they enjoyed in the cycle of friends to reduce solitary behavior. Figure 4.4 presents the findings.
Figure 4.4: Teachers’ Responses on Peer Buddy Approaches Children with ASD Participated in (N= 37)

Note: more than one response of the activity was recorded

As shown in Figure 4.4, when using peer buddy approach with children with ASD, less than half of the teachers (40%) ranked singing at position one. Slightly more than a quarter of the teachers (27%) ranked running/athletics at position two. Less than a quarter of the teachers (24%) ranked kicking balls at position three. This was closely followed by less than a quarter of the teachers (23%) who ranked playing with bottle tops with friends at position four. Other peer buddy activities such as rope skipping, throwing and catching were ranked at position six by few teachers (14%). Peer buddy activity involving hide and seek games was ranked at position seven by very few teachers (6%). The rest of the peer buddy activities- telling stories, sweeping classrooms and building with blocks-were ranked at position eight by very few teachers (5%).
4.5.2 Peer Buddy Approach and Social Interactions of Children with ASD

This study also collected data on teachers’ responses on role of peer buddy approaches on children with ASD. The responses given were based on the Likert scale through which the respondents rated the extent to which they agreed with the given aspects. These were indicators of the identified factor rated on a scale of 1 – 5 (1 was strongly disagree and 5 was strongly agree). The findings are presented in Table 4.5.

**Table 4.5: Teachers’ Responses on Peer Buddy Approach and Enhanced Social Interactions of Children with ASD (N = 37)**

<table>
<thead>
<tr>
<th>Opinion when peer buddy approaches are introduced</th>
<th>SD (1)</th>
<th>D (2)</th>
<th>N(3)</th>
<th>A (4)</th>
<th>SA (5)</th>
<th>Mean ± S. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer buddy approach is an effective method for improving children's social interactions</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>18</td>
<td>18</td>
<td>4.46 ± 0.56</td>
</tr>
<tr>
<td>I noticed an increase in social interactions for my children with ASD</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>19</td>
<td>18</td>
<td>4.49 ± 0.51</td>
</tr>
<tr>
<td>Peer buddy approach decrease in solitary behavior for my children with ASD</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>15</td>
<td>11</td>
<td>3.73 ± 1.22</td>
</tr>
<tr>
<td>The children with ASD enjoy having peer buddies to enhance social interactions</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>21</td>
<td>14</td>
<td>4.32 ± 0.58</td>
</tr>
<tr>
<td>The children with ASD make new friends when peer buddy approach is</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>20</td>
<td>13</td>
<td>4.19 ± 0.81</td>
</tr>
</tbody>
</table>

90
introduced

<table>
<thead>
<tr>
<th>peer buddy approach enhance social interactions</th>
<th>-</th>
<th>-</th>
<th>2 (5.4%)</th>
<th>13 (35.1%)</th>
<th>22 (59.5%)</th>
<th>4.54 ± 0.61</th>
</tr>
</thead>
<tbody>
<tr>
<td>The children understand how to initiate play and respond to their friends social initiations during peer buddy interactions</td>
<td>1 (2.7%)</td>
<td>7 (18.9%)</td>
<td>3 (8.1%)</td>
<td>15 (40.5%)</td>
<td>11 (29.7%)</td>
<td>3.76 ± 1.16</td>
</tr>
<tr>
<td>The children want to play more with their friends even after the peer buddy has been removed</td>
<td>3 (8.1%)</td>
<td>1 (2.7%)</td>
<td>4 (10.8%)</td>
<td>14 (37.8%)</td>
<td>15 (40.5%)</td>
<td>4.00 ± 1.17</td>
</tr>
</tbody>
</table>

**Note:** SD-strongly disagree, D-Disagree, N-neutral, A-Agree, SA-Strongly agree, S.Dev. - Standard Deviation

In Table 4.5, teachers’ responses on peer buddy approaches in enhancing social interactions of children with ASD were tabulated. Out of the 37 teachers, majority (97.2%) agreed that peer buddy approach was an effective strategy in improving social interactions in children with ASD. Nearly all the teachers (99%) agreed that they had noticed an increase in social interactions in their children with ASD when peer buddy approach was used. Slightly less than three quarters of the teachers (70.2%) agreed they had noticed a decrease in solitary behavior in children with ASD while majority of the teachers (94.6%) indicated that most children with ASD enjoyed having peer buddies hence enhanced social interactions.
Laushey and Heflin (2000), confirmed that when using peer buddy approach, the children under study were able to increase their social interaction by 36% and 38% respectively during the treatment as compared with the baseline findings in which the children were simply integrated but did not have a peer buddy. This study further revealed that majority of the teachers (94.6%) observed that children with ASD were able to make new friends when peer buddy approach was introduced. Over four-fifth of the teachers (89.2%) strongly agreed that they were willing to use peer buddy approach as a strategy to teach children with ASD and their typically developing peers to enhance social interactions. Slightly less than three quarters of the teachers (70.2%) agreed that when peer buddy approach was introduced the children with ASD initiated play and responded to their typically developing peers’ social interactions while majority of the teachers (94.1%) indicated that children with ASD wanted to play more with their friends even when the peer buddy approach activities had ended. This was therefore an indication that peer buddy approach was very effective as a strategy in enhancing social interactions in children with ASD.

These findings confirmed Laushey and Heflin (2000), who conducted a study in enhancing social skills of Kindergarten children with ASD through the training of multiple peers as tutors. The study established that peer buddy approach increased the social interaction levels of children with ASD and consequently improved the social interactions of typically developing peers even with other children. This finding therefore reveals that when children with ASD are paired with typically developing peers as friends, they can perform all the activities performed by their peers through observational learning.
Mean response on the teachers’ views on an activity was computed by summation of the individual responses divided by the number of teachers who responded. The findings indicated that teachers would be willing to use the peer buddy approach with their classes to enhance social interactions (mean 4.54 ± 0.61). Teachers noticed an increase in social interaction in children with ASD with their peer buddies (mean 4.49 ± 0.51). Peer buddy approach is an effective strategy for improving children's social interactions (mean 4.46 ± 0.56). It was established that children with ASD enjoyed having peer buddies to enhance social interactions (4.32 ± 0.58). The children with ASD made new friends when peer buddy approach was introduced (mean 4.19 ± 0.81).

An observation meant to establish the extent to which peer buddy approach enhanced social interactions of children with ASD was also carried out by the researcher after getting permission from parents of children with ASD. She took pictures and videos of the children in two sessions. In the first session, the children with ASD were observed while responding to classroom academic activities on the black board independently. In the second session, all the children in the classroom, including the target children were introduced to P.E. lesson activities where they participated in as shown in Plate 4.3 in (Appendix Q) page 185.

In Plate 4.3 in (Appendix Q), the researcher took pictures in class and during P.E lessons respectively. During a lesson in class, the child with ASD appeared withdrawn and solitary as he was not able to follow the lesson’s activities. When called upon by the teacher to perform an activity on the black board, which the typical peers participated in with ease, the child refused to participate and did not even attempt. When the same child
was observed during a P.E lesson, he opened up and started singing together with the typically developing peers. He even agreed to put his bag down in order to participate in various play activities with the friends. The child with ASD was seen to be engaged with typically developing friend to the extent that there was no distinction between him and his friends. He observed what his friends were doing and was able to perform the same activities. This was an indication that peer buddy approach could easily influence the behavior of a child with ASD in terms of character and social skills. It was therefore safe to confirm that peer buddy approach was an effective strategy for enhancing social interactions in children with ASD. A study by Jones, Jackson and Campbell (2009), and Poisson (2010), reveals that peer buddy approach is an effective intervention that can improve the social behavior of a child with ASD.

Video analysis of the children in the classroom setting revealed that, a child with ASD was always solitary and pegged to his bag. However, when the child was outside the classroom together with his typically developing peers, he was able to sing with the group, particularly in songs like “one-two! Make a circle, One –two! Make a circle, one-two! Make a circle…… a big circle”. At first the child appeared shy but later in the play, he was able to run as he chased the peers in a play of searching for a’ lost handkerchief’. When the P.E. lesson ended and most of the children were running back to class, it was interesting to see the child with ASD continue to play prompting the teacher to drag him to class.

These findings are consistent with the findings of studies reviewed in the literature for the current study such as Fowler (2000), Locke, Kretzmann (2012), Fuller and Kasari (2012),
Sawitree (2013), Janette (2012), Kathleen (2010), Lisa (2013), and Laushey and Heflin (2000). The results of this study revealed that peer buddy approach is an effective strategy for enhancing social interactions in children with ASD as supported by Jones, Jackson and Campbell (2009), and Poisson (2010).

4.5.3 Relationship between Peer Buddy Approach and Enhanced Social Interactions

To establish the extent to which peer buddy approach enhanced social interactions in children with ASD, teachers’ opinions on eight items of peer buddy approaches on a scale of 1 – 5 (1-strongly disagree – 5-strongly agree) were sought. These items in Table 4.5 were computed for the overall summation score. The maximum score for peer buddy approach was 40 while the minimum score was 8. The study had hypothesized H¹ that there is a relationship between peer buddy approach and enhanced social interactions of children with ASD in Migori County. In order to find out whether there was an association between effect of peer buddy approach and enhanced social interactions, a Chi-square test was performed and the findings presented in Table 4.6.

Table 4.6: Chi-Square Test on Effects of Peer Buddy Approach and Enhanced Social Interactions of Children with ASD

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>80.477(a)</td>
<td>48</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>263</td>
<td>48</td>
<td>.024</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>23.226</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: 65 cells (100.0%) have expected count less than 5. The minimum expected count is .08.
As shown in Table 4.6, the computed Chi-square coefficient (\(X^2 = 80.5\)) is statistically significant because the P-value= 0.002 is less than 0.05 alpha level. The hypothesis \(H_1\) that there is a relationship between peer buddy approach and enhanced social interactions of children with Autism Spectrum Disorders in Migori County was accepted. This leads to the conclusion that the use of peer buddy approach was related to enhanced social interactions of children with ASD. This confirms the findings in the reviewed studies that showed that enhanced social interactions were significantly higher when peer buddy approach was used with children with ASD particularly with their typically developing peers.

These findings are consistent with previous studies which were conducted on peer buddy approaches such as a study by Laushey and Heflin (2000), who investigated this approach with two 5-year-old children diagnosed with ASD. Both the study participants had language and could read at Kindergarten level but showed difficulty in socializing with their peers. The study adopted an exploratory approach to determine the findings. The results of the study showed that peer buddy approach was an effective intervention that could improve the social behavior of a child with ASD. This was consistent with the findings of several other authors (Jones, 2007; Jackson & Campbell, 2009; Poisson, 2010).

4.6 Peer Network Strategy on Social Interactions of Children with ASD

Objective four: Sought to find out the effect of peer networks on social interactions of children with ASD in Migori County. Peer networks are founded on the notion that an
enhanced peer understanding of children with ASD and subsequent interest will improve social interactions.

### 4.6.1 Peer Network Activities Children with ASD are involved in

The researcher asked teachers to list several peer network activities which children with Autism Spectrum Disorders and their typically developing peers enjoyed when they were interacting with one another in class and out of class. The activities enquired were mainly those where the children with ASD participated in when they were with their friends both in class, outside class and in the communities where they lived. The findings are presented in Figure 4.5.

![Figure 4.5: Teachers’ Responses on Peer Network Activities for Children with ASD (N = 37)

Note: More than one response of the activity was recorded](image-url)
Figure 4.5 shows that less than half (35.14%) of the teachers indicated that children with ASD preferred playing with typically developing peers and that was ranked position one. Slightly more than a quarter (27.03%) of the teachers ranked washing clothes and fetching water at position two. Less than a quarter (21.62%) of the teachers ranked collecting firewood at position four in order of preference by children with Autism Spectrum Disorders. Herding animals and running/athletics were ranked position five by slightly above a tenth (13.51%) of the teachers. The findings revealed that kicking balls and jumping activities were the least preferred by children with ASD as indicated by very few teachers (8.11% and 5.41%) respectively.

4.6.2 Peer Networks and Social Interactions of Children with ASD

Teachers gave their responses on the extent to which they agreed with given statements by the researcher regarding the effects of peer networks on social interactions of children with ASD. The respondents rated the extent to which they agreed with the given aspects which were indicators of the so identified factor using Likert scale. This was on a scale of 1 – 5 where, 1 was strongly disagree and 5 was strongly agree. Table 4.7 presents the findings.
**Table 4.7: Teachers’ Responses regarding Effects of Peer Network Activities on Social Interactions of Children with ASD (N = 37)**

<table>
<thead>
<tr>
<th>Peer networking activities children with ASD are involved in</th>
<th>SD (1)</th>
<th>D (2)</th>
<th>N(3)</th>
<th>A (4)</th>
<th>SA (5)</th>
<th>Mean ± S. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer networks approach improve children’s social interactions</td>
<td>0 (0.0%)</td>
<td>1 (2.7%)</td>
<td>1 (2.7%)</td>
<td>16 (43.2%)</td>
<td>19 (51.4%)</td>
<td>4.43 ± 0.69</td>
</tr>
<tr>
<td>Peer networks approach increase social interactions for my children with ASD</td>
<td>0 (0.0%)</td>
<td>1 (2.7%)</td>
<td>0 (0.0%)</td>
<td>17 (45.9%)</td>
<td>19 (51.4%)</td>
<td>4.46 ± 0.65</td>
</tr>
<tr>
<td>Peer networks approach decrease solitary behavior for my children with ASD</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (5.4%)</td>
<td>17 (44.9%)</td>
<td>24 (64.9%)</td>
<td>11 (5.4%)</td>
</tr>
<tr>
<td>Children with ASD enjoy peer networks to enhance their social interactions</td>
<td>1 (2.7%)</td>
<td>0 (0.0%)</td>
<td>3 (8.1%)</td>
<td>12 (32.4%)</td>
<td>21 (56.8%)</td>
<td>4.41 ± 0.86</td>
</tr>
<tr>
<td>Children make new friends when peer networks approach is introduced</td>
<td>0 (0.0%)</td>
<td>1 (2.7%)</td>
<td>2 (5.4%)</td>
<td>19 (51.4%)</td>
<td>16 (43.2%)</td>
<td>4.35 ± 0.68</td>
</tr>
<tr>
<td>Peer networks approach ASD in my classes to enhance social interactions</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>17 (45.9%)</td>
<td>20 (54.1%)</td>
<td>4.54 ± 0.51</td>
</tr>
<tr>
<td>Children understand how to initiate play and respond to their friend’s social initiations during peer network interactions</td>
<td>1 (2.7%)</td>
<td>5 (13.5%)</td>
<td>6 (16.2%)</td>
<td>13 (35.1%)</td>
<td>12 (32.4%)</td>
<td>3.81 ± 1.26</td>
</tr>
</tbody>
</table>
The children with ASD understand how to respond to their friend’s social initiations during peer network interactions

<table>
<thead>
<tr>
<th></th>
<th>0 (0.0%)</th>
<th>4 (10.8%)</th>
<th>7 (18.9%)</th>
<th>13 (35.1%)</th>
<th>13 (35.1%)</th>
<th>3.97 ± 0.99</th>
</tr>
</thead>
</table>

The children with ASD respond to their friends’ social initiations during peer network interactions

<table>
<thead>
<tr>
<th></th>
<th>1 (2.7%)</th>
<th>2 (5.4%)</th>
<th>6 (16.2%)</th>
<th>15 (40.5%)</th>
<th>13 (35.1%)</th>
<th>4.09 ± 0.99</th>
</tr>
</thead>
</table>

The children with ASD want to play more with their friends even after the peer network activity has been stopped

<table>
<thead>
<tr>
<th></th>
<th>1 (2.7%)</th>
<th>2 (5.4%)</th>
<th>3 (8.1%)</th>
<th>12 (32.4%)</th>
<th>19 (51.4%)</th>
<th>4.28 ± 1.00</th>
</tr>
</thead>
</table>

**Note: SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA-Strongly Agree, S. Dev- Standard Deviation**

In Table 4.7, out of thirty-seven teachers, majority (94.6%) of the teachers agreed that peer networks approach was an effective strategy for improving social interactions of children with Autism Spectrum Disorders. When peer networks approach was used there was an increase in social interactions of children with ASD. Slightly less than three quarters (70.3%) of the teachers agreed that peer networks approach decreased solitary behavior in children with ASD. More than three quarters (89.2%) of the teachers agreed that children with ASD enjoyed peer networks and it enhanced their social interactions. Majority (94.6%) of the teachers agreed that children with ASD made new friends when peer networks approach was introduced in their classes. Majority (99%) agreed that they would use peer networks approach with children with ASD to enhance social interactions. Two thirds (67.5%) of the teachers agreed that children with ASD
understood how to initiate play and respond to their friends’ social initiation during peer network interactions. Slightly less than three quarters (70.2%) of the teachers agreed that children with ASD understood how to respond to their friends’ initiation during peer network activities. Three quarters (75.6%) of the teachers agreed that children with ASD responded to their friends’ social initiation during peer network interactions. More than three quarters (83.8%) of the teachers agreed that children with ASD wanted to play more with their friends even after the peer networks activity had been stopped.

This study finding indicated that peer networks approach was an effective strategy in enhancing social interactions of children with ASD. Maione and Mirenda, (2006), agree that peer-mediated interventions, for a typically developing child or a group of typically developing children are strategies used to deliver specific treatment to the targeted peers with ASD. These findings are supported by other authors such as Karen, et al., (2014), Debra, et al., (2007), Debra, et al., (2014), Debra and Rose (2015), Conrad (2016), Dianne (2007), and Disalvo & Oswald (2007). These studies concur that peer networks strategy is effective for enhancing social interactions of children with ASD.

The result of this study showed that when peer networks approach was introduced, teachers were willing to use the approach with children with ASD in their classes to enhance social interactions (mean 4.54 ± 0.51). Teachers noticed an increase in social interactions of children with ASD (mean 4.46 ± 0.65). Teachers also noted that peer network approach was an effective strategy for improving children's social interactions (mean 4.43 ± 0.69). It was observed by teachers that children with ASD enjoyed having peer networks to enhance their social interactions (mean 4.41 ± 0.86).
An observation was also carried out by the researcher on children with ASD to establish the extent to which peer networks approach enhanced social interactions of children with ASD, in two sessions. The researcher sought permission from the parents of children with ASD to take the children’s pictures and videos. In the first session that lasted 30 minutes, the child with ASD and his typically developing peers were observed while responding to a class lesson in mathematics activities on the black wall, independently. In the second session that equally lasted 30 minutes, the same child with ASD together with typically developing peers, participated in various outdoor activities as shown in Plate 4.4 in (Appendix R) page 185.

Plate 4.4 in (Appendix R) indicated activities of children in classroom setting and when in the field responding to outdoor activities with their friends. In class, children with Autism Spectrum Disorders remained aloof most of the time even when the teachers tried to involve them in class activities. They were not free to participate, but when outside the classroom in the field, they participated in varied activities with friends. Plate 4.4 showed networking sessions when the children were asked to join their peer networks as in the pictures. The pictures also showed a different behavior of the children with ASD when alone. These findings concur with Koegel and Frea, (2001), and McConnell (2002), that children with ASD are segregated by their peers and are often not engaged with them in classroom settings but while in outdoor activities they can initiate play activities. Young children with ASD initiate interactions less often with their typically developing peers in an enclosed environment. This therefore calls upon teachers to ensure they incorporate a lot of group activities during teaching/learning sessions for children with ASD. Most of
the learning by children with ASD should be outdoors because they can easily interact with their peers and imitate what the typically developing peers do.

This study finding showed that peer network strategy worked better in outdoor activities. Some teachers also contended that when the preferential seating position is considered in terms of friendship, then the children with ASD can benefit in classroom activities too. The peer network approach can be helpful when home work is given to be done with friends’ because those who have already mastered the concepts can assist others especially in a subject like Mathematics.

**4.6.3 Relationship between Peer Network Approaches and Enhanced Social Interactions in Children with ASD**

The study established the extent to which peer network approach enhanced social interactions in children with Autism Spectrum Disorders. Teachers’ opinions on ten items of peer network approaches, in a scale of 1 – 5 (1-strongly disagree – 5-strongly agree) were sought. These items, in Table 4.7, were computed for the overall summation score. The maximum score for peer network approach was 50 while the minimum score was 10.

The study had hypothesized $H^1$ there is a relationship between peer networks and enhanced social interactions of children with ASD in Migori County. In order to find out whether there was an association between effect of peer network approach and enhanced social interactions, the Chi-square test was performed and the findings presented in Table 4.8.
Table 4.8: Chi-Square Test on Effects of Peer Network Approach and Enhanced Social Interactions of Children with ASD

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>114.722(a)</td>
<td>60</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>91.270</td>
<td>60</td>
<td>.006</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>28.535</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

N of Valid Cases: 37

Note: 80 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

As shown in Table 4.8, the computed Chi-square coefficient ($X^2 = 114.722$) is statistically significant because the $P$-value $= 0.000$ is less than 0.05 alpha level. The hypothesis that there is a relationship between peer networks and enhanced social interactions of children with Autism Spectrum Disorders in Migori County was accepted. This led to the conclusion that the use of peer network approach was related to enhanced social interactions of children with ASD. The study findings concur with the earlier reviewed studies’ findings that showed that enhanced social interactions was significantly higher when peer network approach was used with children with ASD specifically in the company of their typically developing peers.

Based on videos analysis, activities of peer networks were observed by the researcher with permission from the parents of the children with Autism Spectrum Disorders to capture the children’s activities by video recording. The children were put in groups to participate in various activities during P.E lesson that lasted 30 minutes. Children with ASD were seen performing activities such as jumping with ropes, throwing and catching
balls as in a game of netball and running in circles as in ‘looking for a lost handkerchief’ game, together with their typically developing peers. All these activities were performed in cycle of friends. This therefore was an indication that peer network approach was an effective strategy for enhancing social interactions in children with ASD.

These findings concurred with the previous study findings by Disalvo and Oswald (2007), who investigated the influence of peer network interventions to increase the social interactions of children with ASD. Children with ASD were seen in the cycle of friends thereafter even in the community where they lived hence the strategy was generalized to other settings outside the school.

4.7 Peer Implemented Pivotal Response Training Strategy and Social Interactions in Children with ASD

Objective five: Sought to investigate the role of peer implemented pivotal response training in enhancing social interactions of children with Autism Spectrum Disorders in Migori County. The peer implemented pivotal response training was expected to improve the social behaviors of children with ASD by providing an array of friendly models that would incorporate the target child’s preferences in a natural environment.

4.7.1 Activities Used in Peer Implemented Pivotal Response Training

The teachers were asked by the researcher to list activities used in peer implemented pivotal response training in enhancing social interactions of children with ASD. Figure 4.6 presents the findings.
Figure 4.6: Teachers’ Responses on Peer Implemented Pivotal Response Training Activities for Children with ASD (N = 37)

Note: More than one response of the activity was recorded

Figure 4.6 shows teachers’ responses when dealing with children with ASD using peer implemented pivotal response training. The activities, as reported by the teachers, included brushing of teeth, tying shoe laces, bathing, singing, washing clothes, utensils, playing with balls and toys and dressing up. Slightly more than a quarter (27.5%) of the teachers ranked brushing teeth at position one. This was followed by tying shoes, bathing and singing which were ranked at position two by less than a quarter (19%) of the teachers’. Less than a quarter (16.5%) of the teachers also ranked buttoning shirt/blouse, modeling and writing letters at position five. Playing with toys and balls, washing clothes/utensils and dressing up were ranked position seven by slightly more than one-
tenth (14%) of the teachers. Clapping hands while singing was ranked last at position eight by very few (5%) of the teachers.

The results of this study are consistent with Wheeler, Weiss and Pepler (2012), who in their study noted that peer implemented pivotal responses training strategy when introduced to children with Autism Spectrum Disorders who were socially nonresponsive and who had difficulty in expressive verbal abilities, showed progress in initiating play and social conversation with peers who were trained after several weeks of intervention. The findings of this study confirmed that peer implemented pivotal response training strategy enhanced social interactions of children with ASD and that the role of trained peers was key.

Blum-Dimaya, Reeve, Reeve, and Hoch (2010), agree that children with ASD were able to learn to play video games and a song when peer implemented pivotal response training was employed. The study, therefore, revealed that peer implemented pivotal training strategy was indeed effective. Kuhn, Bodkin, Devlin and Doggett (2008), confirm that some peers with disabilities were able to implement successfully pivotal response training with children with ASD.

4.7.2 Peer Implemented Pivotal Response Training and Social Interactions

Teachers gave their views and observations on the extent to which they agreed with statements regarding the effects of peer implemented pivotal response training on social interactions of children with ASD. The responses given were based on the Likert scale through which the respondents rated the extent to which they agreed with the given
aspects which were indicators of the identified factor on a scale of 1 – 5 where (1 was strongly disagree and 5 was strongly agree). Table 4.9 presents the findings.

Table 4.9: Teachers’ Response on Using Peer Implemented Pivotal Response Training in Children with ASD (N = 37)

<table>
<thead>
<tr>
<th>Peer implemented pivotal response training activities children with ASD are involved</th>
<th>SD (1)</th>
<th>D (2)</th>
<th>N(3)</th>
<th>A (4)</th>
<th>SA (5)</th>
<th>Mean ± S. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The peer implemented pivotal response training is an effective method for improving children's social interactions</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>19</td>
<td>17</td>
<td>4.41 ± 0.64</td>
</tr>
<tr>
<td>When peer implemented pivotal response training is introduced, I noticed an increase in social interaction for my learners with ASD</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>19</td>
<td>17</td>
<td>4.43 ± 0.55</td>
</tr>
<tr>
<td>When peer implemented pivotal response training is introduced, I noticed a decrease in solitary behavior for my learners with ASD</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>19</td>
<td>12</td>
<td>4.11 ± 0.81</td>
</tr>
<tr>
<td>The children with ASD enjoy peer implemented pivotal response training activities to enable them enhance social interactions</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>12</td>
<td>4.24 ± 0.72</td>
</tr>
<tr>
<td>The children with ASD make new friends when peer implemented pivotal response training is introduced</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>17</td>
<td>16</td>
<td>4.36 ± 0.64</td>
</tr>
</tbody>
</table>
I would be willing to use peer implemented pivotal response training with children with ASD in my classes to enhance social interactions

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>23</th>
<th>14</th>
<th>4.38 ± 0.49</th>
</tr>
</thead>
<tbody>
<tr>
<td>The children with ASD understand how to initiate play to their friends’ social initiations during peer implemented pivotal response training</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>19</td>
<td>12</td>
<td>4.08 ± 0.89</td>
</tr>
<tr>
<td>The children with ASD respond to their friends' social initiations during peer implemented pivotal response training</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>19</td>
<td>12</td>
<td>4.11 ± 0.81</td>
</tr>
<tr>
<td>The children with ASD want to play more with their friends even after the peer implemented pivotal response training has been stopped</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>15</td>
<td>4.16 ± 0.93</td>
</tr>
</tbody>
</table>

Note: SD-strongly disagree, D-Disagree, N-neutral, A-Agree, SA-Strongly agree, S.Dev. - Standard deviation

As shown in Table 4.9, out of thirty-seven teachers, majority (97.3%) of the teachers agreed that peer implemented pivotal response approach was an effective strategy for improving social interactions in children with ASD. Majority (97.3%) of the teachers also agreed that when peer implement pivotal response training was used there was an increase in social interactions of learners with ASD. The study further revealed that all (100%) of the teachers were willing to use peer implemented pivotal response training approach with children with ASD in their classes to enhance social interactions. This
approach enabled children with ASD to participate well in varied activities both in class and outside class hence led to highly developed social skills.

More than three quarters (83.8%) of the teachers agreed that children with ASD were able to respond to their typically developing peers’ social initiations and reciprocated the advances of their friends’ positively. More than three quarters (83.8 %) of the teachers also agreed that the children with ASD responded well to their friends’ social interactions. The findings of this study revealed that more than three quarters (83.7%) of the teachers observed that children with ASD were willing to continue with the peer implemented pivotal response training activities with their friends even after the activities were stopped. This therefore was an indicator that peers implemented pivotal response training approach was an effective strategy in enhancing social interactions of children with ASD.

When peer implemented pivotal response training strategy was introduced to children with Autism Spectrum Disorders, teachers noted that it was an effective method for improving children with ASD social interactions (mean 4.41 ± 0.64), there was increase in social interactions of the children with ASD (mean 4.43 ± 0.55), teachers would be willing to use peer implemented pivotal response training with children with ASD in the classes to enhance social interactions (mean 4.38 ± 0.49), and the children with ASD made new friends (mean 4.36 ± 0.64) when peer implemented pivotal response training was introduced.
Two sets of children with ASD were taught to engage in a variety of complex social behaviors using peer-implemented pivotal response training (PRT), a set of procedures were designed to increase motivation and promote generalization. The researcher made observations on the same children with ASD in class for 30 minutes and outside class during P.E. lesson for another 30 minutes. This was after seeking permission from the parents of children with ASD to take pictures and videos of their children. The observation showed changes in behavior of the children with ASD in both sessions as shown in Plate 4.5 in (Appendix S) page 186.

As shown in Plate 4.5 in (Appendix S), typical peers were taught to implement PRT strategies by modeling and role playing. After training, peers implemented the procedures in the absence of direct supervision in a classroom environment. After the intervention, both children with ASD maintained prolonged interactions with the typically developing peers. They also initiated play, conversations, and had increased engagement in language and joint attention behaviors. In addition, teachers reported positive changes in social behavior, with the largest increases in peer-preferred social behavior both inside classroom and outside, in the field.

The researcher took pictures and video analysis of the children with ASD during peer implemented pivotal training strategy. This showed that outside class environment, the children with ASD were able to tighten their shoe laces, carryout the activities such as play by getting their individual free space for outdoor play, clapping hands and singing with others. During activities of daily living skills e.g. brushing teeth, washing hands and buttoning shirts/blouses, the typically developing peers demonstrated various activities as
the children with ASD observed and later performed the same activities in the same way. The results indicated that PRT is an effective strategy for enhancing social interactions in children with ASD.

The researcher further used interview schedules with the head teachers from all the five Sub-Counties in Migori County to enable her triangulate the findings of this study. Head teachers were asked to state some of the strategies that were used by teachers to promote social interactions of children with ASD in their schools and they had this to say:

“Teachers involve children with Autism in class activities with the typically developing children even in the outdoor activities”, (17th October 2017, Awendo Sub-County).

In terms of what they were doing to mitigate against these challenges, the head teachers had this to say:

“Once the teachers accept them, the peers will just adjust and accept them”, (17th October 2017, Kuria East Sub-County).

“In my school I do integration (mixing children with Autism with their typically developing peers), peer grouping and mediation. My teachers also use songs, poems and storytelling. They also use communication boards during communication skills lessons especially for non-verbal children with Autism”, (17th October 2017, Migori Sub-County).

"The teachers employ role play, gestures, use of language tree and involving learners in nature walk. They also use circles of friends, writing social stories and use of comic strip conversation among others”, (19th October 2017, Kuria West Sub-County).

“Teachers normally engage in counseling the typically developing children to accommodate the learners with Autism”, (19th October 2017, Migori Sub-County).

“I think trying to sensitize the whole community i.e. children and parents to have a positive attitude will help to deal with these children”, (19th October 2017, Awendo Sub-County).
“My teachers pair them in group works in co-curriculum activities, I also encourage teachers to attend learners with Autism, encourage teachers to involve them in group work and provide special needs infrastructure and again provide the child friendly environment”, (19th October 2017 Uriri).

“Strategies used by my teachers to promote social interactions in children with autism in my school include; use of songs, poems and storytelling. Another strategy includes the use of communication boards during communication skills lesson. Role play, gestures, use of language trees, involving learners in nature walk, use of circles of friends, writing social stories hand use of comic strip conversation among others”, (19th October 2017, Awendo Sub-County).

“To overcome the above challenges, my school organizes induction sessions for teachers on autism guided by the members trained in that field (capacity building at school level). Integration of some learners with Autism in regular classes has assisted in ensuring that these learners are accommodated in the available rooms. Use improvised equipment in school assists in the teaching / learning programmes. Swing and see-saw has always provided an alternative to hammock and trampoline which are rare to come by”, (19th October 2017, Migori Sub-County).

“They majorly use play activities especially during P.E lessons and they also use peer modeling to help the learner who is autistic”, (19th October 2017, Kuria East Sub-County).

“We have always highlighted such cases in our staff meeting. Parents are also sensitized during sports and other gathering so that they become positive”, (19th October 2017, Kuria West Sub-County).

The researcher interviewed each one of the EARC coordinators from the five Sub-Counties of Migori County. The coordinators gave their views on various aspects of peer mediated strategies and children with ASD in Migori County. They had the following to say:

Migori Sub-County, “I play a very significant role in enhancing social interactions of learners with Autism by sensitizing teachers about the needs of learners and their diversity as well to advise the stakeholders i.e. the KICD on the different categories of learners with sensory and neurological challenges”.

Kuria Sub-County, “I advise teachers on the need to cooperate with colleagues that is regular teachers should work together with specially trained teachers, to develop individualized educational programmes (I.E.P) for each and every learner according to their needs”.

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Awendo Sub-County, “government has a policy on training teachers in SNE and provides learning resources in schools”. The government also has policy on access to free education in an inclusive setting and there is allocation of additional capitation by the government for all learners with special needs in government schools. The government has put in place a policy that there should be no forced repetition of learners with special needs. Despite all these policies I advise the head teachers to make environment disability friendly, identify special needs of these learners and try to address their special needs appropriately”.

Uriri Sub-County, “the parents have a role of checking into the diet of learners with Autism to avoid any kind of food that can trigger challenging behavior. They should also be involved in monitoring those on medication and networking with their teachers on their health issues”.

Rongo Sub-County, “I encourage the head teachers to highlight Autism cases in the staff meetings and sensitize parents during sports days and parents meeting. In schools, the head teachers are encouraged to organize induction courses for teachers on autism guided by the members of staff trained in the area of Autism; that is capacity building at school level. They are advised to improvise equipment in the schools e.g. swings and see-saw and provide an alternative to hammock and trampoline which are rare to come by”.

Rongo Sub-County, “I encourage head teachers to request for funds from the C.D.F (Constituency Development Funds) and the Ministry of Education (MOE) to cater for the high enrolment by putting up infrastructure”.

The researcher also organized FGD for parents of children with ASD in Migori County. Five parents participated in the Focus Group Discussion whereby each parent was sampled from each Sub-County using simple random sampling technique. In each Sub-County, the researcher used pieces of paper whereby one piece of paper was written ‘YES’ and the rest were written ‘NO’. The parent who picked the piece of paper written ‘YES’ was selected to participate in FGD. Therefore, five parents participated instead of six because one Sub-County was used for piloting hence not included in the main study.

Concerning peer mediated strategies and enhanced social interactions, parents with children with ASD stated that:
Parent A, “my child does minimally initiate play with their typically developing peers”. They rarely initiated conversation with their peers”.

Parent B, “my child when playing is able to have a prolonged interaction with the typically developing peers”.

Parent C, “I have noted that when my child was exposed to role play, he was able to demonstrate the same activity very well”. This child was able to model what his typically developing peers were doing in skills like activities of daily living such as bathing, brushing teeth and independent toileting among others”.

Parent D, “my child with Autism initiated play to their friends’ social initiations during peer implement pivotal response training where she copied what peers did and she did the same e.g. kicking balls. In response to her friends’ social initiations during peer implemented pivotal response training, she was able to imitate what friends did, said and were able to perform some activities through imitation”.

Parent E, “the head teachers should encourage teachers to attend to learners with Autism and involve them in group work and sporting activities. He also observed that the school heads encouraged and did sensitization on the learners with Autism. Once the teachers accepted them, the other learners also accepted them”.

4.7.3 Relationship between Peer Implemented Pivotal Response Training Approach and Enhanced Social Interactions

Teachers’ opinions on peer implemented pivotal response training effect on children with Autism Spectrum Disorders were rated on a Likert scale of 1 – 5 (1-strongly disagree – 5-strongly agree). Teachers’ views on nine items of peer implemented pivotal response training strategy were computed for the overall summation score. The maximum score for peer implemented pivotal response training was 45 while the minimum was 9. This overall score was used for a Pearson moment correlation analysis to establish the effect of peer implemented pivotal response training approach on enhanced social interactions in children with ASD.
The study had hypothesized H\(^1\) there is a relationship between peer implemented pivotal response training and enhanced social interactions of children with Autism Spectrum Disorders in Migori County. In order to find out whether there was an association between effects of peer implemented pivotal response training strategy and enhanced social interactions, the Chi-square test was then performed and the findings presented in Table 4.10.

**Table 4.10: Chi-square test on effects of peer implemented pivotal response Training and enhanced social interactions of children with ASD**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>41.446(a)</td>
<td>40</td>
<td>.407</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>38.281</td>
<td>40</td>
<td>.548</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>8.243</td>
<td>1</td>
<td>.004</td>
</tr>
</tbody>
</table>

Association  
N of Valid Cases 36

**Note:** A 55 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

As shown in the Table 4.10, the computed Chi-square coefficient (X\(^2\) = 41.446) was not statistically significant because the P-value= 0.407 is above the 0.05 alpha level. The hypothesis that there is a relationship between peer implemented pivotal response training and enhanced social interaction in children with Autism Spectrum Disorders in Migori County, was rejected. This led to the conclusion that the use of peer implemented pivotal response training strategy was not significantly related to enhanced social interactions of children with ASD. This negates the earlier findings which showed that
enhanced social interactions were significantly higher when peer implemented pivotal response training was used with children with ASD.

4.8 Enhanced Social Interactions

The dependent variable for this study was social interactions. The researcher therefore grouped each independent variable with a group of activities that enhanced social interactions. The following activities presented in Figure 4.7 and Plate 4.5 were activities that children with ASD performed during play activities to show enhanced social interactions.

Figure 4.7: Teachers Responses on Activities that Learners with ASD Performed during Play Activities to show Enhanced Social Interaction (N= 37)
Note: More than one response of the activity was recorded

Figure 4.7 presented activities that the learners with Autism Spectrum Disorders performed during play to show enhanced social interactions. These were singing, dancing, running from one point to another, jumping, skipping with a rope, playing
football, swinging, role play and cat and mouse game, in that order of preference. Almost two-thirds (64.86%) of the teachers ranked singing at position one, hence the most preferred play activity by children with ASD. This was followed by dancing, ranked at position two by slightly more than a quarter (29.73%) of the teachers. Running from one point to another was ranked third by slightly less than a quarter (24.32%) of the teachers. At position four was jumping as was ranked by slightly more than a tenth (13.51%) of the teachers. This was followed by skipping with a rope which was ranked at position six by a tenth (10.81%) of the teachers. Others which tied at position seven were: playing football, swinging and role play as ranked by very few (8.11%) of the teachers. At position eight was cat and mouse game as ranked by very few (5.41%) of the teachers.

Plate 4.6 in (Appendix T) showed that during indoor (in class) activities, all the children with Autism Spectrum Disorders appeared to lack intuition and were naive. They lacked an anticipatory response, lacked empathy (i.e. the intuitive understanding of another person’s feelings), treated strangers the same as familiar people (will go with or hug a stranger without question) and they had little or no meaningful eye-contact. It was observed that in the classroom, none of the children with ASD made and maintained friends, described friendship in an age appropriate manner and none of them had the give and take of conversation. These children were not able to “tune into” the class and the social environment and were easily distracted by others in classroom (visual or auditory stimuli). During outdoor activities they showed enhanced social interactions as shown in plate 4.6 in (Appendix T) page 187.
The findings of this study concur with Ayvazo (2010), Bass and Mulick (2007), that children with Autism Spectrum Disorders engage in less social interactions towards their peers and, as a result, they ended up being isolated and excluded from peers due to social skills deficits such as impaired communication and failure to build and sustain peer relationships. Using peer buddy approach as a strategy to enhance social interactions, the following activities presented in Figure 4.8 were carried out.

Figure 4.8: Teachers’ Response on Activities Performed during Peer Buddy approach to show Enhanced Social Interactions of Children with ASD (N = 37)

*Note: More than one response of the activity was recorded*

Using peer buddy approach, learners engaged in singing, playing hide and seek, running, jumping, kicking balls, modeling, story-telling, arranging chairs, and reading letters of alphabet, in that order of preference. Figure 4.8 and Plate 4.7 (Appendix Q) presents the
activities that learner with ASD performed using peer network strategies. Majority (32.43%) of the teachers’ ranked singing at position one being the most preferred activity followed by playing hide and seek which was ranked at position two by about a quarter (24.32%) of the teachers. In position three, the most preferred activity by children with ASD was running as ranked by less than a quarter (18.92%) of the teachers. At position four were: jumping, kicking balls and modeling; ranked by less than a quarter (16.22%) of the teachers. Finally, at position five were storytelling, arranging chairs, and reading letters of alphabet as ranked by very few (8.11%) of the teachers.

Figure 4.9: Teachers’ Responses on Activities Undertaken Using Peer Network Strategies to Show Enhanced Social Interactions (N = 37)

Note: More than one response of the activity was recorded

As shown in Figure 4.9, when using peer networks strategies, learners with Autism Spectrum Disorders preferred to participate in fetching water, singing, cleaning utensils, dancing, collecting firewood and herding animals. More than a quarter (29.5%) of the teachers’ ranked fetching water at position one being the most preferred activity by children with ASD. This was followed closely by singing which was ranked by more than
a quarter (27%) of the teachers at position two. Third position activities were: cleaning, dancing, collecting firewood and herding animals as preferred by children with ASD as indicated by slightly more than a tenth (14%) of the teachers. Other activities which were least preferred by children with ASD were: modeling and poultry feeding, playing hide and seek, cooking, attending church services, running and storytelling, in that order of preference as ranked by very few teachers.

In the sampled schools with children with Autism Spectrum Disorders, the researcher made observations for 30 minutes in the classroom and 30 minutes outside the classroom, when children with ASD were playing with their typically developing peers. This was done after seeking permission from parents of the children with ASD. This focused on the behavior of the children and the activities they enjoyed most as shown in Plate 4.7 (Appendix Q) page 187.

During peer implemented pivotal response training to show enhanced social interactions, children with ASD were mainly involved in bathing, brushing teeth, running and shoe lacing. However, observation of the children with ASD during outdoor activities showed that all of the children with ASD treated strangers the same way as familiar people (will go with or hug a stranger). It was observed that few children with ASD appeared to lack intuition and were naive. A quarter of the children with ASD described friendship in an age appropriate manner, lacked anticipatory response while a similar number had little or no meaningful eye-contact because they appeared to stare or had a blank look. Figure 4.10 presented activities children with ASD participated in using peer implemented pivotal response training strategy to show enhanced social interactions.
Figure 4.10: Teachers’ Responses on Using Peer Implemented Pivotal Response Training Strategy Activities (N= 37)

*Note: More than one response of the activity was recorded*

Figure 4.10 shows teachers’ responses on using peer implemented pivotal response training strategy activities. More than a quarter (29.5%) of the teachers ranked bathing at position one of the most preferred activity by children with ASD. This was followed by brushing teeth which was ranked at position two as indicated by less than a quarter (18%) of the teachers. The rest of the activities in order of preference by the children with ASD were: running, shoe lacing, cooking, dressing, playing with toys, sweeping, buttoning clothes, writing or copying, role play, combing hair, and spreading the bed as indicated by less than a quarter of the teachers.

Video analysis showed that children with Autism Spectrum Disorders participated in running as in ‘a cat and mouse’ game chasing each other and clapped hand as they played together. Observed activities among children with ASD when they were in the classroom
setting were: always withdrawn, did not concentrate in class activities, low self-esteem, easily distracted and had poor eye-contact. They were not in touch with what was going on around them, not attentive to the lesson’s activities and sometimes were able to do well in repetitive activities. Children with ASD did not look at the teacher directly in the eyes or the chalk wall. They were always seated with the head down and refused to share learning materials with peers. On the other hand, during outdoor activities children with ASD were able to play in group activities, open up to play activities, were also able to call others by name during play and shared play things. The children with ASD were able to interact well with their typically developing peers during play.

4.9 Multiple Linear Regression Model of this Study

The study sought to establish peer-mediated strategies used in enhancing social interactions of children with Autism Spectrum Disorders. This study used a multiple linear regression analysis to establish the effect of Play activities, Peer buddy approach, Peer network and Peer implemented pivotal response training on the social interactions of children with ASD. This study used the model:

\[ Y = \text{constant} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \]

Where \( Y \) = Enhanced social interaction

\( X_1 = \) Play activities approach
\( X_2 = \) Peer buddy approach
\( X_3 = \) Peer network approach
\( X_4 = \) Peer implemented pivotal response training

\( \beta = \) is the beta coefficient of Independent Variables
\( \varepsilon = \) Error term
To achieve this, a multiple linear regression was done on the following indicators of peer mediated strategies: play activities, peer buddy approach, peer network and peer implemented pivotal response training. Table 4.11 presents the findings.

### Table 4.11: Results of Multi-linear Regression of Peer-Mediated Strategies against Enhanced Social Interactions of children with ASD

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>2.132</td>
<td>3.772</td>
<td>.565</td>
<td>.576</td>
</tr>
<tr>
<td>Overall play activities</td>
<td>.012</td>
<td>.167</td>
<td>-.021</td>
<td>-.073</td>
</tr>
<tr>
<td>Overall peer buddy approach</td>
<td>.035</td>
<td>.174</td>
<td>-.055</td>
<td>-.199</td>
</tr>
<tr>
<td>Overall peer networks</td>
<td>.029</td>
<td>.132</td>
<td>.067</td>
<td>.220</td>
</tr>
<tr>
<td>Overall peer Implemented pivotal response training</td>
<td>-.211</td>
<td>.130</td>
<td>.330</td>
<td>1.619</td>
</tr>
</tbody>
</table>

**Note: Dependent Variable: Overall Enhanced social interactions**

The established combined multiple linear regression equation becomes:

\[
Y = 2.132 + 0.012 X_1 + 0.035 X_2 + 0.029X_3 - 0.211X_4 + ...... 
\]

Table 4.11 shows that peer-mediated strategies such as play activities, peer buddy approach and peer networks had positive coefficients. On the other hand, the use of peer implemented pivotal response training had negative coefficient. This implies that the variables with positive coefficients (play activities, peer buddy approach and peer network approach) were directly proportional to enhanced social interactions and vice versa; that is, the more teachers applied those variables with positive coefficients, the more these strategies led to increase in social interactions. The variable with negative
coefficient (peer implemented pivotal response training) led to minimal social interactions in children with ASD.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five provides a summary of the study findings based on the objectives, conclusions, policy recommendations as well as recommendations for further research.

5.2 Summary of the Main Findings

This study was conducted to establish the influence of peer-mediated strategies for enhancing social interactions of children with Autism Spectrum Disorders in public primary schools in Migori County, Kenya. Descriptive survey design was adopted and collected data were analyzed qualitatively and quantitatively. The following were the summary of this study findings based on the study objectives:

5.2.1 Objective one: Sought to evaluate peer-mediated strategies used by teachers to enhance social interactions of children with Autism Spectrum Disorders in Migori County. This study, in summary established that some of the peer-mediated activities that were used by teachers in schools when dealing with children with ASD included singing, dancing, running/athletics, ball games, modeling letters and role play. In summary, majority of the teachers encouraged children with ASD to play in outdoor activities with their typically developing peers. The findings further revealed that majority of teachers’ limited children with ASD from staying alone and being withdrawn by assigning those roles to play with their typically developing peers. When peer-mediated strategies were used in schools serving children with ASD, majority of the teachers noted enhanced social interactions. The researcher equally observed improved social interactions in
children with ASD when peer-mediated strategies were used. The children with ASD could play with ropes, run around the field, jump and sing. Children with ASD had persistent social initiations from typically developing peers hence increased social response and social engagement as opposed to when carrying out classroom assignments alone. During FGD, parents in their summary findings also confirmed that their children with ASD showed improved social interactions as they were able to engage with their typically developing peers in singing, dancing and running. When interviewed, head teachers and EARC coordinators, further summed up that peer-mediated strategies enhanced social interactions of children with ASD.

5.2.2 Objective two: Investigated the extent to which play activities enhanced social interactions of children with Autism Spectrum Disorders in Migori County, majority of the teachers summed that children with ASD were mainly involved in running/athletics and singing. This was supported by parents during FGD when they said that their children were able to initiate play with their typically developing peers. When the researcher interviewed head teachers and EARC coordinators, they also, in summation confirmed the same results that children with ASD were able to play with their typically developing peers. During observation, the researcher, in synopsis confirmed that children with ASD were able to play with their typically developing peers during P.E. lessons but when in classroom setting, they remained aloof. Therefore, when play activities were introduced to children with ASD, there was increase in social interactions with their typically developing peers, hence a decrease in solitary behavior. The main finding of this objective was that play activities were found to enhance social interactions of children with ASD.
5.2.3 Objective three: Sought to establish the role of peer buddy approach on social interactions of children with Autism Spectrum Disorders, in Migori County. The summary of the findings indicated that when using peer buddy approach with children with ASD, teachers noted that the activities they participated in were mainly: singing, running/athletics, kicking balls and dancing in order of preference. Majority of teachers agreed that peer buddy approach was an effective strategy in improving social interactions of children with ASD. Teachers also, in summary noted that when peer buddy approach was used, there was a decrease in solitary behavior in children with ASD. The children with ASD enjoyed having peer buddies leading to enhanced social interactions. During observation, the researcher noted that children with ASD engaged better with their cycles of friends. Parents of the children with ASD during FGD also, in summation, confirmed the same that their children were able to go to their friends’ homes to play. The head teachers interviewed, in concurrence summed up that children with ASD had friends to play with, talk to and even walk with as they went home after school. This therefore was an indication that peer buddy approach was an effective strategy in enhancing social interactions of children with ASD.

5.2.4 Objective four: Sought to find out the effect of peer networks on social interactions of children with Autism Spectrum Disorders, in Migori County. In summation, teachers cited the following activities that children with ASD were involved in during peer network, in order of priority: washing clothes, fetching water and collecting firewood among others. In summary, teachers agreed that peer network approach was an effective strategy for improving social interactions of children with ASD as they were able to participate well in a myriad of activities both in class and outside class leading to highly
developed social skills. They asserted that when peer network approach was used there was increase in social interactions of children with ASD. The teachers were willing to use peer network approach with children with ASD in their classes to enhance social interactions. The researcher during observation summarized that children with ASD were always in the company of their peer networks as they walked and played together. This was supported by the parents of children with ASD during FGD as they reported that their children had specific friends they played with, and even visited at home. An interview with the head teachers also confirmed the same as they summed up that the children with ASD were always in company of particular friends and played in designated areas in the school compound. In summary, this study finding revealed that peer network approach is an effective strategy in enhancing social interactions of children with ASD.

5.2.5 Objective five: Sought to investigate peer implemented pivotal response training in enhancing social interactions of children with Autism Spectrum Disorder in Migori County. The summarized findings were that when dealing with children with ASD, activities used in peer implemented pivotal response training were mainly; brushing of the teeth, tying shoe laces, bathing, singing, washing clothes and utensils, playing with balls and toys and dressing up, in order of preference. Teachers in summary confirmed that the children with ASD showed positive change in social behavior, with the largest increases in peer-preferred social behavior both inside classroom and in the field. The researcher during observation using video analysis of the children’s PRT summarized that in outside class environment, children with ASD were able to tighten their shoe laces, carryout various activities by modeling the peers such as clapping hands and
singing with others. The children with ASD during activities for daily living skills observed their typically developing peers perform various activities and later performed the same activities in the same way but with challenges. The head teachers and EARC coordinators, during an interview also summed up those children with ASD were able to emulate what their typically developing peers did but not exactly the same way because of their poor eye gaze.

5.3 Conclusions

Based on this study finding, the following conclusions were made:

i. For objective one, it was concluded that peer-mediated strategies used by teachers in schools in Migori County when dealing with children with Autism Spectrum Disorders included activities such as singing, dancing, running/athletics, ball games, modeling letters and role play. The findings concluded that teachers limited children with ASD from staying alone and being withdrawn by assigning them roles to play with their typically developing peers. Teachers also encouraged the children with ASD to play in outdoor activities with typically developing peers. Therefore, with peer-mediated strategies, the researcher concluded that there were improved social interactions in children with ASD as they could play with ropes, run around the field, jump and sing. Head teachers and EARC coordinators, when interviewed also concluded that peer mediated strategies enhanced social interactions of children with ASD. Based on the findings of this study that social interactions were a major challenge for children with ASD, it was concluded that peer-mediated strategies enhanced social interactions in children with ASD in Migori County.
ii. According to the findings based on objective two on play activities enhancing social interactions of children with Autism Spectrum Disorders in Migori County, it was concluded that children with ASD had difficulties engaging fully with typically developing peers in the classroom setting. During observation, the researcher also concluded that children with ASD were able to play with their typically developing peers during P.E. lessons but when in classroom setting, they remained aloof. Therefore, when play activities were introduced to children with ASD, there was an increase in social interactions with their typically developing peers, hence a decrease in solitary behavior. From this study, it can be concluded that it is important to teach the child to play with others because through social play, the child can learn about other people, obvious skills, compromising, negotiation and cooperating, tasks and perspectives of the world. This study, therefore, concluded that when children with ASD were subjected to play activities, all participants nearly doubled the amount of social interactions with their typically developing peers. The behavior gains were due to treatment and that play activities were effective in enhancing social interactions in children with ASD.

iii. Objective three of this study focused on peer buddy approach enhancing social interactions of children with Autism Spectrum Disorders in Migori County. The findings concluded that when using peer buddy approach with children with ASD, teachers noted that the activities children with ASD participated in were mainly: singing, running/athletics, kicking balls and dancing in order of preference. The
findings of this study concluded that when peer buddy approach was used, there was a decrease in solitary behavior in children with ASD as they enjoyed having peer buddies leading to enhanced social interactions. This study also concluded that peer-buddy approach increased social interactions of children with ASD with their typically developing peers hence was an effective strategy in improving social interactions of children with ASD. In conclusion, peer buddy approach increased social interactions levels of children with ASD and consequently improved social interactions of the typically developing peers even with other children.

iv. Objective four of this study focused on peer networks strategy on social interactions of children with Autism Spectrum Disorders in Migori County. Teachers concluded that the activities that children with ASD were involved in during peer network, in order of priority, were washing clothes, fetching water and collecting firewood among others. It was also concluded by teachers that when the preferential seating position was considered in terms of friendship, then the children with ASD could benefit in classroom activities too. The researcher’s conclusion was that peer networks approach worked better in outdoor activities. This study finding concluded that peer networks approach was an effective strategy for improving social interactions of children with ASD. The children with ASD were able to participate well in a myriad of activities both in class and outside class, leading to highly developed social skills.
v. Objective five of this study focused on peer implemented pivotal response training in enhancing social interactions of children with Autism Spectrum Disorders in Migori County. It was concluded that when dealing with children with ASD, activities used in peer implemented pivotal response training were mainly brushing of the teeth, tying shoe laces, bathing, singing, washing clothes and utensils, playing with balls and toys and dressing up, in order of preference. This study finding concluded that during activities for daily living skills, the typically developing peers performed various activities as children with ASD observed and later tried to perform the same activities in the same way but with challenges due to their poor eye gaze. From the findings of this study, it was concluded that peer implemented pivotal response training had minimal effect on enhanced social interactions of children with ASD and that there was need for more training for peers as role models.

5.4 Recommendations

Based on the findings of this study, the following recommendations were made:

5.4.1 Policy Recommendations

i. The researcher recommends that policy makers, KICD, Teachers Service Commission and Ministry of Education should work together to develop programmes for inclusion of children with ASD in the regular curriculum.

ii. The researcher recommends that children with ASD should be allowed to learn at their own pace and interest hence their curriculum should not be examination oriented but competence based.
iii. The researcher recommends that Ministry of Education through public training and sensitization should increase knowledge on peer-mediated strategies used in enhancing social interactions in children with ASD, to promote provision of appropriate advice, care and treatment for children with ASD.

iv. The researcher recommends that parents of children with ASD should be trained on peer-mediated strategies which they can use with their children with ASD to enhance social interactions at home.

v. The researcher recommends that teachers should incorporate peer mediated strategies in their teaching to help children with ASD enhance their social interactions culminating in improved academic achievement.

vi. The researcher recommends that Teacher Training Institutions and Universities should incorporate peer-mediated strategies enhancing social interactions in children with ASD in their curriculum to promote the policy of inclusion.

5.4.2 Recommendations for Further Research

i. The present study focused only on one county which was Migori County, future research should be conducted in all the counties in Kenya on peer-mediated strategies in enhancing social interactions of children with Autism Spectrum Disorders.

ii. In the present study, generalization of data was limited due to instrumentation since the instruments used by the researcher were locally prepared hence not standardized. Future research should employ standardized instruments to ensure generalization of the study findings.
iii. The study did not cover all areas of need among children with Autism Spectrum Disorders such as deficits in adaptive behavior and deficits in communication skills, therefore future research should consider other areas of functioning in children with ASD.
REFERENCES


http://doi.org/10.1177/10983007060080020201


This study aims to provide information on how peer-mediated strategies can enhance social interaction in learners with autism in Migori County. The questions are for research purposes only and the response will be treated with confidentiality it deserves.

Date ______________________

Sub County: ___________________________

Questionnaire number: ________________

Section A: Respondent’s Background

School ___________________________  Sub-County ___________________________

Division ___________________________  Zone ___________________________

Age ___________________________  Gender ___________________________

Section B: Play Activities

(a) While dealing with children with autism using play activities, list any three play activities they enjoy.

i) ..............................................................................................................................

ii) ............................................................................................................................

iii) ..........................................................................................................................
b) Please indicate your level of agreement on the following statement. Strongly Disagree (SD), Disagree (D), Neutral (N). Agree (A), Strongly Agree (SA).

Tick only one response for each statement

<table>
<thead>
<tr>
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<tr>
<td>When play activities are introduced, I have noticed a decrease in solitary behavior for my learners with autism</td>
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</tr>
<tr>
<td>When play activities are introduced, children with autism enjoy interacting with typically developing peers</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>The children with autism make new friends during play activities</td>
<td></td>
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<tr>
<td>I would be willing to use the peer activities strategy with children with autism in my classes to enhance social interaction</td>
<td></td>
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</tbody>
</table>
The children with autism understand how to initiate play to their friends social initiations during play activities

The children with autism respond to their friends social initiations during play activities

The children with autism want to play more with their friends even after the play activity ended.

**Section C: Peer Buddy Approach**

(a) When using Peer buddy Approach with your learners with autism, list any three activities they participate in.

i) ........................................... .................................................................................................

ii) .............................................................................................................................................

iii) .............................................................................................................................................

b) Please indicate your level of agreement on the following statement. Strongly Disagree (SD), Disagree (D), Neutral (N). Agree (A), Strongly Agree (SA).
Tick only one response for each statement

<table>
<thead>
<tr>
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<td>When peer buddy approach is introduced, I noticed an increase in social interaction for my learners with autism</td>
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<tr>
<td>When peer buddy approach is introduced, I noticed a decrease in solitary behavior for my children with autism</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The children with autism enjoy having peer buddies to enhance social interaction</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>The children with autism make new friends when peer buddy approach is introduced</td>
<td></td>
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</tr>
<tr>
<td>I would be willing to use the peer buddy approach with my classes in to</td>
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<tr>
<td>enhance social interaction</td>
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<td>----------------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>The children understand how to initiate play and respond to their friends social initiations during peer buddy interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The children want to play more with their friends even after the peer buddy has been removed</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Section D: Peer Networks

(a) While dealing with children with autism using peer networks, list any three activities you can involve them in.

i) ........................................................................................................................................

ii) ......................................................................................................................................

iii) ......................................................................................................................................

b) Please indicate your level of agreement on the following statement. Strongly Disagree (SD), Disagree (D), Neutral (N). Agree (A), Strongly Agree (SA).
Tick only one response for each statement

<table>
<thead>
<tr>
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</thead>
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<tr>
<td>When peer networks approach is introduced, I noticed an increase in social interaction for my learners with autism</td>
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<tr>
<td>When peer networks approach is introduced, I noticed a decrease in solitary behavior for my learners with autism</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>The children with autism enjoy having peer networks to enhance their social interaction</td>
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<td></td>
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</tr>
<tr>
<td>The children with autism make new friends when peer networks approach is introduced</td>
<td></td>
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<tr>
<td>I would be willing to use the peer networks approach with children</td>
<td></td>
<td></td>
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</table>
with autism in my classes to enhance social interaction

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
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<th>Agree</th>
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<tbody>
<tr>
<td>The children with autism understand how to initiate play and respond to their friends social initiations during peer network interactions</td>
<td></td>
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<td>The children with autism respond to their friends social initiations during peer network interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The children with autism want to play more with their friends even after the peer networks approach has been stopped</td>
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</tbody>
</table>

Section E: Peer Implemented Pivotal Response Training
(a) While dealing with children with autism, list any three activities used in pivotal response training

i) ..............................................................................................................................................................

ii) ...............................................................................................................................................................

iii) ...............................................................................................................................................................

(b) Please indicate your level of agreement on the following statement. Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA).

**Tick only one response for each statement**

<table>
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<td>When peer implemented pivotal response training is introduced, I</td>
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</table>
noticed a decrease in solitary behavior for my learners with autism

The children with autism enjoy peer implemented pivotal response training activities to enable them enhance social interactions

The children with autism make new friends when peer implemented pivotal response training is introduced

I would be willing to use peer implemented pivotal response training with children with autism in my classes to enhance social interactions

The children with autism understand how to initiate play to their friends social initiations during peer implemented pivotal response training

The children with autism respond to their friends' social initiations during
The children with autism want to play more with their friends even after the peer implemented pivotal response training has been stopped.

Section F: Peer-Mediated Strategies implemented in Migori County

(a) When implementing peer-mediated strategies in your school when dealing with children with autism list any three of the activities which you can use

i) ..............................................................................................................................................

ii) ..............................................................................................................................................

iii) ..............................................................................................................................................

(b) Please indicate your level of agreement on the following statement. Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA).

Tick only one response for each statement

<table>
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<th>Neutral</th>
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<th>Strongly agree</th>
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</thead>
<tbody>
<tr>
<td>I encourage children with autism to play outside with typically developing peers</td>
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<tr>
<td>I encourage physical activities among the children with autism</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I limit children with autism staying alone by assigning them roles to play with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>typically developing children</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>--------------------------------</td>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I limit children with autism staying withdrawn by assigning them roles to play with typically developing children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I focus on assisting children with autism to develop their basic learning skills by putting them in groups with typically developing peers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I encourage children with autism to pair with friends to decrease solitary behavior.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section G - Enhanced Social Interactions**

1. List three activities that the learners with autism performed during play to show enhanced social interaction:

   a) ________________________________

   b) ________________________________

   c) ________________________________

2. List three activities that the learners with autism performed during peer buddy approach to show enhanced social interaction:

   a) ________________________________

   b) ________________________________

   c) ________________________________

3. When using peer networks strategy, which are the three activities the learners with autism preferred to participate in to show enhanced strategy
4. List three activities that the learners with autism performed during peer-implemented pivotal response training to show enhanced social interaction:

a) ........................................

b) ........................................

c) ........................................

Thank you for your time!
APPENDIX B: INTERVIEW GUIDE FOR EDUCATIONAL ASSESSMENT AND RESOURCE CENTRE COORDINATOR

Section A: Respondent’s Background

Date _____________________                  Sub County: _______________________________

Questionnaire number: _____________________Age----------------- Gender……

Section B: Curriculum, Government Policies, Environment, Degree of Autism and Role of Family

1. What role do you play in the development of the curriculum for learners with special needs?

2. What advice do you give to teachers in curriculum implementation for learners with autism?

3. List three government policies that govern children with special needs especially those with autism in Kenya.

4. To ensure the environment is conducive for learners with special needs, list some pieces of advice that you can give to the head teachers?

5. From your assessment records, how many children with autism are served in the regular schools in this Sub-County?

6. What is the severity of autism in children served in the above schools?

7. Explain three roles played by parents of children with autism in their livelihood and schooling.

Thank you for your time
APPENDIX C: INTERVIEW GUIDE FOR HEAD TEACHERS

SECTION A

Date-----------------------------

School-----------------------------

Questionnaire Number-------------

SECTION B

INSTRUCTION: Please discuss the questions below

1. In your opinion what is the impact of play activities among learners with autism in your school?

2. Do you have specially trained teachers for learners with autism?

3. What are some of the strategies that are used by your teachers to promote social interaction in children with autism in your school?

4. When the peer-mediated strategies are introduced, have you noticed any improvement in social interactions in your learners with autism?

5. What is the attitude of parents of typically developing children, when their children play with children with autism?

6. What challenges do you face in your school when including children with autism with typically developing children?

7. What are you doing about these challenges?

Thank you for your time!!!!
APPENDIX D: FOCUS GROUP DISCUSSION GUIDE

FOCUS GROUP DISCUSSION GUIDE FOR PARENTS

SECTION A

Date-----------------

School--------------------------

Sub-County------------------------

Focus Group Discussion Number------

SECTION B

INSTRUCTION: Please discuss the questions below

A. Play Activities

1. Do you have other typically developing children?

2. Does your child with autism play with his/her siblings at home?

3. When your child is paired with typically developing children, have you noticed any improvement in his/her social interaction?

4. How would you rate the level of social interaction in your child with autism during play activities? (Fair, Good, Excellent)

5. What are some of the observable abilities of your child with autism in regard to his/her responses to the friend's initiations during play activities?
B. Peer Buddy Approach

6. Is your child able to form meaningful relationship with other children in the community e.g. church, home e.t.c?

7. When your child was assigned a friend to sit with, play with and talk to, have you noticed an improvement in social interaction?

8. What are some of the noticeable increase in social interaction in your child with autism when peer buddy approach is introduced?

C. Peer Networks

9. Does your child struggle with peer relationship?

10. Is your child able to start friendship?

11. Is your child able to maintain friendship?

12. What are some of the elements of decrease in solitary behavior for students with autism when peer networks approach is introduced?

13. Are you aware of any peer social networks that your child has?

D. Peer-Implement Pivotal Response Training

14. Does your child initiate play with his/her typically developing peers?

15. Does your child initiate conservation with his/her peers?

16. Is he/she able to have a prolonged interaction with the typically developing peers?

17. When your child is exposed to role play, is he/she able to demonstrate the same activity?

18. Is your child able to model what his/her typically developing peers?

19. How does your child with autism initiate play to their friends’ social initiations during peer implement Pivotal Response Training?
20. How does your child with autism respond to their friends’ social initiations during Peer Implemented Pivotal Response Training?

Thank you for your time
APPENDIX E: OBSERVATION CHECKLIST FOR PUPILS

OBSERVATION CHECKLIST FOR PUPILS

SECTION A

Date-----------------------------

School--------------------------

Observation Checklist Number-------------------

SECTION B

SOCIAL INTERACTIONS

The pupil displays difficulties or differences or both in interacting with peers and events.
The pupil may be unable to establish and maintain reciprocal relationships with peers.
The child may seek consistency in environmental events to the point of exhibiting rigidity in routines.

Instructions: When a pupil will perform any of the behaviors, the observer will put a tick in Yes (Y) or No (N) and comment on the extent the behavior is exhibited.

<table>
<thead>
<tr>
<th>Pupil Behavior</th>
<th>YES</th>
<th>NO</th>
<th>Comments on the extent of specific behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiating and responding both verbally and non-verbally to bids of others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Displaying joint attention both emotionally and physically (share accomplishments, interests or enjoyment of an activity with others)

Reciprocal interactions are either not present or are extremely limited to very concrete subjects; interactions are used to get what the child wants (i.e. takes a toy from a peer, but makes no attempt to interact with peer after that)

Make and maintaining friends

Play tends to be unimaginative, repetitive, or solitary

Describe friendship in an age appropriate manner

Follow the give and take of conversation

Can be withdrawn or talk to self, or continue a running commentary or
<p>| monologue, does not notice if others are listening |  |
| Is able to “tune into” the class and the social environment, not easily distracted by others in classroom (visual or auditory stimuli) |  |
| Mixing with or playing with peers (may interact more readily with adults) |  |
| Flexible within play themes (i.e. follow own set play sequence without deviating from routine) |  |
| Very rule bound, may remind others of rules; may “police” others’ behavior |  |
| Appears to be more interested in objects than people, completely avoids social contact with others |  |
| Great difficulty responding to consolation from others |  |</p>
<table>
<thead>
<tr>
<th>Great difficulty in understanding another’s perspective</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Expects others to know his/her thoughts, experiences and opinions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appears to lack intuition, appearing naïve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacks an anticipatory response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates difficulty learning and using rules of social interaction. Does not understand the implications of social behavior or conventions, or codes of conduct; may make statements, demonstrate behavior that is offensive to others, say things that are socially inappropriate (i.e. “you’re fat” or “you’re really old”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacks empathy (i.e. the intuitive understanding of another person’s feelings)</td>
<td></td>
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<tr>
<td>Needs excessive reassurance, especially if things are changed or go wrong</td>
<td></td>
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<tr>
<td>--------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is indifferent to peer pressure, does not follow crazes or understand current trendy language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not like to participate in competitive sports, games or activities</td>
<td></td>
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<tr>
<td>Treats strangers the same as familiar people (will go with or hug a stranger without question)</td>
<td></td>
<td></td>
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<tr>
<td>Little or no meaningful eye contact, appears to stare, blank look</td>
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<td></td>
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<tr>
<td>Complete disregard or lack of appreciation of danger (i.e. running into the street, climbing up on high cupboards, touching hot stove etc.)</td>
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</tbody>
</table>

**Additional Comments:**

................................................................................................................................

................................................................................................................................

**Thank you for your time**
APPENDIX G: RESPONDENTS INFORMED CONSENT

My name is Joyce Achieng Ogogo. I am a Ph.D. in Special Needs Education (Autism) student from Kenyatta University. I propose to conduct a study on “Peer-mediated Support Strategies for Enhancing Social Interaction Skills of Children with Autism Spectrum Disorders in Public Primary schools in Migori County Kenya.”

The information will be used by the Ministry of Education and relevant stakeholders to improve the pupils’ academic performance especially learners with autism in entire regular primary school setting in Kenya due to enhanced social interaction.

Procedures to be followed

Participation in this study will require that I give questionnaires to the teachers and Educational Assessment and Resource Centre Officers to fill. I will also interview the head teachers of the sampled schools and parents will be involved in focus group discussion while the pupils with autism and their typically developing peers are observed during outdoor and in the classroom activities as I taken videos and pictures. You have the right to refuse participation in this study without any penalties. You will get the same treatment you will have received whether participated or not. Participation in this study is voluntary. You may ask questions related to this study at any time. You may refuse to respond to any question or stop being in the study without any consequences now and in the future.

Discomforts and risks

Some of the questions in the questionnaire you may find uncomfortable. You may refuse to answer these questions if you so wish. Answering this questionnaire may take your thirty minutes before you resume your routine services.
**Benefits**

If you participate in this study, you will help fellow teachers and other relevant stakeholders to realize enhanced social interaction in the learning environment in teaching and learning process as well as the community at large. This will help pupils with ASD acquire good results in academic as a result of enhanced social skills. The entire field of ASD will also learn from the results of this study peer-mediated support strategies enhancing social interaction skills of children with ASD.

**Reward**

If you agree to participate in this study lunch amounting to KSH 250 and free writing materials will be provided.

**Confidentiality**

The results of this study will be kept confidential and used for the purpose of this study only. The accessibility of this study will be within the researcher and her supervisors and the findings will be kept at Kenyatta University library, a copy to NACOSTI and Migori County Education Office.

**Contact information**

If you have any questions you may contact Prof. Geoffrey Karugu (0716916439) or Dr. Joel Chomba WA Munyi (0736461988) or the Kenyatta University Ethical Review Committee, P.O. BOX 43844 -00100 Nairobi. Email Address - Secretariat on kuerc@ku.ac.ke

**Participants Statement**

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction.
My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will get the same care and treatment whether I decide to leave the study or not and my decision will not change the care I will receive from the researcher today or that I will get from any other researcher any other time.

Name of participant……………..Signature or thumbprint………….. Date………………

**Researcher’s statement**

I the undersigned have explained to the volunteer in a language he/she understands the procedures to be followed in the study and the risks and benefits involved.

Name of the researcher

Joyce Achieng Ogogo

Researcher’s signature……………………..Date……………………..
APPENDIX H: LETTERS AND CONSENT FORMS

A: Parental consent letter

Dear Parent/Guardian,

I am a Ph.D. student in the School of Education - Department of Special Needs Education, Kenyatta University. As part of my training I am carrying out a study looking at how peer-mediated strategies can enhance social interaction of children with autism in Migori County.

I am writing to ask if you would be willing to give permission for me to ask your son/daughter if he would like to take part in my research. This will involve observing your child at play, in classroom and during recess. This research will be supervised by Professor Karugu and Dr. Chomba both of Kenyatta University, Department of Special Needs Education. The observation will take place during normal school hours and will take only thirty minutes at most. Your child’s participation in this research will be treated confidentially and all information will be kept anonymously, meaning that no one will be able to work out what your child has done.

Many thanks in advance for your consideration of this research. Please let me know if you need more information. I would appreciate it if you could complete the attached permission slip.

Regards,

Joyce Achieng Ogogo
B: Parental consent form

I understand that my child’s participation in this project will involve:

Taking part in an observation with Joyce Achieng Ogogo in which she/he will be observed participating peer-mediated support strategies for enhancing social interaction skills. During this observation, audio/video recording will be taken. The observation will be fully anonymized when it is transcribed.

I understand that my child’s participation in this study is entirely voluntary and that he can withdraw from this study at any time without giving a reason.

I understand that his participation will be treated confidentially and all information will be stored anonymously and securely. All information appearing in the final report will be anonymous. My child will have the option of withdrawing his data from the study.

I, ________________________________ consent to Joyce Achieng Ogogo

Signature of Parent or Guardian:

..........................................

Date: ...................................

Name of Child: .........................................
APPENDIX I: PERMISSION LETTER FOR CDE

Department of Special Needs Education
Kenyatta University
P.O. BOX 43844-00100
Nairobi - Kenya
07/06/2017

The County Director of Education,
Migori County,
P.O. BOX 376-40405.
Migori.

Dear Sir /Madam,

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am Ph.D. student in the Department of Special Needs Education at Kenyatta University. My supervisors are Prof. Karugu and Dr. Chomba both from the department of special needs education.

The proposed title of my research is: Peer-mediated support strategies for enhancing social interaction skills of children with Autism Spectrum Disorders in Public Primary Schools in Migori County.

I am hereby seeking your consent to visit Primary Schools serving pupils with autism in Migori County. Please note that all the information collected will serve no other purpose.
than of academic research and all the names will be kept confidential. The data collection will not interfere with normal school activities. The estimated time to complete questionnaire will be about 30 minutes.

Attached please find the supportive documents:

(a) A copy of permit from NACOSTI

(b) A copy of approval of research proposal issued by Kenyatta University

(c) A copy of the research instruments which I intend use in my research

Thanks for your kind consideration.

Yours faithfully,

Joyce Achieng Ogogo

achiengjoyce20@yahoo.com

0718461834
APPENDIX J: PERMISSION LETTER FOR COUNTY COMMISSIONER

Department of Special of Special Needs Education

Kenyatta University

P.O. BOX 43844-00100

Nairobi- Kenya

07/06/2017

The County Commissioner,

Migori County,

P.O Box 376- 40405.

Migori.

Dear Sir /Madam,

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am Ph.D. student in the Department of Special Needs Education at Kenyatta University. My supervisors are Prof. Karugu and Dr. Chomba both of Kenyatta University.

The proposed title of my research is: Peer-mediated support strategies for enhancing social interaction skills of children with Autism Spectrum Disorders in Public Primary Schools in Migori County.

I am hereby seeking your consent to visit Primary Schools serving pupils with autism in Migori County. Please note that all the information collected will serve no other purpose than of academic research and all the names will be kept confidential. The data collection
will not interfere with normal school activities. The estimated time to complete a questionnaire will be about 30 minutes.

Attached please find the supportive documents:

(a) A copy of permit from NACOSTI

(b) A copy of approval of research proposal issued by Kenyatta University

(c) A copy of the research instruments which I intend to use in my research

Thanks for your kind consideration.

Yours faithfully,

Joyce Achieng Ogogo

achiengjoyce20@yahoo.com

0718461834
APPENDIX K: PERMISSION LETTER FOR HEAD TEACHER

Department of Special Needs Education
Kenyatta University
P.O. BOX 43844-00100
Nairobi- Kenya
07/06/2017

The Head Teacher---------------------Primary School

Dear Mr. /Mrs.

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR
SCHOOL

I am a registered Ph.D. student in the Department of Special Needs Education at Kenyatta University. My supervisors are Prof. Karugu and Dr. Chomba both of Kenyatta University.

The proposed title of my research is: Peer-mediated support strategies for enhancing social interaction skills of children with Autism Spectrum Disorders in Public Primary Schools in Migori County.

I am hereby seeking your consent to interview you as the head teacher of the school serving pupils with autism. I am requesting you to allow the specially trained teachers and regular teachers in your school to fill the questionnaires. Also requesting you to allow me observe children with autism and their typically developing peers at play, in the classroom and during recess to enable see how they interact socially to enhance social interaction. I have attached to this letter:
(a) A copy of permit from NACOSTI

(b) A copy of approval of research proposal issued by Kenyatta University

(c) A copy of the research instruments which I intend use in my research

Thanks for your kind consideration.

Yours Sincerely,

Joyce Achieng Ogogo

achiengjoyce20@yahoo.com

0718461834
APPENDIX L: AUTHORIZATION LETTER FROM NACOSTI

Joyce Achieng Ogodo  
Kenyatta University  
P.O. Box 43844-00100  
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Establishing the influence of peer-mediated strategies in enhancing social interaction of children with autism in Migori County Kenya,” I am pleased to inform you that you have been authorized to undertake research in all Counties for the period ending 9th March, 2018.

You are advised to report to the County Commissioners and the County Directors of Education, all Counties 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.

BONIFACE WANYAMA  
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners  
All Counties.

The County Directors of Education  
All Counties.
APPENDIX M: RESEARCH PERMIT LETTER FROM NACOSTI

CONDITIONS:
1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do so may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming, and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two (2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.

THIS IS TO CERTIFY THAT:
Ms. Joyce Acheng Ogogo of Kenyatta University, 0-100 NAIROBI, has been permitted to conduct research in All Counties on the topic: ESTABLISHING THE INFLUENCE OF PEER-MEDIATED STRATEGIES IN ENHANCING SOCIAL INTERACTION OF CHILDREN WITH AUTISM IN MIGORI COUNTY KENYA for the period ending: 9th March, 2018

Signature

Director General
National Commission for Science, Technology & Innovation

Permit No: NACOSTI/P/17/5382/1581
Date Of Issue: 13th March, 2017
Fee Received: Ksh 2000
APPENDIX N: Children with ASD and Typically Developing Peers

Plate 4.1: Children Activities when Peer Mediated Strategies are used

Appendix O: Activities of Children with ASD during Play Activity

Plate 4.2: Activities of Children with ASD during Play Activity
Appendix P: Activities of a Child with ASD during Peer Buddy Approach

Plate 4.3: Activities of a Child with ASD during Peer Buddy Approach

Appendix Q: Activities of Children with ASD using Peer Networking Plate 4.4:

Activities of Children with ASD using Peer Networks
Appendix R: Children with ASD during Peer Implemented Pivotal Response Training

Plate 4.5: Children with ASD during Peer Implemented Pivotal Response Training (PRT)
Appendix S: Enhanced Social Interactions

Plate 4.6: Enhanced Social Interactions

Appendix T: Activities on Modeling using Toys

Plate 4.7: Activities on Modeling using Toys showing PRT