

**OPERANT CONDITIONING AND INTERPERSONAL CHARACTERISTICS OF  
MODERATELY MENTALLY RETARDED LEARNERS  
IN OLLESOS DIVISION NANDI  
COUNTY KENYA.**

---

A Thesis

Presented to the College of

Higher Degrees and Research

Kampala International University

Kampala, Uganda

---

In Partial Fulfillment of the Requirements for the Degree

Master of Special Needs Education

---

By:


Kamarey Bernard Kipyego

MSEN/27047/121/DF

September, 2013

## DECLARATION A

"This Thesis is my original work and has not been presented for a Degree or any other academic award in any University or Institution of Learning".


  
\_\_\_\_\_  
Kamarey Bernard Kipyego  
MSEN/27047/121/DF

18<sup>th</sup> NOV. 2013.  
Date



## DECLARATION B

"I/we confirm that the work reported in this Thesis was carried out by the candidate under my supervision".

  
Dr - Sofia S. Gaute  
Name and Signature of Supervisor

\_\_\_\_\_  
Name and Signature of Supervisor

Date 18/11/2013

Date \_\_\_\_\_

## APPROVAL SHEET

This Thesis entitled “operant conditioning and interpersonal characteristics of moderately mentally retarded learners” prepared and submitted by Kamarey Bernard Kipyego in partial fulfillment of the requirements for the degree of a Master of Educational Management Special Need Education; has been examined and approved by the panel on oral examination with a grade of \_\_\_\_\_

Name and Sig. of Chairman \_\_\_\_\_

\_\_\_\_\_  
Name and Sig of Supervisor

\_\_\_\_\_  
Name and Sig. of Panelist

\_\_\_\_\_  
Name and Sig. of Panelist

\_\_\_\_\_  
Name and Sig. of Panelist

Date of Comprehensive Examination: \_\_\_\_\_

Grade: \_\_\_\_\_

Name and Sig of Director, CIIDR \_\_\_\_\_

\_\_\_\_\_  
Name and Sig of DVC, CHDR

## DEDICATION

I dedicate this research work to my beloved parents, wife, children, friends and course mates, and the entire administration of Kampala International University.

## ACKNOWLEDGEMENTS

Above all, the researcher thanks God Almighty for His provision towards the accomplishment of this program in her life times.

I further wish to appreciate the management staff of like the VC, Prof. Tibenderena, for all their services rendered to the university. I also acknowledge CHDR- Dr Novembrieta R. Sumil for her professional guidance and intellectual support to complete this study.

Acknowledge my supervisor, Dr. Sofia, my lecturers-Ms. Wangechi Beatrice, Dr. Kibuka among others. I further acknowledge my colleagues, Mr. Kikuvi, Mr. Mageso, Ms. Rosemary for support especially during discussions.

I also thank my family members for the financial support rendered to me right from the time I began my studies to the time of completion. In addition to the above, I also thank my respondents who were involved in the study. Otherwise, without them, my study would not be successful.

## ACRONYMS AND ABBREVIATIONS

|     |                                  |
|-----|----------------------------------|
| SR  | Stimulus-Response                |
| UK  | United Kingdom                   |
| US  | United States                    |
| IQ  | Intelligent Quotient             |
| IEP | Individualized Education Program |

## ABSTRACT

The topic of the study was “Operant conditioning and Interpersonal characteristics of learners with moderate mental retardation” It was guided by the following objectives: To determine the level of operant conditioning used with learners with moderate mental retardation, To determine the interpersonal characteristics of learners with moderate mental retardation, To establish if there is a relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation. The research hypothesis of the study was that “There is no significant relationship between operant conditioning and interpersonal characteristics of learners with moderate mental retardation.” The methodology of the study was descriptive correlation survey since it seeks to establish the relationship between operant conditioning and interpersonal characteristics of learners with mental retardation. The findings of the study were that, the level of operant conditioning was high/good and the level of interpersonal characteristics was also high/good. It was also found that there is a positive relationship between operant conditioning and interpersonal characteristics of learners with mental retardation. Therefore, the researcher concluded that since the level of operant conditioning and interpersonal characteristics were high and the hypothesis was accepted then increase in operant conditioning techniques will exhibit increase in interpersonal characteristics of learners that are moderately retarded. He therefore recommends that Teachers should devise other means in case of failure by learners through provision of positive reinforcements may stimulate the learners towards positive attitude and working hard towards class work progress and performance and that teachers should devise means of motivation and encouraging learners towards self-expression and be able to give their contributions during class lessons.



## TABLE OF CONTENTS

|                |     |
|----------------|-----|
| Preliminaries  |     |
| Declaration A  | i   |
| Declaration B  | ii  |
| Approval sheet | iii |
| Dedication     | iv  |
| Acknowledgment | v   |
| Abstract       | vi  |
| Acronyms used  | vii |

### CHAPTER ONE: INTRODUCTION

Page

#### THE PROBLEM AND ITS SCOPE

|                               |    |
|-------------------------------|----|
| 1.1 Background of the Study   | 1  |
| 1.1.1 Historical Perspective  | 1  |
| 1.1.2 Theoretical Perspective | 5  |
| 1.1.3 Conceptual Perspective  | 6  |
| 1.1.4 Contextual Perspective  | 7  |
| 1.2 Statement of the Problem  | 11 |
| 1.3 Purpose of the Study      | 11 |
| 1.4 Research Objectives       | 11 |
| 1.5 Research Questions        | 12 |
| 1.6 Hypotheses                | 12 |
| 1.7 Scope                     | 12 |
| Geographical Scope            | 12 |
| Content Scope                 | 12 |
| 1.8 Significance of the Study | 12 |

## **CHAPTER TWO: LITERATURE REVIEW**

|                          |    |
|--------------------------|----|
| 2.0 Introduction         | 14 |
| 2.1 Theoretical Review   | 14 |
| 2.2 Conceptual Framework | 16 |
| 2.3 Related Literature   | 17 |

## **CHAPTER THREE: METHODOLOGY**

|   |    |
|---|----|
| 3.0 Introduction                                |    |
| 3.1 Research Design                             | 27 |
| 3.2 Research Population                         | 27 |
| 3.3 Sample Size                                 | 27 |
| 3.4 Sampling Procedure                          | 28 |
| 3.5 Research Instruments                        | 28 |
| 3.6 Validity and Reliability of the Instruments | 28 |
| 3.7 Data Gathering Procedures                   | 29 |
| 3.8 Data Analysis                               | 30 |
| 3.9 Ethical Considerations                      | 31 |
| 3.10 Limitations of the Study                   | 31 |

## **CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

|   |    |
|---|----|
| 4.1 Introduction                                  | 33 |
| I Variance in the targeted and actual respondents | 33 |
| II Demographic                                    | 34 |

## **CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

|                     |    |
|---------------------|----|
| 5.1 Introduction    | 47 |
| 5.2 Discussions     | 47 |
| 5.3 Conclusions     | 49 |
| 5.4 Recommendations | 50 |
| References          | 51 |

Appendices

|   |    |
|---|----|
| APPENDIX I A: TRANSMITTAL LETTER                          | 55 |
| APPENDIX I B: TRANSMITTAL LETTER FOR THE<br>RESPONDENTS   | 56 |
| APPENDIX II: CLEARANCE FROM ETHICS COMMITTEE              | 57 |
| APPENDIX III: INFORMED CONSENT                            | 58 |
| APPENDIX IV: RESEARCH INSTRUMENT                          | 58 |
| APPENDIX IV: PROPOSED DATA PRESENTATION THROUGH<br>TABLES |    |
| APPENDIX V: PROPOSED BUDGET                               | 62 |
| APPENDIX VI: TIME FRAME                                   | 63 |
| Appendix VII: Researcher's curriculum vitae               | 64 |

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background

##### 1.1.1 Historical Perspectives

###### *Operant Conditioning*

Operant conditioning, sometimes called instrumental learning, was first extensively studied by Edward L. Thorndike (1874–1949), who observed the behavior of cats trying to escape from home-made puzzle boxes. When first constrained in the boxes, the cats took a long time to escape. With experience, ineffective responses occurred less frequently and successful responses occurred more frequently, enabling the cats to escape in less time over successive trials. In his law of effect, Thorndike theorized that behaviors followed by satisfying consequences tend to be repeated and those that produce unpleasant consequences are less likely to be repeated. In short, some consequences *strengthened* behavior and some consequences *weakened* behavior (Thorndike, E.L. 1901). Thorndike produced the first known learning curves through this procedure.

B.F. Skinner (1904–1990) is the person whose work is most often cited in connection with operant conditioning. His book "The Behavior of Organisms", published in 1938, initiated his lifelong study of operant conditioning and its application to human and animal behavior. Following the ideas of Ernst Mach, Skinner rejected Thorndike's reference to unobservable mental states such as satisfaction, building his analysis on observable behavior and its equally observable consequences.

###### *Special Needs Education in Kenya*

The first inquiry into education of children with disabilities was made by the Egerton Commission formed in 1888. Its main purpose was to investigate the education of children who were blind, deaf and those with mental retardation, at the suggestion of the Cross Commission, investigating the working of Elementary Education Act between 1884 and 1888 (Armstrong, 2002; Dysor, 1995). The Egerton Commission drew a difference among the disabilities they were investigating. Each disability was treated differently depending on the sympathy and understanding of it (Armstrong, 2002).

Children who were blind were viewed to suffer most due to the social attitudes, and the moral and political economy at the basis of Victorian institutions. The second issue was the distinction between early defined physical and sensory disabilities and the difficulty in identifying the different categories of mental retardation, which they termed “idiots, imbeciles and feeble-minded” (Heward, Lloyd – Smith, 1990).

The third issue was the establishment of grants and resources. The Egerton Commission recommended that children who were blind should be educated from the age of five to sixteen while those individuals who were deaf should receive free education from ages seven to sixteen (Armstrong, 2002, Heward and Lloyd – Smith, 1990).

Children with mental retardation, who were educable, were also to receive a free education. At this time education was compulsory from age five to ten years, but it was not free (Jackson, 2006). The Egerton Commission’s decision was therefore seen as expensive, considering the public’s view of individuals with disabilities during this period. The Egerton Commission’s investigation was followed by an education act in 1896, providing education of children who were deaf, blind and epileptic through special grants. No provision was made for children with other types of disabilities (Armstrong, 2002).

The 1944 Education Act was a major turning point in the development of special education. Financial difficulties were no longer a major issue in determining the education of children with special needs. Their education was in the main part of Clause 17 dealing with primary and secondary education. Though the Members of Parliament were aware that the education of children with special needs was of relatively minor significance (Callahan, 1978), they were determined to enable them to experience new horizons through education.

As a result, the boarding schools were introduced for students with disabilities, which brought about a sense of independence among these children. However, it also brought about the issue of segregation. Consequently, thus brought about the introduction of students with disabilities being educated with normal students after a plea by John Chuter Ede. He voiced the need for students with disabilities to go to schools with other regular students and to have teachers

trained to cope with the different disabilities (Heward and Lloyd – Smith, 1990, Jackson, 2006).

Eleven categories of disabilities were also identified with the introduction of 1944 Education Act. These categories included children who were blind, partially deaf, partially sighted, deaf, delicate, educationally subnormal, epileptic, maladjusted, physically handicapped, and pupils suffering from speech defects (Armstrong, 2002)

All children with blindness, deafness, physical disabilities, and epilepsy and speech impairment were to be educated in special schools. Individuals who were blind or deaf were enrolled in boarding schools. All the other children with disabilities were enrolled in regular schools (Duson, 1995).

The Education Act of 1944 also expanded the definition of mental disability with the phrase ‘educationally subnormal’. It was based on the belief that general ability and temperament were determined at birth, and that intelligence could not be improved. The prevailing social attitudes toward disabilities and the lack of understanding of IQ served to support the expansion of segregated schooling. The act advocated for the removal of all students with IQs less than 55 from regular schools (Armstrong, 2002; Jackson, 2006). The removal of these students left other students also categorized as educationally subnormal. Students, who had an IQ between 55 and 70, were enrolled in boarding schools, and also segregated from ordinary schools. This was seen as an act to shield them from the harmful effects of feeling inferior in ordinary schools (Jackson, 2006).

Those with lesser educational problems went to ordinary schools but had special education treatment in the classes. Children in the most severe category were taken to special day schools. Just like children who were deaf, blind and epileptic, children with low intellectual ability were segregated from ordinary classes. Students with behavior issues attend child guidance centers and stayed in their regular schools (Heward and Lloyd – Smith, 1990).

As the years progressed, an increase in knowledge about disabilities led to an increase in schools for children with disabilities as well as training of more teachers to meet their needs.

These changes occurred mainly in the ten years after the 1944 Act (Armstrong, 2002; Heward and Lloyd – Smith, 1990). Training for teachers involved, full – time coursework in “The Teaching of Handicapped Children” and teachers received a one – year diploma. The first university to offer this course was London University in 1950, followed by Birmingham University in 1954. Other universities followed suit with the number of courses at various universities continuing to grow through the 1960s and 1970s (Callahan, 1978).

In July of 1976, Clause 17 in the Education bill of 1944 was debated for the first time in the House of Commons. The aim of the clause was to change the education of ‘handicapped’ children from special schools and integrate them to regular schools. There was confusion among the MPs in the house as to the relationship between a handicap and integration. Those who were in favor of integration only looked at it from the point of view of the child and adult with a physical disability (Jackson; 2006).

This clause however never reached a third reading due to the fact that there were some doubts about the cost of implementing a policy of integration (Heward and Lloyd – Smith, 1990; Jackson, 2006). One group of MPs advocated for the integration of students with physical disabilities into regular schools and the other group sought to assess the practicality of the proposal.

The British Under Secretary of State for Education and Science at the time stated that the clause was not essential. She also doubted the necessity of a legal requirement to integrate, since she believed that integration could be achieved without further legislation and therefore Clause 17 was withdrawn (Jackson, 2006; Thomas and Petrie, 1991).

Numerous discussions concerning education were brought into Parliament, however on the 17<sup>th</sup> of October 1976, whilst the house was discussing the introduction of school milk. Baroness Phillips introduced Clause 10, which argued that integration of students with disabilities into regular schools, did not involve greater changes in the system of education that would in turn be costly or alter the system of education completely in regular schools.

This time the Clause had some Lords in favor. The Clause was discussed in Parliament, with many MPs opposing and others in favor of the Clause. The debate was resolved by Baroness Phillips who argued that the inclusion of Clause 10 should not be considered revolutionary, as some MPs had suggested, and subsequently, the clause was passed (Heward and Lloyd – Smith, 1990; Jackson, 2006). Despite a few changes, Clause 10 was a replica of Clause 17 (Jackson; 2006).

With the introduction and acceptance of Clause 10, it became evident that the interests of children with both physical and intellectual disabilities were being considered. This became a plan in the government, the Department of Education and Science and most of the professional organizations and led to the introduction of integration of children with disabilities into regular schools in Britain.

### **1.1.2 Theoretical Perspective**

The circumplex tradition in interpersonal psychology was inspired by the interpersonal theory of Harry Stack Sullivan (1953) and the sociological theory of George Herbert Mead (1934), and made more explicit and accessible to research by Timothy Leary (1957), who introduced the circular ordering of variables known as the interpersonal circumplex. Interpersonal theory comprises three strands of leading ideas: the principle of complementarity, the principle of vector length, and the principle of circumplex structure.

The first strand of interpersonal theory is the principle of complementarity (Carson, 1969; Kiesler, 1983; Orford, 1986; Wiggins, 1982), which contends that people in dyadic interactions negotiate the definition of their relationship through verbal and nonverbal cues. This negotiation occurs along the following lines: dominant-friendliness invites submissive-friendliness, and vice versa, whereas dominant-hostility invites submissive-hostility, and vice versa.

The second strand of interpersonal theory is the principle of vector length, which contends that within diagnoses of personality type on the interpersonal circle, vector length (a measure of statistical deviance) is an index of psychopathology (psychiatric deviance; Wiggins, Phillips, & Trapnell, 1989). In general, people with rigid, inflexible personalities have more



problems--even if such people are inflexible in a friendly direction--whereas people with flexible, adaptive personalities have fewer problems--even if such people are generally more hostile than friendly.

The third strand of interpersonal theory is the principle of circumplex structure, which contends that variables that measure interpersonal relations are arranged around a circle in two-dimensional space (Leary, 1957). A circumplex can be viewed in three successively more restrictive and testable ways. First, a circumplex can be viewed as merely a useful pictorial representation of a particular domain. Second, a circumplex can be viewed as implying circular order, such that variables that fall close together are more related than variables that fall further apart on the circle, with opposite variables being negatively related and variables at right angles being unrelated (orthogonal). Third, a circumplex can be viewed as implying exact circumplex structure, such that all variables are equally spaced around the circle (Wiggins and Trobst, 1997). Sophisticated psychometric and geometric tests can be applied to determine whether a circumplex meets the criteria for exact circumplex structure (Acton and Revelle, 1998).

### **1.1.3 Conceptual Perspective**

Operant conditioning is defined as the use of consequences to modify the occurrence and form of behavior. "To put it very simply, behavior that is followed by pleasant consequences tends to be repeated and thus learned. Behavior that is followed by unpleasant consequences tends not to be repeated and thus not learned" (Alberto & Troutman, 2006). Operant conditioning is specifically limited to voluntary behavior, that is, emitted responses, which distinguishes it from respondent or Pavlovian conditioning, which is limited to reflexive behavior (or elicited responses). The dependent variable of the study was interpersonal characteristics of moderately retarded learners. Therefore, the researcher wanted to find out the effect of operant conditioning on interpersonal characteristics of these learners.

#### **1.1.4 Contextual Perspective**

Globally, learning is given an utmost attention and all sorts of innovative and encouraging thoughts to make young people enjoy learning in any institution whether primary, secondary or institutional. Internationally, every learning outcome is a reward which could be an aspect of long term reputation (mature learning) or short term (young learners) to encourage them finish their work on time or to pass the coming examination. Rewards are the most used aspects in operant conditioning globally for young learners to make them enjoy educational activities both in classroom and outside classroom (Steven Clistone 2009). On the other hand, well as rewards are extended towards encouraging students to learn, Skinner (1938) stated that negative and positive punishments are used to enable learners to study and perform well in the activities. Many Euro based learning schools use both the aspects in trying to elevate the learners abilities in scoring higher. For example, staying in class for longer hours while other students are playing (grounding students) while in extreme cases for learners who have completed their primary levels are sometimes suspended from schools to create positive fear of remaining in school.

In Africa, learners are often threatened to adhere to the learning environment, negative punishments are used as learners' operant conditioning. The saying "save the rod spoil the child" was first rooted in African grooming of children implying that students have to be groomed with all sorts of possibilities to elevate their learning (Ahuja, 2002).

#### ***Growth and development of Special Education in Kenya***

Although education for individuals with disabilities in Kenya started as early as 1940 by missionaries, only in recent years has attention been given to their needs (Mutua & Dimitrov, 2001). The National Development Plan emphasized that greater attention be placed on special education, especially in expansion of existing educational opportunities and manpower training institutions for individuals with disabilities, and provision of higher learning in preparation for the job market (I.L.O, 1997).

In Kenya, special education is a subsection of the general education, and is defined as "Education which provides appropriate modification in Curriculum, teaching methods, education resource, and medium of communication or the learning

environment in order to cater for individual differences in learning.” (Ministry of Education, 2008)

The mission statement for special education in Kenya is to facilitate and co – ordinate the provision of the quality education and training of learners with special needs at pre – primary, primary, secondary, technical / vocational and teacher training levels by enhancing access, retention, completion, transition and creation of awareness, and its vision is to provide conducive learning environments for all learners with special needs (Abilla, 1998; Ministry of Education, 2008a; Ntarangwi, 2003).

The year of the Child (1970), and the National year of the Disabled (1980) which were both international and national events, helped to focus individuals and societies to the needs for the disabled. Kenya took into account the needs of the disabled by starting schools and special units for the disabled. They also established educational assessment and resource centers that have given education a boost and created demand for more services and facilities (Abilla, 1988).

Kenya attained its independence in 1963, and became a republic in 1964. As early as 1964, it was evident to the Kenya Government that a coordinated service in education was needed to avoid duplication (King, 2007; Mungai, 2002). The government appointed a committee in 1968, and the committee in turn recommended a creation of a body under the Ministry of Culture and Social services to co – ordinate rehabilitation services which were mainly the responsibility of various agencies and organizations (Abilla, 1988).

A National rehabilitation committee was created in 1968 with the assistant minister for culture and social services a chairman. Membership was drawn from various relevant Government ministries and voluntary services.

In May of 1964, the Kenya Government formed a committee to coordinate rehabilitation services for individuals with disabilities. The committee created a paper entitled “Care and Rehabilitation of the Disabled” in 1968.

1. To make an assessment of the numbers and type of disabilities in Kenya.

2. Investigate existing facilities for the education, training, settlement / employment of persons with disabilities.
3. Formulate a broad program of training and replacement of the disabled involving community care designed to assist the economic independence of many disabled persons as possible.
4. Examine and make a report on the existing machinery for the co – ordination of services to disabled persons (p.5).

### *Special Education in Kenya: Present day*

Before December 2004, special needs issues were handled by a section in the Ministry of Education namely The Special Education Section headed by an officer in the rank of Assistant Director of Education. After the organization of the Ministry, the section was upgraded to a full division and renamed Special Needs Education headed by a Deputy Director of Education assisted by other officers (Ministry of Education, 2008a).

These include a Senior Assistant Director of Education, and Assistant Director of Education, two senior education officers and two education officer. There is little reliable data indicating comprehensively the number of children with disabilities in Kenya. This has made it difficult to plan effectively for their education (Muuya, 2002).

The Ministry of Health also plays a major role in providing preventive and curative measures, by teaching mothers how to eat healthy while pregnant and also identifying disabilities early (Mutua and Dimitrov, 2001). Nongovernmental organizations like IMPACT (The International Initiative against Avoidable Disablement) and KEPI (Kenya Extended Programs on Immunizations) were launched in Kenya to assist and expand health services like Immunization programs and enlightenment in order to reduce avoidable disabilities (Abilla, 1988).

The Ministry of Home Affairs is responsible for providing programs for juveniles and destitute children, they have built homes and approved schools for children with emotional and psychological problems. Education for these children and is the responsibility of the Ministry of Education (MarsgroupKenya, 2008).

The Kenyan Ministry of Education has created establishments, such as The Kenya National Examination Council to assist in meeting the goal of the Ministry (Kenya, 2004). The Kenya National Examination Council is responsible for developing and administering national examinations and awarding certificates to graduates including those graduates who have disabilities (Education, 2008; Ntarangwi, 2003). Examinations are adapted for candidates who have visual disabilities and extra time is given to students with special needs in education when taking examinations. Examinations are also set using Braille (Kiarie, 2004).

However, the Kenya National Examination Council does not have personnel trained in setting final examination for special Needs Education; therefore it uses the services of contracted professionals and subject specialists to provide these services for special needs education (Ministry of Education, 2008b).

The number of moderately retarded learners is on high increase of late in many African countries and the cause is not very clear. Their characteristic is often different from other students due to their actions and therefore the attention given to these learners is slightly different and polite from other learners. In Kenya, young moderately retarded learners are constantly given high level of attention to live and get used to the environment. This has been encouraged by the high number of institutions that focus on maintaining the rights and abilities of these young learners.

Ollossos division in Nandi county Kenya is a constantly a growing area in Kenya with a number of institutions developing in the area. Educational promoters have not forgotten to take care of the all sorts of people included the mentally retarded. As provided for in the Kenyan Constitution that all humans have equal rights, even mentally retarded young learners are given priority in the education arena to improve and better their being as Kenyans. Well as many students are held responsible for their actions in the learning environment, learners with any form of mental retardation are often given constant care and attention to make them equally independent and creative learners. It should be noted that both negative and positive punishment are also applied in the case of these students so as to help them adapt to their environment.

## **1.2 Statement of the Problem**

Making and sustaining friendships and personal relationships present significant challenges for many persons with mental retardation. Limited cognitive processing skills, poor language development, and unusual or inappropriate behaviors can seriously impede interacting with others. Unfortunately, efforts to reduce negative stereotypes toward disabilities do not appear to have been substantially successful. Negative social responses to persons with mental retardation and mental illness have persisted across generations despite improved care, legislative support, and a more sophisticated medical understanding of the causes and origins of these disabilities. Research has shown, however, that the degree of social rejection and social stigma varies with specific disabilities, creating a well-defined hierarchical order (Strohmer, Grand, and Purcell, 1984).

## **1.3 Purpose of the Study**

The purpose of the study was to investigate whether there was a relationship between Operant Conditioning and Interpersonal Characteristics of Moderately Mentally Retarded Learners in Ollesos division, Nandi County, Kenya.

## **1.4 Research Objectives**

This study was guided by the following objectives:

1. To determine the level of operant conditioning used with learners with moderate mental retardation in Ollesos division, Nandi County, Kenya.
2. To determine the interpersonal characteristics of learners with moderate mental retardation in Ollesos division, Nandi County, Kenya.
3. To establish if there is a relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation in Ollesos division, Nandi County, Kenya.

### **1.5 Research Questions**

1. What is the level of operant conditioning used with learners with moderate mental retardation in Ollesos division, Nandi County, Kenya?
2. What is the level of interpersonal characteristics in learners with mental retardation in Ollesos division, Nandi County, Kenya?
3. Is there a relationship between operant conditioning and interpersonal characteristics of learners with moderate mental retardation in Ollesos division, Nandi County, Kenya?

### **1.6 Hypothesis**

This study was guided by a null hypothesis that;

**H<sub>0</sub>:** There is no significant relationship between operant conditioning and interpersonal characteristics of learners with moderate mental retardation.

### **1.7 Scope**

#### **Geographical scope**

This study was conducted in five primary schools in Ollesos Division, Nandi County in Kenya which are, Kibabet, Sile, Mogobich, Ogirgir and Kipkoror Primary Schools.

#### **Content scope**

This study examined the effect of operant conditioning on interpersonal characteristics of learners with moderate mental retardation in five primary schools in Ollesos Division, Nandi County in Kenya.

### **1.8 Significance of the Study**

The following disciplines will benefit from this study:

*Classroom teachers and school counselors* will use the findings to offer proper guidance to learners with moderate mental retardation and their parents in regard to interpersonal relationships.

*Curriculum developers* will benefit from the research findings by understanding how problem-solving skills affect language development of learners with mental retardation.

*Administrators and SNE teachers* will use the findings to appropriately use operant conditioning to develop interpersonal characteristics of learners with moderate mental retardation.

*Future researchers* will utilize the findings of this study to embark on related studies.

### **Operational Definitions of Key Terms**

The following terms were defined as used in the study:

**Operant conditioning** in this study referred to as a process of behavior modification in which the likelihood of a specific behavior is increased or decreased through positive or negative reinforcement each time the behavior is exhibited, so that the subject comes to associate the pleasure or displeasure of the reinforcement with the behavior.

**Interpersonal characteristics refer to attributes** occurring among or involving several people, "interpersonal situations in which speech occurs" living together or enjoying life in communities or organized groups and exhibiting mature social behavior.

**Moderate mental retardation:** Moderately retarded individuals have IQ scores ranging from 35 – 55. They can carry out work and self-care tasks with moderate supervision. They typically acquire communication skills in childhood and are able to live and function successfully within the community in a supervised environment such as a group home.

**Profile of respondents:** these are attributes looked for in this study in terms of gender, age, qualifications, number of years teaching experience and number of qualified teachers.



## CHAPTER TWO

### LITERATURE REVIEW

#### **2.0 Introduction**

This chapter looked at the earlier research documents of different researchers; literature with an aim of identifying a problem of concern eventual number of duplication of early research work is done. Apart from going through other related work. It also involved critically going through other services of materials that are related with the research topic. The chapter also looked at the theoretical review, the conceptual framework and related literature in relation to research topic.

#### **2.1 Theoretical Review**

Various different positive reinforcers can be used to increase the likelihood of desired behavior in the classroom. They appear in the form of (a) consumable (e.g., candy), social (e.g., praise), (b) activity (e.g., time on the computer), (c) exchangeable (e.g., points or stickers), and (d) tangible (e.g., getting to sit in one's favorite chair). Activity reinforcers are among the most educationally relevant, since the activity can be done with educational value such as doing a jigsaw puzzle or watching an instructional video. However, it is of critical importance that the desired behavior immediately precede the activity reinforcer rather than follow it in order for the reinforcer to strengthen the response (this is called the Premack Principle, after David Premack, its discoverer), and in some cases this may be difficult to arrange, as, for example, when the activity reinforcer is a field trip (Kazdin, 2001).

Various reinforcement schedules (Skinner, 1969) have an effect on educational outcomes by affecting the likelihood of a particular response. A continuous reinforcement schedule, wherein every occurrence of a desired operant response is followed by a reinforcement, is desirable when operant conditioning is first taking place. However, once the desired response occurs on a regular basis, it can be maintained by only occasional or intermittent reinforcement, thereby lessening the load on the teacher.

There are four possible intermittent reinforcement schedules: fixed ratio, fixed interval, variable ratio, and variable interval. In an educational setting (as in most settings), the two variable schedules best maintain the desired behavior, primarily because of their

unpredictability. For example, if students were given the opportunity to listen to music, a reinforcement, after handing in some number of completed assignments, they would be more motivated to hand in completed assignments if the number required was not always the same (variable ratio) or the time during which they had to be handed in was not always the same (variable interval). By comparison, in the fixed interval schedule, where the reinforcement is provided after the desired behavior has been performed for a fixed amount of time (say 10 minutes), it does not take students long to realize that they can do nothing for nine and a half minutes and then perform the behavior to get the reinforcement. Similarly, if the fixed ratio is 4:1, students will perform the behavior four times in a row, and then relax after receiving the reinforcement.

Operant conditioning is a vehicle for teachers to achieve behavior modification in order to improve classroom management and facilitate learning. There are three techniques employed in particular to facilitate learning: prompting, chaining, and shaping. Prompting involves giving students cues (called *discriminative stimuli* in the lexicon of operant conditioning) to help them perform a particular behavior. When students are learning to read, a teacher may help them by sounding out a word (just as when actors forget their lines, someone prompts them by saying their next line). Prompting helps to make the unfamiliar become more familiar, but, if used too often, students can become dependent on it, so teachers should withdraw prompts as soon as adequate student performance is obtained (a process called *fading*). Also, teachers should be careful not to begin prompting students until students try a performing task without extra help.

Learning complex behaviors can also be facilitated through an operant conditioning technique called *chaining*, a technique for connecting simple responses in sequence to form a more complex response that would be difficult to learn all at one time. Each cue or discriminative stimulus leads to a response that then cues the subsequent behavior, enabling behaviors to be chained together. Skinner taught pigeons to steer torpedoes toward enemy vessels in World War II by chaining together responses that adjusted the direction of a torpedo relative to the target as it appeared on a screen. Although the technique was not actually used in the war, it appeared in trial runs that it would work successfully.

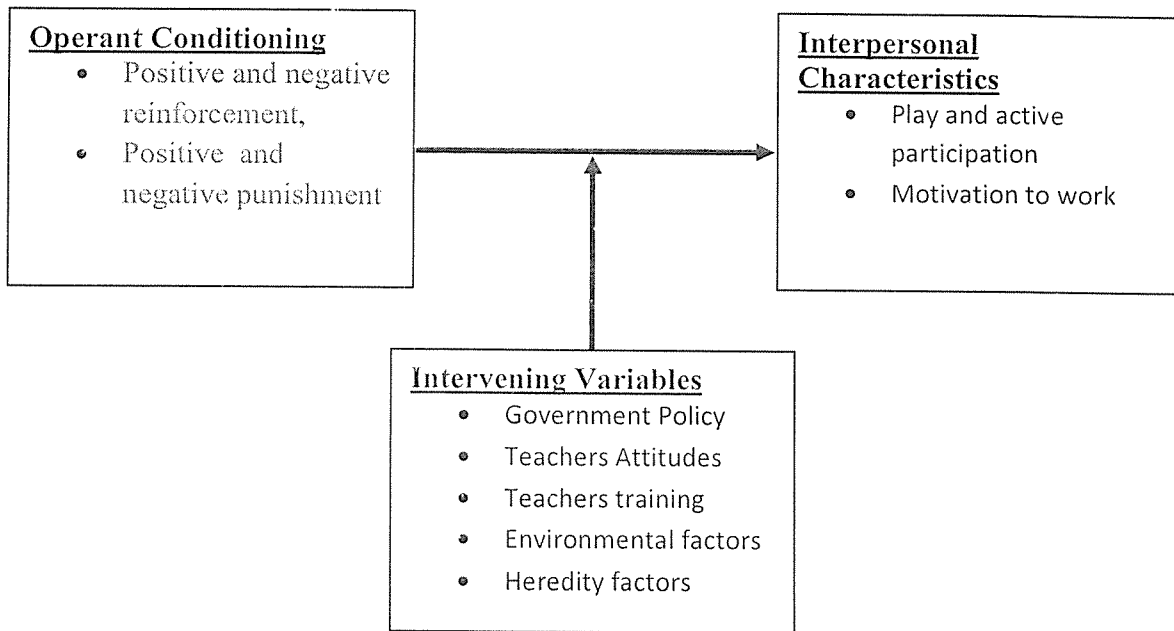
The third, and perhaps most generalizable technique is called *shaping*, a process of reinforcing each form of the behavior that more closely resembles the final version. It is used when students cannot perform the final version and are not helped by prompting. Shaping involves gradually changing the response criterion for reinforcement in the direction of the target behavior. If the student is given 10 math problems, for example, and gets three of them right, the student gets a reinforcement. On the next set of problems, the student needs to get six right for a reinforcement, then 10. By shifting the criterion for reinforcement, or successive approximations, a student's behavior is shaped in the direction of ultimate success.

According to Landrum and Kauffman, "Despite a rich history and extensive empirical underpinnings, the behavioral perspective on teaching and management is not highly regarded in the education community" (2006, p. 47). Its critics contend it is an unfeeling approach more suited to animals than to humans (Landrum & Kauffman, 2006). Nevertheless, operant conditioning is commonly used in classrooms and is viewed by many teachers as an effective approach to improving classroom practice. It provides teachers with a set of tools for improving classroom management and student learning.

## **2.2 Conceptual Framework**

This shows the connection between the variables under study. However, it is important to note that interpersonal characteristics does not depend on only operant conditioning, but also other factors. These factors are outlined in the intervening variables box. The conceptual framework is illustrated in the figure 1 below.

**Figure 1: The Conceptual Framework between Operant Conditioning and Interpersonal Characteristics of Moderately Retarded Learners**



**Source:** Researcher developed (2013)

Operant conditioning have a great effect on the learning of students. Positive reinforcement for example may work as a positive stimuli towards greater performance in the future. Rewards like praise may inspire learners to be better. On the other hand, punishments may lead to rebellion and thus affecting the performance of learners negatively. Therefore, there is a positive relationship between operant conditioning and learners attitudes, so is interpersonal characteristics.

### **2.3 Related Literature**

This reviewed the literature following objectives by objective.

#### **Operant Conditioning of Moderately Mentally Retarded Learners in Ollesos Division, Nandi County, Kenya**

**Operant conditioning** (also known as **instrumental conditioning**) is a process by which humans and animals learn to behave in such a way as to obtain rewards and avoid

punishments. It is also the name for the paradigm in experimental psychology by which such learning and action selection processes are studied.

Operant conditioning is so named because the subject “operates” on the environment. An early theory of operant conditioning, proposed by Edward Thorndike, used the name **instrumental learning** because the response is “instrumental” in obtaining the reward. (Both operant and classical conditioning are also called **S-R learning** because a stimulus, S, has been paired with a response, R.)

The behavior of all animals, from protists to humans, is guided by its consequences. The bacterium finds its way, somewhat inefficiently, up a chemical gradient; the dog begs for a bone; the politician reads the polls to guide his campaign. Operant conditioning is goal-oriented behavior like this. These examples are instances of ontogenetic selection that is guidance by consequences during the life of the individual. Other names for ontogenetic selection are instrumental or operant (B. F. Skinner’s term) conditioning.

Closely related to, and often thought to be a component of, operant conditioning is classical or Pavlovian conditioning. The prototypical example of Pavlovian conditioning is of course Pavlov and his dogs. In Pavlovian conditioning, the repeated pairing of a stimulus such as Pavlov’s bell to an affectively important event like the receipt of food, leads to the anticipatory elicitation of what is termed a conditioned response, such as salivation, when the bell is sounded. Unlike operant conditioning, in classical conditioning no response is required to get the food.

The distinction between Pavlovian and operant conditioning therefore rests on whether the animal only observes the relationships between events in the world (in Pavlovian conditioning), or whether it also has some control over their occurrence (in operant conditioning). Operationally, in the latter outcomes such as food or shocks are contingent on the animal’s behavior, whereas in the former these occur regardless of the animal’s actions. However, the distinction between these two paradigms is more than technical -- in Pavlovian conditioning, changes in behavior presumably reflect innately specified reactions to the prediction of the outcomes, while operant learning is at least potentially about maximizing rewards and minimizing punishment. Consequently, Pavlovian and operant conditioning can

differ in the behaviors they produce, their underlying learning processes, and the role of reinforcement in establishing conditioned behavior. The scientific study of operant conditioning is thus an inquiry into perhaps the most fundamental form of decision-making. It is this capacity to select actions that influence the environment to one's subjective benefit that marks intelligent organisms.

There is also phylogenetic selection – selection during the evolution of the species. Darwin's natural selection is an example and behavior so evolved is often called reflexive or instinctive. Much reproductive and agonistic (aggressive/defensive) behavior is of this sort. It emerges full-blown as the animal matures and may be relatively insensitive to immediate consequences. Even humans (who should know better!) are motivated to sexual activity by immediate gratification, not the prospect of progeny, which is the evolutionary basis for it all.

The selecting consequences that guide operant conditioning are of two kinds: behavior-enhancing (reinforcers) and behavior-suppressing (punishers), the carrot and the stick, tools of parents, teachers – and rulers – since humanity began. When the dog learns a trick for which he gets a treat, he is said to be positively reinforced. If a rat learns to avoid an electric shock by pressing a lever, he is negatively reinforced. There is often ambiguity about negative reinforcement, which is sometimes confused with punishment – which is what happens when the dog learns not to get on the couch if he is smacked for it. In general, a consequence is called a reinforcer if it strengthens the behavior that led to it, and it is a punisher if it weakens that behavior.

### **Interpersonal characteristics**

Characteristics of students with mental retardation vary widely. Students with mental retardation may have difficulty with expressive language, poor short-term memory, low level meta-cognition skills, and poor use of logic and organization. Some students who are labeled as mentally retarded also have motor difficulties that can affect their handwriting or their ability to hold reading material steadily (Rizopoulos & Wolpert, 2004). Students with mental retardation, like all students, demonstrate wide variation in strengths, weaknesses, interests, and motivation, all of which should be reflected in each student's Individualized Education Program (IEP).

Traditionally, special educators have de-emphasized literacy, particularly for students with moderate to severe mental retardation, in favor of functional, social, or motor skills (Kliewer & Biklen, 2001). Many people with mental retardation read below their projected capabilities, and both general and special education teacher education textbooks are marked by a scarcity of information on academic characteristics, assessment procedures, and instruction in literacy for students with mental retardation. Only recently have educators begun to recognize the value of reading and writing skills for all students, including those with severe mental retardation (Katims, 2000).

Since school systems have begun to include students with moderate to severe mental retardation in assessments (IDEA, 1997, 2004) and accountability (NCLB, 2001), and thus also included in more academic instruction, these students have been achieving at much higher and more complex levels than researchers, practitioners, and even advocates expected (see Moore-Lamminen & Olsen, 2005). This powerful evidence has forced educational professionals to revisit long-held assumptions about the benefits of academic instruction for all children, and is generating provocative reading research on new, rigorous approaches to reading instruction for students with mental retardation (e.g., Reading, Writing, Math, and Science for Students with Significant Cognitive Disabilities, Diane Browder, PI).

In normally developing children various studies have shown that the ability to take turns in conversations does not show any developmental change with increasing language abilities (Bloom et al., 1976). From the beginning children know that they should respond verbally to their mothers' utterances. Furthermore, their conversation becomes more advanced with increases in their linguistic capacity. They are able to maintain a topic of conversation over increasing number of turns (Bloom et al., 1976).

Paradoxically, several studies have shown that children with mental retardation exhibit significant deficits in referential looking behavior, the ability to establish joint reference to objects. Jones (1979, 1980) documented those subjects with, aged 8-22 months developmentally, engaged in less than one-half of the referential looking than their matched normal developmentally subjects. Gunn, Berry, & Andrews (1982) found that the looking behavior of children with mental retardation had an interpersonal rather than referential

quality. Sinson and Wetherick (1982) found differential social interaction patterns which lead to isolation in children with mental retardation. This was attributable to the subjects' failure to observe the conventions of mutual gaze. These studies together suggest a difference in visual behavior essential to establishing prelinguistic interaction patterns (Schaffer, Collis, & Parsons, 1977); referential communication (Gray, 1978); and language development (Ryan, 1974). Referential looking is a major method of initiating interaction (Jones, 1980) and the establishment of joint reference is essential for vocabulary learning.

The dramatic recent increase in the enrollment of students with mental retardation in schools requires counselors and teachers education personnel to become familiar with emerging the educational experience of these students, it is important to fully understand the interplay of dynamics with this population, including attitudinal barriers from faculty and issues of students with disabilities during their educational careers (Lynch & Gussel, 1996). To maximize other students, physical barriers in the environment, and support barriers, all which impact the postsecondary adjustment of this population and thereby decrease their likelihood of success. School counselors are in an especially valuable position to help students with mental retardation achieve their highest potential by understanding the situations of these students as they encounter barriers in school unique to this population.

In regard to social development, making and sustaining friendships and personal relationships present significant challenges for many persons with mental retardation. Limited cognitive processing skills, poor language development, and unusual or inappropriate behaviors can seriously impede interacting with others. It is difficult at best for someone who is not a professional educator or staff person to want to spend the time necessary to get to know a person who stands too close, interrupts frequently, does not maintain eye contact, and strays from the conversational topic. Teaching students with mental retardation appropriate social and interpersonal skills is one of the most important functions of special education.

In terms of behavioral excesses and challenging behavior students with mental retardation are more likely to exhibit behavior problems than are children without disabilities. Difficulties accepting criticism, limited self-control, and bizarre and inappropriate behaviors such as aggression or self-injury are often observed in children with mental retardation. Some of the



genetic syndromes associated with mental retardation tend to include abnormal behavior (e.g., children with Prader-Willi syndrome often engage in self-injurious or obsessive-compulsive behavior). In general, the more severe the retardation, the higher the incidence of behavior problems. Individuals with mental retardation and psychiatric conditions requiring mental health supports are known as "dual diagnosis" cases. Data from one report showed that approximately 10% of all persons with mental retardation served by the state of California were dually diagnosed (Borthwick-Duffy and Eyman, 1990). Although there are comprehensive guidelines available for treating psychiatric and behavioral problems of persons with mental retardation (Rush and Francis, 2000), much more research is needed on how best to support this population.

Studies examining mental retardation have also illustrated a significantly negative social attitude. Mental retardation, described as "the most socially invisible of all people with disabilities" (Smith and Anton, 1997, p. 398) creates similar negative social attitudes. Measuring the social attitudes of high school students, Kamilowicz and associates (1994) compared attitudes about interacting with nondisabled peers, physically disabled peers, and mentally disabled mentally disabled See Cognitively impaired. Peers and found students less willing to interact with persons with mental disabilities. In comparing twelve disabilities, Lyons and Hayes (1993) found that occupational therapy students reported a hierarchical preference citing mental illness and mental retardation as least preferred disabilities. Corrigan, River, Lundin and others (2000) also found "differential discrimination" among disabilities when examining social attributions towards persons with mental health disabilities. Persons with mental retardation were rated as least stable while persons with specific mental illnesses were rated as least controllable. The implications of these negative social attitudes toward persons with mental retardation and mental illness are significant. These social misperceptions and stereotypes of persons with mental disorders as instable, unpredictable and dangerous appear to have serious consequences in the willingness of the nondisabled to interact and pursue interpersonal relationships

### **Relationship between Operant Conditioning and Interpersonal Characteristics of Moderately Mentally Retarded Learners**

Gredler (2005) offers the following assumptions as the foundation of operant conditioning: Learning is behavioral change (meaning that observers conclude that learning has occurred when behavior changes), Behavioral change (i.e., learning) is related to changes in environmental events (these events being precursors of and consequences of an action), One can determine relationships between behavior and the environment only if the characteristics of the behavior and the experimental conditions under which it occurs are defined in physically observable terms and observed under controlled conditions (the process must be systematic, observable, and controlled), The only acceptable sources of information about the causes of specific behaviors are data from the experimental study of behavior (people must observe both the behavior and its causes), The appropriate data source is the behavior of the individual (rather than the observers' expectations or inferences) and Of prime importance in the operant conditioning model is the focus on relationships between environmental events and behavior defined in physical terms, with an avoidance of the use of *inner states* as explanations.

There are four contexts or types of operant conditioning: positive reinforcement, negative reinforcement, positive (or response-cost) punishment, and negative punishment (or punishment with aversives) (Landrum & Kauffman, 2006). The last three of these are all associated with aversiveness or aversive control while only one: positive reinforcement is associated with positive control. Thus, researchers can distinguish between two variations of the model, a positive one and a negative one. (There is also extinction, which occurs when reinforcement following behavior is discontinued, causing the behavior itself to eventually be discontinued.)

In the positive version of the model, a person who emits a desired behavior (e.g., raising her hand and waiting to be called on) receives something good – a positive consequence (referred to as positive reinforcement). This may be a smile or praise or a piece of candy. The result of the reinforcement is that the behavior is strengthened, that is, its likelihood of subsequent occurrence increases. This represents a positive form of control.

In the negative version of the model there are three possible consequences. One is to avoid something bad – negative reinforcement. If a student raises her hand and waits to be called on,

rather than speaking out, there is no positive consequence, only the avoidance of a negative one. A second is to receive something bad – punishment with aversives – which may take the form of being yelled at or ridiculed, hence reducing the tendency to speak out (or, perhaps, just suppressing it temporarily). The last negative approach, response-cost punishment, represents being deprived of something good, that is, a previously earned reinforcer being removed because of an undesirable behavior such as talking out in class, rather than raising one's hand and waiting to be called on (Walker, Shea, & Bauer, 2004). The punishment might be being placed in time-out or sent to the principal's office. These three approaches all represent aversive control, which may be associated with anxiety and fear (Skinner, 1953), and they may not result in a diminution of the strength of the undesirable response.

Another variation of the model is based on who or what precedes or occasions a response. After repeatedly pairing a response with a stimulus that precedes it, called a discriminative stimulus ( $S^D$ ), the response will only occur in the presence of  $S^D$ , not in its absence. Such a response is said to be under stimulus control. “A behavior under stimulus control will continue to occur in the presence of the  $S^D$ , even when reinforcement is infrequent” (Alberto & Troutman, 2006, p. 306). Examples of stimulus control are answering telephones only when they ring (the sound of the ring serving as a discriminative stimulus), driving through intersections when the light is green (the  $S^D$ ), not when it is red (although this is an imperfect  $S^D$ , because drivers often run red lights), and paying attention in class (a response) when being watched by the teacher (an  $S^D$ ).

### **Related studies**

Students with disabilities often demonstrate delays in social development that parallel delays in their academic performance and achievement (Odom, McConnell, & Chandler, 1994). Some students lack skills in initiating and sustaining positive social relationships (Gresham, 1997; Heiman and Margalit, 1998) and in appropriately interpreting social cues (Heron and Harris, 1993). They often exhibit more aggressive and negative verbal and nonverbal behaviors (McConaughy, Mattison, and Peterson, 1994; Sigafos, 1995) and may be either disruptive or withdrawn (Clare & Leach, 1991; McIntosh, Vaughn, and Zaragoza, 1991). Often these behaviors result in students with disabilities having fewer friends than their peers without disabilities as well as their being actively rejected by peers (Farmer and Rodkin,

1996; Nabasoku and Smith, 1993). Such pervasive deficits in social functioning manifested by many students with learning disabilities have been widely acknowledged by the special education community. In fact, in 1987, the Interagency Committee on Learning Disabilities proposed modification of the definition of learning disabilities to include social skill deficits as a primary learning disability.

Social status can take a variety of forms. For example, Coie, Dodge, and Coppotelli (1982) devised a classification system by which they identify popular, rejected, neglected, controversial, and average children. Popular children are those children who, on a sociometric peer nomination instrument, receive a large number of positive choices and few, if any, negative choices. Such children are desired by peers. Conversely, rejected children receive a greater number of negative nominations but few, if any, positive ones. Neglected children are those persons who receive few positive or negative nominations. They are actively ignored, almost invisible persons in social settings. One investigator (Luftig, 1999) has taken to calling them "ghost children" because of their social invisibility.

Beeghly et al. (1990) found that children with Down syndrome are good at maintaining a topic of conversation for a longer period, can engage in appropriate turn taking behavior as compared to the language-matched controls, suggesting this aspect of language as an area of relative strength. Young children with Williams syndrome were also good at maintaining the ongoing topic in interaction with an adult examiner (Kelley and Tager – Flushberg, 1994).

According to several descriptive studies, males with mental retardation have difficulties in maintaining a conversational topic. They tend to perseverate more than other subjects with nonspecific retardation, and also use considerable amount of inappropriate language (Ferrier, Bashir, Meryash, Johnston, and Wolff, 1991).

From the early stages of language development, young normal children begin to demonstrate sensitivity to their conversational partner. Even a two-year-old may repeat an utterance or change the form of an utterance if their partner does not respond (Foster, 1990). Similarly, children with mental retardation will revise, rather than repeat if a listener requests clarification of a previous aspect of the message. Children with Williams syndrome are also good at conversational repairs (Kelley and Tager – Flushberg, 1994).

A high degree of social rejection of persons with mental illness was also found in a study that compared reactions to the behaviors of individuals labeled as mentally ill and those labeled as physically ill (Socall and Holtgraves, 1992). Findings confirmed more willingness to interact with an individual labeled more physically ill than with a similar individual labeled as mentally ill. Desired social distance also increased with severity of symptoms.

## CHAPTER THREE METHODOLOGY

### 3.0 Introduction

This chapter explained the research design, population, sample size, sampling procedures, research instrument and its validity and reliability, data gathering procedures, data analysis and limitations of the study.

### 3.1 Research Design

This study used a *descriptive correlation survey* since it seeks to establish the relationship between operant conditioning and interpersonal characteristics of learners with mental retardation. This is a non-experimental research seeking to describe the characteristics of an individual or a group of individuals.

### 3.2 Research Population

The target population included a total of 5 primary schools in Ollesos Division, Nandi County in Kenya. Ollessos Division has a total of seven primary schools and out of those; five were included with a total of 167 respondents.

### 3.3 Sample Size

In view of the nature of the target population where the teachers are few, the whole population was used in the study. The total number of the target population in this study is 167 and therefore the entire population was involved.

**Table 3. 1: Category of the respondents**

| School code  | Target population |
|--------------|-------------------|
| A            | 45                |
| B            | 37                |
| C            | 33                |
| D            | 27                |
| E            | 25                |
| <b>Total</b> | <b>167</b>        |

Source: Primary data (2013)

### 3.4 Sampling Procedure

The purposive sampling was utilized to select the respondents based on these criteria: Male or female respondents in any of the school included in the study, Teachers trained in special needs education with experience ranging from one year and above. From the list of qualified respondents chosen based on the inclusion criteria, the systematic random sampling was used to finally select the respondents with consideration to the computed minimum sample size.

### 3.5 Research Instrument

The research tools that were utilized in this study include the following: (1) *face sheet* to gather data on the respondents' demographic characteristics (gender, age, qualifications, marital status and working experience) (2) *researcher devised questionnaires* to determine the operant conditioning and interpersonal characteristics. The questionnaire for operant conditioning contains 16 items and that of interpersonal characteristics contains 16 items also. The response mode and scoring are as follow: (4) *strongly agree*, (3) *agree*, (2) *disagree* and (1) *strongly disagree*.

### 3.6 Validity and Reliability of the Instrument

Content validity was ensured by subjecting the researcher devised questionnaires on resource availability and utilization to judgment by the content experts such as professors (3), associate professors (3) and senior lecturers (3) in educational management. However, the supervisor had to first approve the use of these instruments before conducting the research.

The CVI (Content Validity Index) is given by

$$\frac{\textit{Total number of valid items}}{\textit{Total number of all items in the instrument}}$$

The average of CVI from four experts gave the CVI = 0.78.

The test-retest technique was used to determine the reliability (accuracy) of the researcher devised instruments to ten qualified respondents, two from each of the five primary schools. These respondents were not included in the actual study. In this test- retest technique, the questionnaires were administered twice to the same subjects. If the test is reliable and the trait being measured is stable, the results were consistent and essentially the same in both times.

### **3.7 Data Gathering Procedures**

#### ***Before Data Gathering***

An introduction letter was obtained from the College of Higher Degrees and Research for the researcher to solicit approval to conduct the study from respective postgraduate students and lecturers. When approved, the researcher will secure a list of the qualified respondents from universities in charge and select through systematic random sampling from this list to arrive at the minimum sample size.

The respondents were explained to about the study and were requested to sign the Informed Consent Form (Appendix 3).

Reproduce more than enough questionnaires for distribution.

Select research assistants who would assist in the data collection; brief and orient them in order to be consistent in administering the questionnaires.

#### ***During the administration of the questionnaires***

The respondents were requested to answer completely and not to leave any part of the questionnaires unanswered.



The researcher and assistants emphasized retrieval of the questionnaires within five days from the date of distribution.

On retrieval, all returned questionnaires were checked if all are answered.

#### *After the administration of the questionnaires*

After data collection, the researcher edited, coded and entered the data into the SPSS (Statistical Package for Social Scientists), and analyzed that data.

### **3.8 Data Analysis**

The frequency and percentage distribution was used to determine the profile of the respondents in terms age, gender, level of education and working experience.

The mean and standard deviations were applied for the degree of operant conditioning. An item analysis illustrated the strengths and weaknesses based on the indicators in terms of mean and rank. From these strengths and weaknesses, the recommendations were derived.

For the degree of operant conditioning and interpersonal characteristics, the following mean range was used to arrive at the mean of individual indicators and interpretations.

| <b>Mean Range</b> | <b>Response Mode</b> | <b>Interpretation</b> |
|-------------------|----------------------|-----------------------|
| 3.26-4.00         | Strongly Agree       | Very satisfactory     |
| 2.51-3.25         | Agree                | Satisfactory          |
| 1.76-2.50         | Disagree             | Fair                  |
| 1.00-1.75         | Strongly Disagree    | Poor                  |

### **3.9 Ethical Considerations**

To ensure confidentiality of the information provided by the respondents and to ascertain the practice of ethics in this study, the following activities were implemented by the researcher:

1. The respondents and schools were coded instead of reflecting the names.
2. The researcher solicited permission through a written request to the concerned officials of the universities included in the study.
3. Requested the respondents to sign in the *Informed Consent Form* (Appendix 3)
4. Acknowledged the authors quoted in this study and the author of the standardized instrument through citations and referencing.
5. Presented the findings in a generalized manner.

### **3.10 Limitations of the Study**

In view of the following threats to validity, the researcher claimed an allowable 5% margin of error at 0.05 level of significance. Measures are also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study.

*Extraneous variables:* which were beyond the researcher's control such as respondents' honesty, personal biases and uncontrolled setting of the study.

*Testing:* The use of research assistants brought about inconsistency in the administration of the questionnaires in terms of time of administration, understanding of the items in the questionnaires and explanations given to the respondents. To minimize this threat, the research assistants were oriented and briefed on the procedures to be done in data collection.

*Attrition/Mortality:* Not all questionnaires maybe returned neither completely answered nor even retrieved back due to circumstances on the part of the respondents such as travels, sickness, hospitalization and refusal/withdrawal to participate. In anticipation to this, the researcher reserved more respondents by exceeding the minimum sample size. The respondents were also be reminded not to leave any item in the questionnaires unanswered and were closely followed up as to the date of retrieval.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter presents the findings of the research as well as their analysis and interpretation. Where necessary, aids such as tables and figures are used to illuminate the meaning of the data presented. The findings presented in the tables and figures are further explained to equip the reader with clear picture and understanding of the phenomenon under analysis.

#### I Variance in the targeted and actual respondents

The researcher targeted a total of 167 respondents, selecting 45 from school code A, 37 from school code B, 33 from school code C, 27 from school code D, and 25 from school code E. However, not all the targeted sample responded; the actual sample responses were 117 out of the targeted 167, hence, a response rate of 70%. This is indicated in Table 2 below;

**Table 4.1: Variance in the targeted and actual respondents**

| School code  | Target population | Actual response |
|--------------|-------------------|-----------------|
| A            | 45                | 32              |
| B            | 37                | 31              |
| C            | 33                | 22              |
| D            | 27                | 17              |
| E            | 25                | 15              |
| <b>Total</b> | <b>167</b>        | <b>117</b>      |

Source: Primary data, 2013

## **II Demographic characteristics of the respondents**

Demographics can be defined as the physical characteristics of a population such as age, gender, marital status, education, geographical location and occupation. The socio-demographic characteristics measured in this research are gender, age, level of education, and experience in working with the mentally retarded students.

**Table 4.2: Demographic information of the respondents**

| Background information | Category           | Frequency  | Percentage |
|------------------------|--------------------|------------|------------|
| Gender                 | Male               | 72         | 62         |
|                        | Female             | 45         | 38         |
|                        | <b>Total</b>       | <b>117</b> | <b>100</b> |
| Age                    | 20-29              | 52         | 44         |
|                        | 30-39              | 22         | 19         |
|                        | 40-49              | 15         | 13         |
|                        | 50-59              | 26         | 22         |
|                        | 60-69              | 13         | 8          |
|                        | Above 70           | 2          | 2          |
|                        | <b>Total</b>       | <b>117</b> | <b>100</b> |
| Education level        | Certificate        | 21         | 18         |
|                        | Diploma            | 45         | 39         |
|                        | Bachelor           | 40         | 36         |
|                        | Masters            | 9          | 8          |
|                        | <b>Total</b>       | <b>117</b> | <b>100</b> |
| working Experience     | 1-4 years          | 34         | 29         |
|                        | 5-9 years          | 42         | 36         |
|                        | 10-14              | 22         | 19         |
|                        | 15-19              | 9          | 8          |
|                        | 20 years and above | 10         | 9          |
|                        | <b>Total</b>       | <b>117</b> | <b>100</b> |
| Marital status         | Single             | 18         | 15         |
|                        | Married            | 35         | 30         |
|                        | Divorced           | 29         | 25         |
|                        | Widow              | 18         | 16         |
|                        | Widower            | 17         | 15         |
|                        | <b>Total</b>       |            |            |

*Source: Field data, 2013*

The field data in Table 4.2 shows that out of 117 respondents of the study, 72 of them were male (representing 62%) and 45 were female (representing 38%). This shows that there was unfair gender representation because men dominated the workforce in the schools where the study was conducted.

Table 4.2 also indicates that the ages of the respondents were divided into six categories; (below 20 – 29, 20 – 29, 30 – 39, 40 – 49, 50 – 59, 60 – 69 and above 70 years of age. Minority (2) of the respondents were above 70 years (representing 8%), 52 of the respondents were aged between 20 – 29 years (representing 44%), and 22 respondents were aged between 30-39 years (representing 13%). Out of the 117 respondents, 15 were aged between 40 – 49 years (representing 13%), 26 respondents were aged between 50 – 59 years (representing 22%) and the remaining 13 of the respondents were between 60 – 69 years of (representing 8%). These figures show that all the working age groups were considered when carrying out the study.

The respondents were asked of their academic qualifications. The results from the table 3 show that; 21 were certificate holders (representing 18%). On addition, 45 were diploma holders (representing 39%), 40 were bachelor's degree holders (representing 36%), and 9 were Masters' degree holders (representing 8%). This meant that the respondents were educated and hence knowledgeable about the subject of the study.

The information in Table 4.2 also considered working experience obtained by the respondents; that is to say the numbers of years worked with the students with mental retardation. The results showed that 34 of the respondents had worked for 1-4 years (representing 29%), 42 of the respondents had worked for 5-9 years (representing 36%). Furthermore, 22 have worked for 10-14 years (representing 19%), and the (9) of the respondents have worked for 15-19 years (representing 8%). The remaining 10 respondents have worked for more than 20 years (representing 10%). This shows that the study included the different experiences of the respondents so as to attain in-depth views of the different respondents and since the majority (42) of the respondents have worked for 5-9 years, their

responses are genuine because of their experience in working with the mentally retarded students.

**Level of operant conditioning used with learners with moderate mental retardation**

This sub section targets objective 2 of the study. The independent variable in this study was to determine the level of operant conditioning used with learners with moderate mental retardation. Responses were scaled ranging from 1 – 4; where 4=Very Good, 3=Good, 2=Fair and 1=Poor. The key to the rating is: Poor (1.00-1.75), Fair (1.76-2.50), Good (2.51-3.25), Very good (3.26-4.00). The responses were analysed using the mean computed through the SPSS program, and are shown in Table 4.3, below.

**Table 4.3: The level of operant conditioning used with learners with moderate mental retardation**

| Category  | Mean        | Interpretation   | Rank |
|---|-------------|------------------|------|
| I use fixed-ratio schedule to foster quick learning                                     | 4.00        | Very Good        | 1    |
| Learners with moderate mental retardation always repeat behavior that was reinforced    | 3.90        | Very Good        | 2    |
| I explain failure to learners with moderate mental retardation                          | 3.61        | Very Good        | 3    |
| There is average savings per household in the community                                 | 3.29        | Very Good        | 4    |
| I use verbal praise to encourage learners with moderate mental retardation              | 3.27        | Very Good        | 5    |
| I notice activities that occur by chance and I reinforce them                           | 3.27        | Very Good        | 6    |
| Learners with mental retardation derive satisfaction from praise                        | 3.25        | Good             | 7    |
| I present information in small units  | 3.25        | Good             | 8    |
| I give immediate feedback to learners with moderate mental retardation                  | 3.25        | Good             | 8    |
| Learners clap for the learner with moderate mental retardation after a correct response | 3.20        | Good             | 10   |
| I reward learners after several successful attempts                                     | 3.19        | Good             | 11   |
| I use primary reinforcements such as palatable items like sweets                        | 3.14        | Good             | 12   |
| I pair good performance with a secondary reinforcement such as a reward                 | 3.13        | Good             | 13   |
| I use neutral stimulus such as awarding good grades                                     | 3.04        | Good             | 14   |
| Learners with moderate mental retardation get excited when they get good grades         | 3.00        | Good             | 15   |
| I do not indicate the grade if the learner with moderate mental retardation fails       | 2.95        | Good             | 16   |
| <b>Average Mean</b>   | <b>3.26</b> | <b>Very Good</b> |      |

*Source: Field data, 2013*



| Mean Range | Response Mode     | Interpretation |
|------------|-------------------|----------------|
| 3.26-4.0   | Strongly agree    | Very Good      |
| 2.51-3.25  | Agree             | Good           |
| 1.76-2.50  | Disagree          | Fair           |
| 1.00-1.75  | Strongly disagree | Poor           |

The results in Table 4.3 show the level of operant conditioning used with learners with moderate mental retardation. Concerning whether the teacher uses fixed-ratio schedule to foster quick learning, this was ranked first with (mean = 4.00) interpreted as very good. This show a perfect strongly agrees responses. This means that teachers use fixed ration schedules to foster quick learning. In terms of whether learners with moderate mental retardation always repeat behavior that was reinforced, this was ranked 2<sup>nd</sup> with (mean = 3.90) interpreted as very good. As earlier noted, this might be as a result of forgetfulness and lack of retention. The third rated item was about if the teacher explains failure to learners with moderate mental retardation. This had a (mean = 3.61), interpreted as very good. Concerning whether there is average savings per household in the community, this was ranked fourth with (mean = 3.29), interpreted as very good. In terms of whether the teacher uses verbal praise to encourage learners with moderate mental retardation, this was rated 5<sup>th</sup> with mean (3.27) interpreted as very good. This means that continuously the teachers praises learners for their participation and activity in class. The item “I notice activities that occur by chance and I reinforce them” was ranked 6<sup>th</sup> with mean (3.27) interpreted as very good.

The remaining of the items were all rated good. The item that Learners with mental retardation derive satisfaction from praise was ranked 7<sup>th</sup> with mean (3.25) interpreted as good; concerning whether the teachers present information in small units, this was ranked 8<sup>th</sup> with mean (3.25) interpreted as good. This was tied up with the item that “I give immediate feedback to learners with moderate mental retardation” ranked 8<sup>th</sup> with mean (3.25), interpreted as good. For the item that “Learners clap for the learner with moderate mental retardation after a correct response” was ranked 10<sup>th</sup> with (mean = 3.20) interpreted as good. About whether the teacher rewards the learners after several successful attempts, this was ranked 11<sup>th</sup> with mean (3.19), interpreted as good. The item “I use primary reinforcements such as palatable items like sweets” was ranked 12 with (mean = 3.14) interpreted as good;

the item “I pair good performance with a secondary reinforcement such as a reward” was ranked 13<sup>th</sup> with (mean = 3.13) interpreted as good; the item that the teacher uses neutral stimulus such as awarding good grades was ranked 14<sup>th</sup> with mean (3.04) interpreted as good. This means as teachers are dealing with these learners, they tend to motivate them by giving them good grades. The item that Learners with moderate mental retardation get excited when they get good grades was ranked 15<sup>th</sup> with mean (3.00) interpreted as high. This is a sign of joy after success. This can as well work in favor of the teacher as it works as a motivation. The item that “I do not indicate the grade if the learner with moderate mental retardation fails” was ranked 16<sup>th</sup> with mean (2.95) interpreted as good. Poor marks can demotivate learners, and can lead to further deterioration in performance. Therefore giving no grades can work as a motivation unless the learners recognize that the reason was poor grades.

In general, the overall average (mean = 3.26), interpreted as very good. This means that in general, the level of operant conditioning for learners who are moderately mentally retarded was very high. This means that teachers work hard to stimulate mentally retarded learners so that they can work hard and succeed in schools.

These findings can be related to studies carried out earlier that show that children with mental retardation exhibit significant deficits in referential looking behavior, the ability to establish joint reference to objects. Jones (1979, 1980) documented those subjects with, aged 8 – 22 months developmentally, engaged in less than one-half of the referential looking than their matched normal developmentally subjects. Gunn, Berry, and Andrews (1982) found that the looking behavior of children with mental retardation had an interpersonal rather than referential quality. Sinson and Wetherick (1982) found differential social interaction patterns which lead to isolation in children with mental retardation. This was attributable to the subjects' failure to observe the conventions of mutual gaze. These studies together suggest a difference in visual behavior essential to establishing prelinguistic interaction patterns (Schaffer, Collis, and Parsons, 1977); referential communication (Gray, 1978); and language development (Ryan, 1974). Referential looking is a major method of initiating interaction (Jones, 1980) and the establishment of joint reference is essential for vocabulary learning.

These findings can also be related to studies of (Kliewer and Biklen, 2001) that revealed that traditionally, special educators have de-emphasized literacy, particularly for students with moderate to severe mental retardation, in favor of functional, social, or motor skills. Many people with mental retardation read below their projected capabilities, and both general and special education teacher education textbooks are marked by a scarcity of information on academic characteristics, assessment procedures, and instruction in literacy for students with mental retardation. Only recently have educators begun to recognize the value of reading and writing skills for all students, including those with severe mental retardation (Katims, 2000).

#### **Level of interpersonal characteristics of learners with moderate mental retardation**

This sub section targets objective e of the study. The dependent variable in this study was interpersonal characteristics. The objective under this variable was to determine the level of interpersonal characteristics of learners with moderate mental retardation. Responses were scaled ranging from 1-4; where 4 = Very Good, 3 = Good, 2 = Fair and 1 = Poor. The key to the rating is: Poor (1.00 - 1.75), Fair (1.76-2.50), Good (2.51-3.25), Very good (3.26-4.00). The responses were analysed using the mean computed through the SPSS program, and are shown in Table 4.4, below.

**Table 4.4: The interpersonal characteristics of learners with moderate mental retardation**

| <b>Category</b>  | <b>Mean</b> | <b>Interpretation</b> | <b>Rank</b> |
|--|-------------|-----------------------|-------------|
| Learners with moderate mental retardation act without considering the consequences               | <b>3.54</b> | Very Good             | 1           |
| Learners with moderate mental retardation are disorganized                                       | <b>3.54</b> | Very Good             | 1           |
| Learners with moderate mental retardation have poor communication skills                         | <b>3.49</b> | Very Good             | 2           |
| learners with moderate mental retardation have difficulty waiting for their turns                | <b>3.33</b> | Very Good             | 3           |
| Learners with moderate mental retardation lack self-help skills                                  | <b>3.27</b> | Very Good             | 4           |
| Learners with moderate mental retardation have short memory span                                 | <b>3.21</b> | Good                  | 5           |
| Learners with moderate mental retardation talk excessively without saying something of substance | <b>3.19</b> | Good                  | 6           |
| Learners with moderate mental retardation have difficulty following instruction                  | <b>3.17</b> | Good                  | 7           |
| Learners with moderate mental retardation lose books, papers, assignments and toys               | <b>3.06</b> | Good                  | 8           |
| Learners with moderate mental retardation regularly focus on a single object and lose attention  | <b>3.05</b> | Good                  | 9           |
| Learners with moderate mental retardation intrude others in conversations                        | <b>3.04</b> | Good                  | 10          |
| Learners with moderate mental retardation have low self-esteem                                   | <b>3.02</b> | Good                  | 11          |
| Learners with moderate mental retardation have difficulty sustaining attention to a task         | <b>3.00</b> | Good                  | 12          |
| Learners with moderate mental retardation have difficulty playing quietly                        | <b>2.99</b> | Good                  | 13          |
| Learners with moderate mental retardation have difficulty in motor coordination                  | <b>2.93</b> | Good                  | 14          |
| Learners with moderate mental retardation have difficulty in expressing themselves               | <b>2.89</b> | Good                  | 15          |
| <b>Average Mean</b>  | <b>3.23</b> | Good                  |             |

*Source: Field data, 2013*

Table 4.4 shows the interpersonal characteristics of learners with moderate mental retardation. The item that concerning learners with moderate mental retardation acting without considering the consequences was rated the highest with (mean = 3.54) interpreted as very

good. This means that learners with mental retardation act any how even though the consequences are high. About whether learners with moderate mental retardation are disorganized, this was ranked first as well, since it tied up with whether Learners with moderate mental retardation act without considering the consequences, with (mean = 3.54) interpreted as very good. This still shows that learners with moderate mental retardation are disorganized, and this seems normal. Concerning the item that “Learners with moderate mental retardation have poor communication skills”, this was ranked the second with (mean = 3.49) interpreted as very good. This shows that it is always hard to communicate with peers as well as teacher for moderate retarded learners. The item “learners with moderate mental retardation have difficulty waiting for their turns” was ranked third with (mean = 3.33) interpreted as very good. This shows that learners that are moderately mentally retarded are impatient. This means they answer any time and anyhow during lessons.

The item that “Learners with moderate mental retardation lack self-help skills” was ranked the fourth with (mean = 3.27) interpreted as very good. For whether Learners with moderate mental retardation have short memory span, this was ranked 5<sup>th</sup> with (mean = 3.21), interpreted as good or high. Part of signs of mental retardation is lack of ability to retain information; therefore this is not a surprise. About whether Learners with moderate mental retardation talk excessively without saying something of substance, this was ranked 6<sup>th</sup> with mean (3.19), interpreted as good; on Learners with moderate mental retardation have difficulty following instruction, this was ranked 7<sup>th</sup> with mean (3.17) interpreted as good; for Learners with moderate mental retardation losing books, papers, assignments and toys, this was rated 8<sup>th</sup> with mean (3.06) interpreted as good; Learners with moderate mental retardation regularly focus on a single object and lose attention was ranked 9<sup>th</sup> with mean (3.05) interpreted as good; Learners with moderate mental retardation intrude others in conversations was ranked 10<sup>th</sup> with mean (3.04) interpreted as good; Learners with moderate mental retardation have low self-esteem was rated 11<sup>th</sup> with mean (3.04) interpreted as good/high; Learners with moderate mental retardation have difficulty sustaining attention to a task was ranked 12<sup>th</sup> with mean (3.00) interpreted as high; Learners with moderate mental retardation have difficulty playing quietly was ranked 13<sup>th</sup> with mean (2.99), interpreted as high/good; Learners with moderate mental retardation have difficulty in motor coordination was ranked 14<sup>th</sup> with mean (2.89) interpreted as high/good. The last item was about whether Learners

with moderate mental retardation have difficulty in expressing themselves, with (mean = 2.89) interpreted as good.

Generally, the overall average in measuring the level of operant conditioning was (mean = 3.23) interpreted as good. This shows that the level of interpersonal characteristics of learners that are moderately mentally retarded was high. These high means strongly reveal that the respondents strongly agreed and agreed respectively with the higher means that they were required to rank their arguments against. The respondents agreed with the interpersonal characteristics of the mentally retarded learners in the selected schools where the study took place.

These interpersonal characteristics of the mentally retarded children are in relation with the studies carried out by Borthwick – Duffy and Eyman, 1990). These studies show the terms of behavioral excesses and challenging behavior students with mental retardation are more likely to exhibit behavior problems than are children without disabilities. Difficulties accepting criticism, limited self-control, and bizarre and inappropriate behaviors such as aggression or self-injury are often observed in children with mental retardation. Some of the genetic syndromes associated with mental retardation tend to include abnormal behavior (e.g., children with Prader-Willi syndrome often engage in self-injurious or obsessive-compulsive behavior). In general, the more severe the retardation, the higher the incidence of behavior problems. Individuals with mental retardation and psychiatric conditions requiring mental health supports are known as “dual diagnosis” cases. Data from one report showed that approximately 10% of all persons with mental retardation served by the state of California were dually diagnosed (Borthwick-Duffy and Eyman, 1990). Although there are comprehensive guidelines available for treating psychiatric and behavioral problems of persons with mental retardation (Rush and Francis, 2000), much more research is needed on how best to support this population.

#### **Relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation**

The fourth objective of the study was to establish whether there is a relationship between operant conditioning on interpersonal characteristics of learners with moderate mental

retardation. The researcher applied Pearson Linear Correlation Coefficient at 0.05 level of significance by correlating the means of the variables and testing the hypothesis that there is no relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation. The results are shown in the table 4.5 below:

**Table 4.5: Pearson correlation of the significant relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation**

| Variables Correlated   | R – value | Sig. value | Interpretation         | Decision on H0 |
|--|-----------|------------|------------------------|----------------|
| Operant conditioning<br>Vs<br>interpersonal<br>characteristics | 0.632     | 0.000      | Relationship<br>exists | Reject         |

**Source:** Field data (2013)

Results in Table 4.5 indicated a positive significant relationship between the level of operant conditioning and interpersonal characteristics, since the sig. value (0.000) was less than 0.05, which is the maximum level of significance required to declare a significant relationship. This implies that improved operant conditioning leads to improve interpersonal characteristics. Therefore basing on these results, the stated null hypothesis was rejected and a conclusion is made that improved operant conditioning improves interpersonal characteristics.

**Table 4.6: Regression Analysis between operant conditioning on interpersonal characteristics of learners with moderate mental retardation**

| Variable regressed                                     | Adj -<br>R <sup>2</sup> | F - value | Sig.  | Interpretation      | Decision<br>on H <sub>0</sub> |
|--|-------------------------|-----------|-------|---------------------|-------------------------------|
| Operant conditioning and interpersonal characteristics | 0.355                   | 44.118    | 0.000 | Relationship exists | Reject H <sub>0</sub>         |
| Coefficients   | Beta                    | t         | Sig.  | Interpretation      | Decision                      |
| Constant   | 0.859                   | 2.794     | 0.005 | Relationship exists | Reject H <sub>0</sub>         |
| Operant conditioning (x)                               | 0.978                   | 5.941     | 0.000 | Relationship exists | Reject H <sub>0</sub>         |

**Source:** Field data (2013)

The Linear regression results in table 4.6 above indicate that operant conditioning has an effect on interpersonal characteristics of learners with moderate mental retardation (F= 44.118, sig =0.000< 0.05). The results indicate that operant conditioning accounts for 35.5% of the variations in interpersonal characteristics (Adjusted R<sup>2</sup> =0.355). The coefficients section of this table indicates the extent to which the explanatory variable (operant conditioning) explains the explained variable (interpersonal characteristics) and this is indicated by Beta values. From table 4.6, if the explanatory variable which is operant conditioning increase by one unit it implies that the explained variable (interpersonal characteristics) increases by 0.859. If the explanatory variable is zero, the explained is 0.978.



## CHAPTER FIVE

### DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

#### 5.1 Introduction

This chapter dealt with the findings, conclusions and recommendations of the study.

#### 5.2 Discussion

The study was guided by four objectives. They included: establishing the demographic characteristics of respondents, determining the level of operant conditioning of learners who are moderately mentally retarded, determining the level of interpersonal characteristics of learners who are moderately mentally retarded, and establishing whether there is a relationship between operant conditioning and interpersonal characteristics of learners who are moderately mentally retarded. The findings are as follows:

##### **Profile of Respondents**

On the demographic profiles of the respondents in terms of gender, the study found that the majority of the respondents were males 62% while 38% were female, meaning there was a fair gender representation while conducting the study in the study. On the ages of the respondents, the study revealed that minority (8%) of the respondents were above 70 years, and the majority of the respondents were aged between 20-29 years, with 44%. These figures show that all the working age groups were considered when carrying out the study. On the respondents' academic qualifications, the findings revealed that the majority of the respondents were those with diplomas with (39%) of the respondents and the minority were those with master's degree with (8%) of the respondents. On the working experience obtained from the respondents, the study revealed that the majority of the respondents had worked for 5-9 years (representing 42%) and the minority had worked for 15-19 years (representing 8%).

##### **The Level of Operant Conditioning Used With Learners with Moderate Mental Retardation**

On the level of operant conditioning used with learners with moderate mental retardation, the findings show that many of the respondents agreed and strongly agreed with the responds that they were asked to rank their views. The findings show that the operant conditionings are

strong in learners with moderate mental retardation a in the schools included in the study, given the high means recorded on the responses.

The overall average (mean = 3.26), interpreted as very good. This means that in general, the level of operant conditioning for learners who are moderately mentally retarded was very high. This means that teachers work hard to stimulate mentally retarded learners so that they can work hard and succeed in schools.

Concerning whether the teacher uses fixed-ratio schedule to foster quick learning, this was ranked first with (mean = 4.00) interpreted as very good. This show a perfect strongly agrees responses. This means that teachers use fixed ration schedules to foster quick learning.

The item that “I do not indicate the grade if the learner with moderate mental retardation fails” was ranked last with mean (2.95) interpreted as good. Poor marks can demotivete learners, and can lead to further deterioration in performance. Therefore giving no grades can work as a motivation unless the learners recognize that the reason was poor grades.

### **The Interpersonal Characteristics of Learners with Moderate Mental Retardation**

On the interpersonal characteristics of learners with moderate mental retardation, the study revealed that; many respondents agreed and strongly agreed respectively with the responses. Generally, the overall average in measuring the level of interpersonal characteristics was (mean = 3.23) interpreted as good. This shows that the level of operant condition of learners that are moderately mentally retarded was high. The item that concerning learners with moderate mental retardation acting without considering the consequences was rated the highest with (mean = 3.54) interpreted as very good. This means that learners with mental retardation act any how even though the consequences are high. The last item was about whether Learners with moderate mental retardation have difficulty in expressing themselves, with (mean = 2.89) interpreted as good.

### **Relationship between Operant Conditioning and Interpersonal Characteristics of Learners with Moderate Mental Retardation**

The Pearson Correlation coefficient showed the existence of relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation, and the findings showed that there is a positive significant relationship ( $r = 0.632$ ). Therefore the null hypothesis that there is no relationship between operant conditioning on interpersonal characteristics of learners with moderate mental retardation was rejected.

### **5.3 CONCLUSIONS**

Based on the study findings presented, the following conclusions were drawn;

#### ***Strength***

Data analysis on the level of operant conditioning with learners who are moderately mentally retarded, concerning whether the teacher uses fixed-ratio schedule to foster quick learning, this was as very good. It in fact showed a perfect strongly agree responses. This means that teachers used fixed - ratio schedules to foster quick learning.

Data analysis on the level of interpersonal characteristics with learners who are moderately mentally retarded, concerning learners with moderate mental retardation acting without considering the consequences was rated the highest and interpreted as very good. This means that learners with mental retardation act any how even though the consequences are high.

#### ***Weaknesses***

While determining the level of operant conditioning with learners who are moderately mentally retarded, the item that "I do not indicate the grade if the learner with moderate mental retardation fails" was ranked last with but interpreted as good. Though, it was last ranked item, it is still good. This means that teachers actually do not actually indicate marks when these students fail.

While determining the level of interpersonal characteristics with learners who are moderately mentally retarded, the last item was about whether Learners with moderate mental retardation have difficulty in expressing themselves though it was interpreted as good.

### *Testing Hypothesis*

The study found out that there is a positive significant relationship and therefore the hypothesis that there is no relationship between operant conditioning and interpersonal characteristics of learners with moderate mental retardation was rejected. This led to a conclusion that there is a relationship between operant conditioning and interpersonal characteristics of learners with moderate mental retardation.

### **5.4 RECOMMENDATIONS**

The following are suggested in view of the finding;

On the respondents' profile, the study recommends that there should be equal gender representation when employing human resource in schools. This because the study found the majority of the respondents was males. The government during recruiting of teacher should consider fair representation of men and women. Even before then, during training of teachers, females should be given a higher consideration to bridge the gap between male and female employees or teachers.

Teachers should devise other means in case of failure by learners. This will increase the security of learners in class other than suspicions. Provision of positive reinforcements may stimulate the learners towards positive attitude and working hard towards class work progress and performance.

Teachers should find ways up on they can help learners in expressing themselves. These may be through motivation and praises. The researcher found out that concerning the level of interpersonal characteristics of moderately retarded learners, learners have a challenge expressing themselves. Therefore, teacher should devise means of motivation and encouraging learners towards self-expression and be able to give their contributions during class lessons.

### **Areas for further research**

Given the time and scope of the study, this research could not digest all the necessary information to cover the researcher gap. So, further research needs to be done on teacher-relationship and the performance of learners with mental retardation in selected primary schools in Kenya.

## REFERENCES

- Abbeduto, L., & Rosenberg, S., (1993). *Language and communication in mental retardation*. Hillsdale, New Jersey: Erlbaum.
- Abilla C. M. (1988), A case study on special education in Kenya. Nairobi: UNESCO
- Ahuja, N. (2002). *A Short Textbook of Psychiatry* (5<sup>th</sup> ed.). New Delhi: Jaypee Brothers Medical Publishers.
- Alberto, P. A., & Troutman, A. C. (2006). *Applied behavior analysis for teachers* (7<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.
- American Psychiatric Association (1995). *Diagnostic and Statistical Manual of Mental Disorders* (1<sup>st</sup> ed.). New Delhi: Jaypee Publishers.
- Armstrong, F. (2002). The Historical development of special education: Humanitarian rationality or wild profusion of entangled events, *History of education*, 31 (5), 437 – 456
- Bates, E., Bretherton, I., & Snyder, L.(1988). *From first words to grammar: Individual differences & dissociable mechanisms*. New York: Cambridge University Press
- Bates, E., Camaioni, L., & Volterra, V.(1975). The acquisition of performatives prior to speech. *Merrill-Palmer Quarterly*, 21, 205-224.
- Beeghly, M., Weiss-Perry, B., & Cicchetti, D.(1990). Beyond sensorimotor functioning: Early communicative and play development of children with Down syndrome. In D.Cicchetti & M. Beeghly (Eds.), *Children with Down syndrome: A developmental perspective* (pp.329-368). New York: Cambridge University Press.
- Bellugi, U., Bihrlle, A., Neville, H., Jernigan, T., & Doherty, S.(1992). Language, Cognition and brain organization in a neurodevelopmental disorder. In M. Gunnar & C. Nelson (Eds.), *Developmental behavioral neuroscience* (pp.201-232). Hillsdale, New Jersey:Erlbaum.

- Berger, J., & Cunningham, C. (1981). The development of eye contact between mothers and normal versus Down's syndrome infants. *Developmental Psychology*, 19, 322-331.
- Berger, J., & Cunningham, C. (1983). The development of early vocal behaviors and interactions in Down syndrome and non-handicapped infant-mother pairs. *Developmental psychology*, 19, 322-331.
- Berk, L.E. (1996), *Child Development* (3<sup>rd</sup> ed.). New Delhi: Prentice-Hall of India.
- Bloom, L., Rocissano, L., & Hood, L.(1976). Adult-child discourse: Developmental interaction between information processing and linguistic knowledge. *Cognitive Psychology*, 18, 521-552.
- Brown, R. (1973). *A first language*. Cambridge, MA: Harvard University Press.
- Bruner, J.(1975). From communication to language: A psychological perspective. *Cognition*, 3, 255-287.
- Burack, J.A., Hodapp, R.M., & Zigler, E. (1998). *Handbook of Mental Retardation and Development*. New York: Cambridge University Press.
- Bushnell, I., Sai, F., & Mullin, J.T.(1989). Neonatal recognition of the mother's face. *British Journal of Developmental Psychology*, 7, 3-15.
- Callahan, W. P. (1978), International perspectives in curriculum development in special education: Great Britain – USA. Paper presented at the World congress on future special education.
- Cardoso-Martins, C., Mervis, C.B. & Mervis, C: A. (1985). Early vocabulary acquisition by children with Down syndrome. *American Journal of Mental Deficiency*, 90, 177-184.
- Coggins,T.,Carpenter,R.,&Owings,N.(1983).Examining early intentional communication in Down's syndrome and nonretarded children. *British Journal of Disorders ofcommunication*,18,99-107.

- Davison, G.C., & Neale, J.M.(1994). *Abnormal Psychology* (6<sup>th</sup> ed.). New York: John Wiley & Sons.
- Dyson, A. (1995), *Dilemmas, Contradictions and democracy: Models in the governance of special needs education in England and Wales*. Newcastle, UK: University of Newcastle upon Tyne.
- Gredler, M. E. (2005). *Learning and instruction: Theory into practice* (5th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.
- Heward, C., and Lloyd – Smith, M. (1990). Assessing the impact of legislation on special education policy: A historical analysis. *Journal of education policy*, 5(1), 21 – 36
- ILO, (1997). *Employment of people with disabilities: The impact of legislation*. Geneva: ILO.
- Jackson, R. (2006). Review of special educational needs: A new look. *The British Journal of developmental Disabilities*, 52(102), 65 – 75.
- Kazdin, A. E. (2001). *Behavior modification in applied settings* (6th ed.). Belmont, CA: Wadsworth.
- Kiarie, M. W. (2004). Education of students with visual impairment in Kenya: Trends and Issues. *International Journal of special Education* 19(2), 16 – 22.
- King K. (2007). Balancing basic and post basic education in Kenya: National Versus international policy agendas. *International Journal of education development*, 27(4), 358 – 370.
- Landrum, T. J., & Kauffman, J. M. (2006). Behavioral approaches to classroom management. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice and contemporary issues*. Mahwah, NJ: Erlbaum.
- MarsgroupKenya (2008). A proposed cabinet for the government of the republic of Kenya. From <http://www.marsgroupkenya.org>
- Miltenberger, R. G. “Behavioral Modification: Principles and Procedures”. Thomson/Wadsworth, 2008. p. 9.
- Ministry of Education, (2008). Special education in Kenya Retrived March 6<sup>th</sup> 2009, from [www.education.go.ke/specialeducation.php](http://www.education.go.ke/specialeducation.php).



- Mungai A. M. (2002). The Quest for education in post-colonial Kenya: My personal experiences. Paper presented at the Annual Meeting of the Comparative and International Education Society.
- Mutua D. M. and Dimitrov, N. K (2001). Parents' expectations about future outcomes of children with mental retardation in Kenya: Differential effects of gender and severity of Mental Retardation. *The Journal of Special Education*.
- Muuya J. (2002). The aims of special education schools and units in Kenya: A survey of teachers. *European journal of Special Needs Education*.
- Ntarangwi, M. (2003). The challenges of education and development and post-colonial Kenya. Council for Development of Social Science Research in Africa.
- Schacter, Daniel L., Daniel T. Gilbert, and Daniel M. Wegner. "B.F Skinner: The role of reinforcement and Punishment", subsection in: *Psychology*; Second Edition. New York: Worth, Incorporated, 2011, 278-288.
- Skinner, B. F. "Are theories of learning necessary?" 1950, *Psychological Review*, 57, 193-216.
- Skinner, B. F. "The Behavior of Organisms: An Experimental Analysis", 1938 New York: Appleton-Century-Crofts
- Skinner, B. F. (1938). *The behavior of organisms*. New York: Appleton-Century- Crofts.
- Skinner, B. F. (1953). *Science and human behavior*. New York: Macmillan.
- Skinner, B. F. (1963). Operant behavior. *American Psychologist*, 18, 503–515.
- Skinner, B. F. (1969). *Contingencies of reinforcement*. New York: Appleton-Century-Crofts.
- Thomas D. and Petrie I. (1991). Assessment and evaluation in special education. *Studies in Educational Education*.
- Thorndike, E.L. (1901). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Review Monograph Supplement*, 2, 1–109.
- UNESCO (1994). The Salamanca statement and framework for action on special needs education. Paris.
- Walker, J. E., Shea, T. M., & Bauer, A. M. (2004). *Behavior management: A practical approach for educators*. Upper Saddle River, NJ: Pearson/Prentice Hall.

APPENDIX 1  
TRANSMITTAL LETTER

OFFICE OF THE DEPUTY VICE CHANCELLOR (DVC)  
COLLEGE OF HIGHER DEGREES AND RESEARCH (CHDR)

Dear Sir/Madam,

**RE: INTRODUCTION LETTER FOR Mr. KAMAREY BERNARD KIPYEGO  
REG.NO. MSEN/27047/121/DF, TO CONDUCT RESEARCH IN YOUR  
INSTITUTION**

The above mentioned candidate is a bonafide student of Kampala International University pursuing a master's degree in special needs education.

He is currently conducting a field research for his thesis entitled, **Operant conditioning and Interpersonal Characteristics of Moderately Mentally Retarded Learners**. Your institution has been identified as a valuable source of information pertaining to his research project. The purpose of this letter then is to request you to avail him with the pertinent information she may need.

Any data shared with him will be used for academic purposes only and shall be kept with utmost confidentiality.

Any assistance rendered to him will be highly appreciated.

Yours truly,

---

Novembrieta R. Sumil, Ph.D.

Deputy Vice Chancellor, CHDR

**APPENDIX II**  
**CLEARANCE FROM ETHICS COMMITTEE**

Date \_\_\_\_\_

**Candidate's Data**

Name \_\_\_\_\_

Reg.# \_\_\_\_\_

Course \_\_\_\_\_

Title of Study \_\_\_\_\_

---

**Ethical Review Checklist**

**The study reviewed considered the following:**

- Physical Safety of Human Subjects
- Psychological Safety
- Emotional Security
- Privacy
- Written Request for Author of Standardized Instrument
- Coding of Questionnaires/Anonymity/Confidentiality
- Permission to Conduct the Study
- Informed Consent
- Citations/Authors Recognized

**Results of Ethical Review**

- Approved
- Conditional (to provide the Ethics Committee with corrections)
- Disapproved/ Resubmit Proposal

**Ethics Committee (Name and Signature)**

Chairperson \_\_\_\_\_

Members \_\_\_\_\_

APPENDIX III

INFORMED CONSENT

I am giving my consent to be part of the research study of **Mr. Kamarey** that will focus on **Operant conditioning and Interpersonal Characteristics of Moderately Mentally Retarded Learners**. I shall be assured of privacy, anonymity and confidentiality and that I will be given the option to refuse participation and right to withdraw my participation anytime.

I have been informed that the research is voluntary and that the results will be given to me if I ask for it.

Initials: \_\_\_\_\_

Date \_\_\_\_\_

**APPENDIX IV**  
**RESEARCH INSTRUMENT**

*FACE SHEET*

**Please tick where appropriate**

Gender:

\_\_\_\_\_ Male

\_\_\_\_\_ Female

Age

\_\_\_\_\_ 21 – 30 yrs

\_\_\_\_\_ 31 – 40 yrs

\_\_\_\_\_ 41 – 50 yrs

\_\_\_\_\_ 51 and above

**Level of education**

\_\_\_\_\_ Primary school

\_\_\_\_\_ Secondary (O-Level)

\_\_\_\_\_ Secondary (A-Level)

\_\_\_\_\_ Other

**Working experience**

\_\_\_\_\_ below 2yrs

\_\_\_\_\_ 3-5 yrs

\_\_\_\_\_ 7-8 yrs

\_\_\_\_\_ above 8 yrs

## QUESTIONNAIRE FOR OPERANT CONDITIONING

**Direction:** On the space provided before each option, indicate your best choice by using the rating system below:

| <b>Response Mode</b> | <b>Rating</b> | <b>Interpretation</b>             |
|----------------------|---------------|-----------------------------------|
| Strongly Agree       | (4)           | You agree with no doubt at all    |
| Agree                | (3)           | You agree with some doubt         |
| Disagree             | (2)           | You disagree with some doubt      |
| Strongly disagree    | (1)           | You disagree with no doubt at all |

1. \_\_\_\_\_ I use verbal praise to encourage learners with moderate mental retardation
2. \_\_\_\_\_ Learners with moderate mental retardation get excited when they get good grades
3. \_\_\_\_\_ Learners with mental retardation derive satisfaction from praise
4. \_\_\_\_\_ I use fixed-ratio schedule to foster quick learning
5. \_\_\_\_\_ Learners clap for the learner with moderate mental retardation after a correct response
6. \_\_\_\_\_ I give immediate feedback to learners with moderate mental retardation
7. \_\_\_\_\_ I do not indicate the grade if the learner with moderate mental retardation fails.
8. \_\_\_\_\_ I pair good performance with a secondary reinforcement such as a reward.
9. \_\_\_\_\_ Learners with moderate mental retardation always repeat behavior that was reinforced
10. \_\_\_\_\_ I present information in small units
11. \_\_\_\_\_ There is average savings per household in the community
12. \_\_\_\_\_ I explain failure to learners with moderate mental retardation
13. \_\_\_\_\_ I reward learners after several successful attempts
14. \_\_\_\_\_ I use primary reinforcements such as palatable items like sweets
15. \_\_\_\_\_ I use neutral stimulus such as awarding good grades
16. \_\_\_\_\_ I notice activities that occur by chance and I reinforce them

## QUESTIONNAIRE FOR INTERPERSONAL CHARACTERISTICS

**Direction:** On the space provided before each option, indicate your best choice by using the rating system below:

| Response Mode     | Rating | Description                       |
|-------------------|--------|-----------------------------------|
| Strongly Agree    | (4)    | You agree with no doubt at all    |
| Agree             | (3)    | You agree with some doubt         |
| Disagree          | (2)    | You disagree with some doubt      |
| Strongly disagree | (1)    | You disagree with no doubt at all |

1. \_\_\_\_\_ Learners with moderate mental retardation have difficulty playing quietly
2. \_\_\_\_\_ learners with moderate mental retardation have difficulty waiting for their turns
3. \_\_\_\_\_ Learners with moderate mental retardation have difficulty following instruction
4. \_\_\_\_\_ Learners with moderate mental retardation have difficulty sustaining attention to a task
5. \_\_\_\_\_ Learners with moderate mental retardation talk excessively without saying something of substance
6. \_\_\_\_\_ Learners with moderate mental retardation intrude others in conversations
7. \_\_\_\_\_ Learners with moderate mental retardation lose books, papers, assignments and toys
8. \_\_\_\_\_ Learners with moderate mental retardation act without considering the consequences
9. \_\_\_\_\_ Learners with moderate mental retardation have low self-esteem
10. \_\_\_\_\_ Learners with moderate mental retardation have short memory span
11. \_\_\_\_\_ Learners with moderate mental retardation have difficulty in motor coordination

**APPENDIX VII  
TIME FRAME**

| Activity                   | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Conceptual Phase        |     |     |     |     |     |     |     |     |     |     |     |     |
| Chapter 1                  |     |     |     |     |     |     |     |     |     |     |     |     |
| 2. Design & Planning Phase |     |     |     |     |     |     |     |     |     |     |     |     |
| Chapter 2-3                |     |     |     |     |     |     |     |     |     |     |     |     |
| 3. Thesis Proposal         |     |     |     |     |     |     |     |     |     |     |     |     |
| 4. Empirical Phase         |     |     |     |     |     |     |     |     |     |     |     |     |
| Data Collection            |     |     |     |     |     |     |     |     |     |     |     |     |
| 5. Analytic Phase          |     |     |     |     |     |     |     |     |     |     |     |     |
| Chapter 4-5                |     |     |     |     |     |     |     |     |     |     |     |     |
| 6. Dissemination Phase     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7. Viva Voce               |     |     |     |     |     |     |     |     |     |     |     |     |
| 8. Revision                |     |     |     |     |     |     |     |     |     |     |     |     |
| 9. Final Book Bound Copy   |     |     |     |     |     |     |     |     |     |     |     |     |
| 10. Clearance              |     |     |     |     |     |     |     |     |     |     |     |     |
| 11. Graduation             |     |     |     |     |     |     |     |     |     |     |     |     |



## RESEARCHER'S CURRICULUM VITAE

To document the details of the researcher, his competency in writing a research and to recognize his efforts and qualifications, this part of the research report is thus meant.

### **Personal Profile**

Name: Kamarey Bernard Kipyego

Gender: Male

Nationality: Kenyan

### **Educational Background**

Masters Candidate (Masters of special Needs Education)

Bachelor of Education in Special Needs Education