EFFECTS OF THE *EXPLORE* CURRICULUM ON THE SOCIAL SKILLS OF ADOLESCENTS WITH INTELLECTUAL DISABILITY IN A SPECIAL SCHOOL IN IBADAN

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DECLARATION

This dissertation is submitted in partial fulfilment for the awards of the Master of Science degree in Child and Adolescent Mental Health, University of Ibadan. This study has not been presented to any institution for any award

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CERTIFICATION

The study reported in this dissertation was conducted by Dr. Celia Yetunde Adeniyi of the Centre for Child and Adolescent Mental Health, University of Ibadan, under my supervision.

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LIST OF ABBREVIATIONS

ID	Intellectual Disability
IQ	Intelligence Quotient
MESSIER	Matson Evaluation for Social Skills in Individuals with Mental Retardation
WISC-IV	Wechsler Intelligence Scale for Children-Fourth Edition
WHO	World Health Organisation

EXECUTIVE SUMMARY

According to the World Health Organisation, intellectual disability is the most common developmental disorder, with an overall prevalence of about 1% globally. It involves utilization of large public health resources, and people with intellectual disabilities make a disproportionate contribution to total psychiatric morbidity. The highest rates and the greatest burden are in the low- and middle-income (LAMI) countries where higher prevalence has been reported. Evidence suggests that many adolescents with intellectual disabilities demonstrate difficulties in the area of social skills and relationships, and as a result experience lower levels of acceptance from peers and teachers and also present with other serious mental health problems. Studies have shown that interventions that focused on improving the social skills of individuals with intellectual disability tend to improve their participation and ability to cope in the community. At present, information on resources and services for persons with intellectual disabilities is scarce in LAMI countries. Furthermore, there is a dearth of information on interventional studies among children and adolescents with intellectual disability in Nigeria and sub-Saharan Africa. This study aimed to investigate the effects of an intervention on the social skills of adolescents with intellectual disabilities.

The study was an interventional one involving 30 adolescents attending a special school in Ibadan. The *Explore* Curriculum was adapted for use by teachers in this environment, thereafter lessons from the adapted curriculum were taught to the students by their teachers three times per week for eight weeks. Their pre and post-intervention social skills levels were assessed with the Matson Evaluation of Social Skills for Individuals with Mental Retardation (MESSIER). Their intelligence quotient levels were also assessed using the Wechsler Intelligence Scale for Children (WISC) – Fourth Edition. Socio-demographic information was obtained from interviews with the teachers. The data were analysed using descriptive and

inferential statistics including paired t-test, Wilcoxon signed-rank, Mann Whitney U and Kruskal Wallis tests.

The mean age of the participants was 15.70 ± 1.89 years. All the participants had an IQ score below 69 on the WISC. Twenty eight (93.3%) of the participants had either moderate or severe social skills impairment at baseline. The mean pre and post- intervention social skills total scores were 126.63±17.91and 134.36±22.11 respectively with a statistically significant (t =3.71; p=0.001) mean difference of 10.73. The distribution of the mean difference between pre and post intervention scores differed significantly (p= 0.015) across categories of mother's level of education but not across other socio-demographic variables. A total of 14 items on the MESSIER questionnaire showed significant difference between the pre and post-intervention assessment scores. Factor analysis of the MESSIER showed that extracted factors accounted for 43.2% of the total variance and both negative and positive items loaded on separate factors.

A classroom-based intervention significantly improved the social skills of adolescents with intellectual disability in a special school. Comprehensive social skills and educational interventions should be made available to adolescents with intellectual disability in all schools.

CHAPTER ONE

INTRODUCTION

The World Health Organisation (1992) defines intellectual disability (ID) as a condition of arrested or incomplete development of the mind. This is especially characterized by impairment of skills manifested during the developmental period, which contribute to the overall level of intelligence, such as cognitive, language, motor, and social abilities. It is a disability characterized by significant limitations in both **intellectual functioning** and in **adaptive behaviour,** which covers many everyday social and practical skills [*The American Association of Intellectual and Developmental Disability (AAIDD), 2013]*. This disability originates **before the age of 18 years (AAIDD, 2013).**

Intellectual disability is the most common developmental disorder (WHO, 2007). The overall prevalence of intellectual disability is about 1% globally, but studies have reported rates as high as 3% (Katarina *et al*, 2011; Adnams, 2010). This difference in prevalence is as a result of heterogeneity attributed to population and study designs (Maulik *et al*, 2011). The disorder ranks among the top 20 sources of burden of disease (Begg *et al*., 2007) and among the top 20 most costly disorders (Polder *et al*, 2002). It involves utilization of large public health resources (Maulik *et al*, 2011), and people with intellectual disabilities make a disproportionate contribution to total psychiatric morbidity (Einfeld *et al*, 2011). For example, it has been estimated that 14% of the total child and adolescent psychiatric morbidity in Britain is accounted for by 3% of children with intellectual disabilities (Emerson and Hatton, 2007).

The highest rates and the greatest burden are in the low- and middle-income (LAMI) countries (Maulik *et al*, 2011). Studies from low- and middle-income countries report higher

prevalence rates of intellectual disability (Maulik *et al*, 2011, Njega, 2009). Persons with ID from LMIC are also the most likely to be secluded in large institutions, unable to access basic health and educational services, and excluded from ordinary social relations (WHO, 2007).

There are two defining features of ID: the first is the Intelligent Quotient (IQ), and an individual with ID is described has someone with an IQ of below 70 [American Psychiatric Association (APA), 2013]. The second defining feature is the adaptive functioning or skills. There are three basic sets of adaptive skills: the first skill set is conceptual skills, and these include reading, numbers, money, time, and communication skills (APA, 2013). The second skill set is practical life skills. This includes feeding, bathing, dressing, occupational skills, and navigational skills. The third skill set is social skills. These skills include understanding and following social rules and customs, obeying laws, and detecting the motivations of others in order to avoid victimization and deception (APA, 2013).

Evidence suggests that many students with intellectual disabilities demonstrate difficulties in the area of social skills and relationships, and as a result experience lower levels of acceptance from peers and teachers (Buyse *et al*, 2008; Baker, 2007; Eisenhover *et al*, 2007). In a meta-analysis of 152 studies investigating the social skill deficits of students with intellectual disabilities, Kavale and Forness (1996) found that about 75% of students identified as having intellectual disabilities also exhibited social skills deficits. Difficulties developing social relationships have been found to impact affective development, resulting in loneliness (Stoeckli, 2010; Rapee and Spence, 2004; Pavri & Monda-Amaya, 2000), depression, and suicidal ideation (Burt *et al*, 2008; Stein and Stein, 2008 Stednits, 2006). These social and affective problems, in turn, impact the life adjustment of students, and result in a higher likelihood of dropping out of school, and even engaging in aggressive and

criminal behaviour (Stoeckli, 2010). In addition, social skills have been demonstrated to be important for a successful transition to adult life for youth with disabilities (Groce, 2004).

Limited social interaction among children and adolescents with intellectual disabilities and their general education peers typically occurs in most secondary school settings (Carter *et al*., 2005). There is an increasing emphasis on deinstitutionalisation of children with intellectual disability (Lemay, 2009; Felcee, 2006; Golding *et al*, 2005) and allowing them to leave within the community rather than in institutions (Forrester-Jones *et al*, 2006). There is also now emphasis on educating them within the least restrictive environment (Mcleskey *et al*, 2012). These means that individuals with ID will have to interact more either within the community or the school setting. This will invariably put additional demands on their social skill and hence the need for more focus on social skills interventions for this group of persons (WHO, 2007).

Studies have shown that interventions that focused on improving the social skills of individuals with intellectual disability tended to improve their participation and ability to cope in the community (Kam, 2004). Moreover, such interventions has been demonstrated to reduce the risks of developing mental health problems (Kopelowicz *et al*, 2006;Hatton, 2004; Dilk, 1999). Social interaction skill instruction, and peer support arrangements were demonstrated to be effective primarily among individuals with intellectual disabilities (Domitrovich *et al*, 2007, Kam, 2004). Social skill instructions have the potential to increase students' independence, probability of successful interaction, and social competence (Kam, 2004).

It has been documented that students need social skills to learn effectively in school settings (Steedly *et al*, 2006), and many excellent ideas for teaching social skills have been developed to support learning and can be found in many learning curricula and resources (Greeberg, *et*

al, 1995). Moreover, it has been shown that helping students learn social skills is a proactive approach to minimizing the impact of these types of disabilities on school success (Gresham *et al*, 2001). Many methods are being adopted through the use of structured curricula; such methods include role play, video modelling and photo-based directions (Kam, 2004).

At present, information on resources and services for persons with intellectual disabilities is scarce, fragmented, and relates mainly to high-income countries (WHO, 2007; Njega, 2009; Townsend, 2011). Furthermore, there is a dearth of information on interventional studies among children and adolescents with intellectual disability in Nigeria. This study intended to fill this gap, by investigating the impact of an intervention on the social skills of adolescents in a Special School in Ibadan.

CHAPTER TWO

LITERATURE REVIEW

2.0 Historical perspectives:

The earliest reference to intellectual disability (ID) dates to the Egyptian Papyrus of Thebes in 1552 B.C. (Harris 2006). Before the 18th century, societies differed in how or whether they conceptualized intellectual disability, both modern and ancient cultures presumed that demon possession or witchcraft cause ID (Mangonba, 2008; Kronberg *et al*, 2008; Hartley *et al*, 2005; Mulatu, 1999). Similarly, some cultures thought ID was a punishment by God (Raymond *et al*, 2013). According to the ancient Greeks and Romans, children with ID were born because the gods had been angered. Children with severe ID would be allowed to die as infants rather than permitted to grow up (Raymond *et al*, 2012). However, the Romans did allow some form of protection to children with ID who were born to the wealthy, by allowing people with intellectual disability property rights and allowing them to have guardians (Harris 2006). Today, the rights of children and adolescents with intellectual disability are protected under the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006).

Several names have been used to describe the entity currently called intellectual disability; names like backward, feebleminded, idiot, imbecile, moron, mental handicap and mental retardation (Harbour and Maulick, 2013). Currently, intellectual disability is an established diagnosis in the different psychiatric diagnostic tools including the International classification of Diseases (WHO, 1992) and the Diagnostic Statistical Manual of Mental Disorders [American Psychiatric Association, (APA) 2013].

2.1 Definition and Prevalence

The health condition currently defined as "intellectual disability" (ID) is a cluster of syndromes and disorders characterized by low intelligence and associated limitations in adaptive behaviour (Carulla *et al*, 2011; WHO, 1992). The overall prevalence of ID is about 1% - 3% worldwide (Katarina *et al*, 2011) but it varies across countries, the prevalence is around 1% in high income countries and 2% -3% in low and middle income (LAMI) countries (Adnams, 2010; Durkin, 2002) Aetiological factors such as malnutrition, lack of perinatal care, and exposure to toxic and infectious agents, which are more common in low- and middle-income (LAMI) countries (WHO, 2009), may contribute to higher prevalence rates of intellectual disability in these countries (Mercadante *et al*, 2009, Njega, 2009 WHO, 2009). The disorder is evident before 18 years of age and occurs on a continuum from mild to profound intellectual disability (WHO, 1992). The prevalence is slightly higher in boys, which is explained by hereditary factors, such as X-linked intellectual disability (Battaglia, 2011) and biological characteristics of brain development which supports higher levels of developmental disorders in boys (Lenroot *et al*, 2007).

2.2 Diagnostic Criteria

The American Psychiatric Association's (APA) diagnostic criteria for intellectual disability (ID, formerly mental retardation) are found in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, APA 2013). A summary of the diagnostic criteria in DSM-5 are as follows:

1. Deficits in **intellectual functioning** (**APA, 2013**)

This includes various mental abilities: Reasoning; Problem solving; Planning; Abstract thinking; Judgment; Academic learning (ability to learn in school via traditional teaching

methods); Experiential learning (the ability to learn through experience, trial and error, and observation). These mental abilities are measured by IQ tests. A score of approximately two standard deviations below average represents a significant cognitive deficit; this is typically an IQ score of 70 or below. (APA, 2013).

2. Deficits or impairments in **adaptive functioning (APA, 2013)**

This includes skills needed to live in an independent and responsible manner. Limited abilities in these life skills make it difficult to achieve age appropriate standards of behaviour. Without these skills, a person needs additional supports to succeed at school, work, or independent life (Kopelowicz *et al*, 2010). Deficits in adaptive functioning are measured using standardized, culturally appropriate tests. These skills include:

Communication skills: This refers to the ability to convey information from one person to another. Communication is conveyed through words and actions. It involves the ability to understand others, and to express one's self through words or actions.

Social skills: This refers to the ability to interact effectively with others. Social skills are critical for success in life (Mahmoudi –Ghavaei *et al*, 2008). These skills include the ability to understand and comply with social rules, customs, and standards of public behaviour. This intricate function requires the ability to process figurative language and detect unspoken cues such as body language.

Personal independence at home or in community settings: This refers to the ability to take care of oneself. Some examples are bathing, dressing, and feeding. It also includes the ability to safely complete day-to-day tasks without guidance (Kopelowicz. *et al*, 2010) Some examples are cooking, cleaning, and laundry. There are also routine activities performed in

the community. This includes shopping, and accessing public transportation and other services.

School or work functioning: This refers to the ability to conform to the social standards at work or school. It includes the ability to learn new knowledge, skills, and abilities.

3. These limitations occur during the developmental period. This means problems with intellectual or adaptive functioning were evident during childhood or adolescence.

2.3 Causes of Intellectual Disability

Prenatal, peri-natal and post natal influences can cause intellectual disability during this delicate period. Some perinatal causes affecting the baby include alcohol and substance abuse by the pregnant mother, bleeding during pregnancy and illness or injury of the mother during pregnancy. Recent research has implicated smoking as an increased risk for prematurity (Mercadante *et al,* 2009) and this can lead to intellectual disability. Extreme prematurity, low birth weight and brain injury (Njega, 2009, Mercadante *et al*, 2009, Leonard *et al*, 2006, Ambalavanan *et al*, 2006) are common perinatal causes. Postnatally, meningitis, encephalitis, measles, pertussis (whooping cough), head injuries and other traumas to young children (WHO, 2009; Anderson *et al,* 2005) can lead to intellectual disability. Genetic or inherited causes include Down Syndrome, which is the most common genetic condition associated with intellectual disability and Fragile X Syndrome, the most common identifiable inherited cause of intellectual disability (Durkin, 2002). Environmental causes include cultural deprivation and extreme poverty which can result in malnutrition, inadequate medical care or environmental hazards (WHO, 2009). Developing regions such as Nigeria tend to have abundance of environmental causes.

2.4 Classifications of Intellectual Disability:

There are several classifications systems of ID. Some would classify based on the IQ level while others focus more on practical abilities of the individual using terminologies such as 'educable' and 'trainable'. The use of these terms is questionable as many would argue that individuals with ID can be educated and trained to varying degrees.

2.4.1 Mild intellectual disability (MID):

Intellectual functioning ranging between an upper limit of approximately 70 to a lower limit of approximately 55 and deficits in adaptive behaviour that significantly limit a child's effectiveness in meeting the standards of maturation (APA, 2013; Katz and Lazcano-Ponce, 2008) would be classified as mild ID.

2.4.2 Moderate intellectual disability (MOID):

Intellectual functioning ranging from an upper limit of approximately 55 to a lower limit of approximately 40 (APA, 2013); and deficits in adaptive behaviour that significantly limit a child's effectiveness in meeting the standards of maturation would be seen as moderate ID. These deficits also affect learning, personal independence or social responsibility, and especially school performance that is expected of the individual's age-level and cultural group as determined by clinical judgment (APA, 2013).

2.4.3 Severe intellectual disability (SID):

Intellectual functioning ranging from an upper limit of approximately 40 to a lower limit of approximately 25 (APA, 2013); and deficits in adaptive behaviour that significantly limit a child's effectiveness in meeting the standards of maturation, learning, personal independence or social responsibility and especially school performance that is expected of the individual's age-level and cultural group as determined by clinical judgment are classified as severe ID

2.4.4 Profound intellectual disability (PID):

Intellectual functioning below approximately 25 and deficits in adaptive behavior that significantly limit a child's effectiveness in meeting the standards of maturation, learning, personal independence or social responsibility would be grouped as profound ID.

2.5.0 Mental and Physical Health Problems among Children and Adolescents with Intellectual Disability:

People with intellectual disabilities (ID) are particularly vulnerable to health problems and experience difficulties in meeting their healthcare needs (Felce *et al*, 2008; Baxter *et al*, 2006; Kwok and Cheung, 2006). The prevalence of mental health problems among people with ID varies in different studies from 14% to 60% and can be difficult to identify and diagnose (Kerker *et al*, 2004). This is because there is considerable overlap between mental health problems and the challenging behaviours of intellectual disability (Allen, 2008; Holden and Gitlesen, 2008)

For many years, professionals and researchers did not believe that intellectual disability and mental illness could both be present in the same person (Menolascino, 1969), as a result this was not studied. Most of the research on this topic has occurred in the last few decades (Matson and Shoemaker, 2011). These studies have shown that the full range of mental disorders are present in persons with intellectual disability (Einsfield *et al*, 2011; Antonacci, 2008) and at rates four to five times higher than what is seen in the general population (Matson and Shoemaker, 2011; Einsfield *et al*, 2011). Some studies showed that about 30-60% of persons with ID have a diagnosable mental disorder (White *et al*, 2005; Antonacci, 2008, Katrina, 2011). In particularly common co-morbid conditions are autism, self-injurious behaviours, attention deficit hyperactivity disorder, anxiety, depression and psychosis (Katrina, 2011; Bamburg *et al*, 2001). In a study done in Germany among children with intellectual disability, about 40% of the children with ID in residential care had a definite

psychiatric disorder (Wriedt *et al*, 2010). The most frequently diagnosed disorders found in this study were adjustment disorders, hyperkinetic disorders and conduct disorders, as well as emotional problems and pervasive developmental disorders (Wriedt *et al*, 2010). Also in Germany, a survey suggests a significantly increased level of emotional and behavioural problems in children and youth with intellectual disabilities (Sarimski, 2011). In a similar study among 155 children with intellectual disability in Finland, 23% of the children met the criteria ICD 10 psychiatric diagnosis and the most common diagnoses were pervasive developmental disorders and hyperkinetic disorders. (Koskentausta *et al*, 2002). The reasons for this observed increased prevalence of mental disorders among children and adolescents with intellectual disability include increased likelihood of social disruption and segregation (Cooper *et al*, 2007), poorer coping skills and ability to manage stress, poorer problem-solving and conflict resolution skills. All these factors coupled with the background biological predisposition make mental health problems among individuals with ID very peculiar (Cooper *et al*, 2007). This peculiarity is observed in their presentation, choice of treatment and outcome of mental illness in this population (Einsfield *et al*, 2011).

The higher rate of mental health problem among children with ID should be of concern because mental health problems can have a negative effect on the well-being, social inclusion and life opportunity of these children (Hatton and Emerson, 2004). Moreover, mental health problems in this population can lead to residential placement and can have a negative impact on the well-being of their families (Hatton and Emerson, 2004).

There are several modalities for preventing and treating co-morbid mental health problems in children and adolescents with ID (Charema, 2012). Sarimiski (2011) suggested that early interventions may help to prevent emotional and behavioural problems among them. This can be achieved by supporting a positive parent-child relationship, increasing the parents'

educational competence, supporting the children to develop positive relationships with peers, and promoting their social skills and competence (Sarimiski, 2011).

2.5.1 Common Physical Conditions Associated with Intellectual Disability

Intellectual disability is also associated with a wide range of medical conditions that have a diverse effect on the physical health of the individual (Kwok and Cheung, 2006). Studies have shown that certain health conditions are more prevalent among the ID population (Kennedy *et al*, 2007; Jansen *et al*, 2004). Some of the more common health conditions among people with ID include motor deficits, epilepsy, allergies, otitis media, gastroesophageal reflux disease (GERD), dysmenorrhea, sleep disturbances, visual and hearing impairments, oral health problems, and constipation (Kennedy *et al*, 2007; Krahn *et al*, 2006; Jansen *et al*, 2004).

Many times, the health problems of people with ID often go undiagnosed and untreated, due to difficulties with communication (May and Kennedy, 2010). Undiagnosed and untreated health problems may reduce a person's life expectancy and contribute to the development of secondary health complications (May and Kennedy, 2010; Piazza, 2003)

2.6 Education for Children and Adolescents with Intellectual Disability:

Children and adolescents with intellectual disabilities are a very heterogenous group (Kauffman and Hung, 2009) making it is difficult to design a general school curriculum for them. For example, children and adolescents with profound intellectual disability will need their education focus on training foe self-care skills such as feeding, dressing, and toileting. Children with moderate intellectual disability who have some self-care skills may study to obtain skills for employment, transportation, recreation, cooking, and social skills. Children with mild intellectual disabilities can learn basic academic interaction (Kauffman and Hung, 2009). Two important issues have dominated the education policies and practices for students

with intellectual disabilities in the last few years in developed settings. The first aspect is what should be taught to such students and who should teach them and the second issue is where they should be taught – in 'inclusive' settings alongside normal peers or in special settings dedicated to their needs (Kauffman and Hung, 2009).

The current trend in the education of children and adolescents with intellectual disability is to remove them from institutions and put them in inclusive settings (Mansell, 2006; WHO, 2007). This process of deinstitutionalization for intellectual disability services is at different stages across the world, varying from complete closure in Sweden to most countries in Asia and Africa still educating persons with ID separately in institutions and special schools (Chataika, 2012; Beadle-Brown *et al*, 2007). Some of the barriers to inclusive education of children with intellectual disabilities include the fact that parents are reluctance to send their children and adolescents with disabilities to regular schools that are of poor quality and not welcoming to their children (Mckenzie and Macleod 2012). Another barrier is that parents may not see the value of sending a child and adolescent with ID to school because they may not see this as a good investment (Mckenzie and Macleod 2012). Another important obstacle is that regular teachers are not adequately trained to teach children with ID in assertive and social skills (Dessemontet *et al*, 2012),

2.7 Social Skills and Social skills Training for Children and Adolescents with Intellectual Disability

Good social skills are critical to successful functioning in life (Mahmoudi –Ghavaei *et al*, 2008). These skills enable us to know what to say, how to make good choices, and how to behave in diverse situations. Deficits in social skills are a critical component of intellectual disability (ID) (Walton and Ingersoll, 2013), researchers have conclusively demonstrated that individuals with intellectual disabilities (ID) have impaired social skills (Smith and Matson,

2010; Elliott *et al*, 2002). Social skill deficits are related to many important personal and social outcomes in this population (Lecavalier and Butter, 2010). Many individuals with intellectual disabilities are less socially skilled than their same-age peers. When they are asked to use cognitive social behaviours, students with learning disabilities may be less able to do so than their peers (Seevers and Jones-Blank, 2008). Social skills are generally recognised as those behaviours that provide individuals with the skills necessary to interact effectively with others, to recognise and respond to social cues, to apply appropriate responses given a specific situation, to avoid interpersonal conflicts, and adjust to both simple and complex situations (Matson *et al*,1999). Greater social skill deficits have been linked to more severe ID and problems in verbal and nonverbal communication (Dagnan, 2007). This can result in more isolation of the individual in social situations (Kampert & Goreczny, 2007; Joseph *et al* 2002; Kemp & Carter, 2002). Children and adolescents with intellectual disability are among the most disadvantaged and socially excluded (Kozma *et al*, 2009). They are said to have friendships that are characterized by less warmth and closeness and less positive reciprocity than the friendships of their normally developing peers. This difference has been attributed to poor social skills development (Tipton *et al*, 2013).

In the last decade, there has been an increasing call from human right organisations to give students with intellectual disabilities the opportunity to participate in the least restrictive environment so that they receive as much education as possible with their non-disabled peers (UNESCO, 2013; Lamport *et al*, 2012). This is because it has been observed that students with ID learn better in such settings (Dessemontet *et al*, 2012).

The social learning theory is one of the bases for inclusive education; the theory was developed by Albert Bandura, and it states that learning, both cognitive and behavioural, takes place through the observation, modelling, interaction and imitation of others.

Cooperative learning involves social interaction amongst the students (Simmons and Magiera, 2007)) and for learning to be effective, it is important that academic content and social skills are addressed within the classroom (Lamport *et al*, 2012; Seervers and Jones-Blank, 2008).

It is expected that children will normally pick up these important skills as they grow, but it has been demonstrated that children with developmental disability lacks this spontaneous ability (Dessemontet *et al*, 2012), it therefore becomes imperative that educators and parents reinforce this casual learning with direct and indirect instruction. Considering the well documented advantages of social skills intervention in reducing mental health problems (Mahmoudi-Ghavaei *et al*, 2008; Maag, 2006), improving classroom learning (Lamport *et al*, 2012; McClelland and Morrison, 2003) and in significantly affecting school success and later achievement (McClelland *et al*, 2000), efforts at improving the social skills of children and adolescents with ID should be intensified to improve their self esteem, quality of life and to reduce the burden on their families and the community. This will in turn improve their mental health and that of their families.

2.8 Relevance of the study to the practice of child and adolescent mental health in Sub-Saharan Africa.

Sub-Saharan Africa is home to a large number of persons with intellectual disability (Njega, 2009). There are many challenges facing persons with intellectual disability in Africa, among which are high prevalence, discrimination, and access to justice and education coupled with high poverty levels (Mcenzie *et al*, 2013; Njega, 2009). Many individuals with ID in sub-Saharan Africa are still been cared for in institutions and majority who attend school are in segregated schools (WHO, 2007). There is also a high prevalence of preventable causes of intellectual disability in this region (Adnams, 2010). Few studies have looked into the issue of intellectual disability in Africa (Adnams, 2010; Njega, 2009) and majority focused on

cross-sectional community-based epidemiologic studies (Maulick and Darmstadt, 2007) to determine prevalence rate. There are virtually no interventional studies in sub-Saharan Africa geared towards improving outcomes for children and adolescents with ID. It is imperative that information on the epidemiology and burden of disability of ID be recognised and filled but more importantly the necessary care and appropriate interventions should be extended to children and adolescents with intellectual disability in Africa. More emphasis should be placed on inclusive education systems as enshrined in the Convention on the Rights of Persons with Disabilities (United Nations, 2006) of which Nigeria and other countries from sub-Sahara Africa have ratified (United Nations, 2012). This study intended to offer an intervention on the social skills of children with intellectual disability; a step towards filling this longstanding and unacceptable gap.

CHAPTER THREE

AIM AND OBJECTIVES

AIM:

To evaluate the effect of the application of the adapted *Explore Curriculum for Social Skills Training of Children and Adolescents with Intellectual Disability* by teachers on students with intellectual disability after an eight week intervention in a special school in Ibadan, Nigeria.

OBJECTIVES

1. To determine the Intelligence Quotient (IQ) of adolescents with intellectual disability attending a special school in Ibadan.
2. To determine the social skills of adolescents with intellectual disability at the pre-intervention level as assessed by their teachers.
3. To determine the effects of the application of the adapted *Explore* curriculum by the teachers on the social skills of adolescents with intellectual disability after an eight week intervention.

4. To investigate the effect of the *Explore* Curriculum on social skills of the adolescents with intellectual disability across socio-demographic variables.

Major Hypothesis:

1. There will be no significant change in the level of social skills of the participants after an eight week intervention using the *Explore* curriculum.

Sub- Hypotheses:

1. There will be no significant difference between the pre and post-intervention 'positive verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.
2. There will be no significant difference between the pre and post-intervention 'positive non-verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum
3. There will be no significant difference between the pre and post-intervention 'general positive' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum
4. There will be no significant difference between the pre and post-intervention 'negative verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum
5. There will be no significant difference between the pre and post-intervention 'negative non-verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum
6. There will be no significant difference between the pre and post-intervention 'General negative' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

7. There will be no significant difference in the impact of sex on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
8. There will be no significant difference in the impact of on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
9. There will be no significant difference in the impact of religion on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
10. There will be no significant difference in the impact of ethnic group on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
11. There will be no significant difference in the impact of family type on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
12. There will be no significant difference in the impact of marital status of parents on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
13. There will be no significant difference in the impact of father's level of education on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.
14. There will be no significant difference in the impact of mother's level of education on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

CHAPTER FOUR

METHODOLOGY

4.1 Study Design:

A non randomised interventional design was used to assess the effects of an intervention on the social skills of adolescents with intellectual disabilities.

4.2 Study Area and Setting:

The study was carried out at the Home School for Handicapped Children, Ijokodo. The school is located in Ido local government area (LGA), one of the LGAs in Oyo State. Its headquarters are in the town of Ido. The LGA has an area of 986 km² and a population of 103,261 at the 2006 Nigerian census. The school was established for children with developmental disabilities who cannot cope in mainstream schools and is under the Oyo State Ministry of Education. There is a residential facility located within the school compound for children whose parents want them to reside in the school; about 90% of the students live within the school. There are some adolescents who reside in the hostel but are unable to

attend classes due to the severity of their disabilities. There are usually between 40 and 50 children and adolescents in the school at every point in time and the students were divided arbitrarily into three classes by the teachers. The three groups are 'educable', 'trainable' and 'profound' classes. There were fifteen teachers in the school at the time of study. This included seven teachers with special education qualifications, five with mainstream education qualifications and the remaining three were students from the College of Education, Oyo undergoing special education training while on teaching practice.

A need assessment of the school revealed that there were no teaching aids for the teachers to use for the children and adolescents with special needs. The teachers utilised same teaching packages as the mainstream schools in the state. The school also lacked important facilities like laboratories and a library.

4.3 Sampling Technique

A total sampling method was used in the study and all the students attending classes participated in the study.

4.4 Sample Size

A total of thirty students participated in the study. These were all the students attending classes at the time of the study.

4.5 Study Population

The participants were adolescents with intellectual disability attending the Home School for Handicapped Children, Ijokodo, Ibadan

4.6 Inclusion criteria

1. Children and adolescents with the mild, moderate and severe forms of intellectual disabilities.

4.7 Exclusion criteria

1. Students who do not attend classes due to the severity of their disabilities

4.8 Study Instrument

Data was collected using the following questionnaires

4.8.1. Socio-demographic form (See Appendix 1)

This was developed by the investigator to collect information on the socio-demographic profile and history of intellectual disabilities of the participants. The data form is semi-structured and was administered by the investigator in face-to-face interviews with the teachers. This was to ensure good understanding of the questions and the teachers provided information on each participant (Appendix I).

4.8.2. The Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV)

The Wechsler Intelligence Scale for Children (WISC), developed by David Wechsler, is an intelligence test for children between the ages of 6 and 16 (Wechsler, 2003). The WISC-IV was released in August 2003; it generates a full IQ score from four index scores. It has four main components that are referred to as Indexes. These are the Verbal Comprehension Index, the Perceptual Reasoning Index, the Working Memory Index and the Processing Speed Index. Within each of these four domains are a variety of sub-tests that add up to form the index score. The Verbal Comprehension Index and the Perceptual Reasoning Index are described as equivalent to the Verbal and Performance IQ scores on the third Edition of the Wechsler Intelligence Scale for Children (WISC-III) (Wechsler, 2003).

The Verbal Comprehension Index (VCI) emphasises crystallised intelligence which is the ability to use skills, knowledge, and experience. It consists of vocabulary, similarities, comprehension, information and word reasoning assessments. The Perceptual Reasoning Index (PRI) is related to fluid reasoning/ intelligence and means the ability to learn new information. It measures non-verbal (perceptual) and fluid reasoning, spatial processing and visual-motor integration. It assesses the ability to examine a problem, use visual-motor and

visual-spatial skills, organize thoughts, develop and test solutions. It consists of Block Design, Matrix Reasoning, Picture Concepts and Picture Completion assessments. The Working Memory Index (WMI) assesses auditory short term memory and retrieval. It consists of digit span, letter-number sequencing and arithmetic components. The Processing Speed Index (PSI) assesses mental quickness and task performance with focused concentration and attention. It consists of coding, symbol search and cancellation components.

Scoring of the WISC-IV:

After scoring the subtests, raw scores are derived by summing the number of correct items within each subtest. These raw scores are converted into scaled scores which are comparative within the child's own age group. The scaled scores for each Index are then converted into IQ scores which can be directly comparable across age groups. The IQ classifications are as follows (Wechsler, 2003).

Very Superior	130 and above
Superior	120-129
High Average	110-119
Average	90-109
Low Average	80-89
Borderline	70-79
Extremely Low	69 and Below

4.8.3 Matson Evaluation of Social Skills for Individuals with Severe Retardation (MESSIER) (Matson, 1995) (See Appendix II)

The MESSIER is an 85-item semi-structured instrument designed to assess social skills and social behaviour in individuals with intellectual disability. The scale consists of six clinically derived dimensions;

- Positive Verbal (e.g., apologizes for unintentional mistakes).
- Positive Nonverbal (e.g., smiles in response to positive statements).
- General Positive (e.g., responds appropriately when introduced to strangers);
- Negative Verbal (e.g., speech shows no emotion).
- Negative Nonverbal (e.g., responds to hugs with rigidity)
- General Negative (e.g., has trouble waiting for needs to be met).

Informants are instructed to rate each item's occurrence on a Likert-type scale, with 0 = *never*, 1 = *rarely*, 2 = *sometimes*, and 3 = *often (Matson, 1995)*. Endorsed items can be transcribed onto a scoring profile under their respective subscales, which allows the clinician to examine relative strengths and weaknesses. A total score can also be generated by adding all the scores of the subscales. The MESSIER have been shown to have good psychometric properties, with an internal consistency of r = .94 and high inter-rater (r=.73) and test-retest reliability (r=.86) after 2-3 weeks (Matson, LeBlanc, & Weinheimer, 1999). According to the author, cutoff scores of >151, 111-151 and <111 indicate no/minimal impairment, moderate impairment, and severe social skill impairment respectively (Matson and Boisjoli, 2008; Matson, 1995), that is higher scores corresponds to better social skills.

4.8.4.1 *Explore* Social Skills Curriculum (Kinney, 2012) (See Appendix IV)

Explore Social Skills Curriculum is an intervention programme for adolescents and young adults with developmental disabilities. It focuses on 50 important skills in ten domains such as' peer relationship', 'on the way to school', important skills and vocational skills. It provides students with step-by-step instruction through video modelling, photo-based directions, and role playing. A teacher-monitored, self-assessment procedure keeps students engaged in the process; the curriculum is used in schools for children and adolescents with special needs in the USA. The children are in inclusive education setting but have the *Explore*

Social Skills Curriculum utilized for their instruction. The plan was to adapt and provide an appropriate curriculum for use for this special needs group.

4.8.4.2 Adaptation of the *Explore Curriculum* for use by teachers

Permission to adapt the Explore curriculum was obtained from the Publisher; (Attainment Company Incorporated).

A series of step-wise activities were conducted to achieve the goal of adaptation of the *Explore curriculum*. The summary of the process is presented in Table 1.

Step I: An initial interactive session was held with the teachers. During this session, the concept of social skills, the relationship between social skills impairment and mental health problems in children and adolescents with intellectual disability were discussed. In addition, interventions for social skills and packages for training social skills in individuals with intellectual disability were also discussed.

Step II: An introduction and a preliminary review of the *Explore curriculum* to identify possible areas requiring specific attention was conducted. Sections from the curriculum were discussed as a group; this was to serve as a template for the teachers who eventually suggested changes should look out for. Three of the teachers were selected to review the curriculum along with the investigator. The selected teachers were encouraged to make individual suggestions to the specific areas identified during the preliminary review and other parts of the curriculum. Copies of the curriculum were made available to the three teachers.

Step III: A meeting to reconcile the different suggestions was held, all the identified areas were discussed and the different changes were agreed upon by the teachers and the researchers. It was observed that some of the domains like ‘peer relationship’ and ‘important skills’ domains in the curriculum were more relevant to our setting and hence it was agreed that such items should come earlier in the intervention. Others were completely removed because they were not relevant to this environment, some other changes were made due to

cultural consideration. Some examples of change effected in the *Explore Curriculum* are presented on Table 2.

Step IV: A day training of the teachers on the use of the adapted curriculum was held; the training included practical demonstration of lessons from the curriculum by the researcher and followed by demonstration by some of the teachers. The demonstration was done in one of the classes with some of the students (participants). It was suggested by the teachers that each lesson from the curriculum should start with a revision of the previous lesson.

A sample lesson from the adapted curriculum is shown below on page 25.

Table 1: Summary of the Process of Adaptation of the *Explore Curriculum*

STEP I	**An interactive session with the teachers to discuss the concept of social skills, relationship between social skills, and mental health problems in children and adolescents with intellectual disability. Social skills interventions for individual with intellectual disability was also discussed**

STEP II	An introduction and a preliminary review of the *Explore curriculum* to identify possible areas requiring specific attention was conducted.
STEP III	A meeting to reconcile the different suggestions from the teachers and the investigator was held. All changes were discussed by the team.
STEP IV	A one-day training of the teachers on the use of the curriculum was held; this included practical demonstration by the teachers in the classroom.

Table 2: Some examples of change effected in the *Explore Curriculum*

Page	Consideration	Response	Suggested Change	Rationale for suggested change
32	**Riding the Subway**	Not an issue in this environment	Deleted	It is not relevant in this setting

56	**Working in the Computer lab**	School currently has no computer lab	Moved to the end of curriculum	Not relevant for now
58	**Working in the Science lab**	School currently has no science lab	Moved to the end of curriculum	Not relevant for now
109	**‘ I want to Pitch this game’**	Not appropriate for this environment	Changed to ‘I want to be the goalkeeper in this match’	Appropriateness to our Setting
155	**‘Hi’ (Greeting Teacher)**	Not culturally acceptable	Changed to ‘Good morning ma/sir’	Cultural consideration

Sample lesson from the adapted *Explore* Curriculum

Lesson Title: Meeting a New Person

Self-talk story

"When I am introduced to a new student I make the student feel comfortable. I look at his face, smile, and say, "Hello, my name is _____ (say my name)." What is your name?" I listen carefully to his name. I repeat the person's name by saying "It's nice to meet you _____ (say his name)." I offer my hand to shake or say "It was nice to meet you."

- Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A student wants to introduce himself to a new student.

Student 1: "Hello, are you a new student?"

New Student: "Yes."

Student 1: "My name is _____ (says name)."

New student: "Hello, my name is _____ (says name)."

Student 1: "It's nice to meet you, _____ (says new student's name as he extends his hand)."

New Student: "Thanks." (Students shake hands.)

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

- **Students need to know the difference between meeting an adult and a peer. Use Ma or Sir to address teachers and other adults.**
- **In some social situations involving older persons students need to be taught to show courtesy (kneel, bow or prostrate depending on student's gender).**

4.11 Ethical Consideration

This study was carried out in accordance with the ethical principles enshrined in the Helsinki Declaration and the National Human Research Ethical code. Ethical approval was obtained from the Oyo State Ethical Review Committee (See Appendix VII)

4.11.1 Confidentiality of Data

Participants and their caregivers were assured that all information will be kept in strict confidence.

4.11.2 Invitation to participate

All eligible persons and their caregivers were asked if they were interested in participating in the study. Detailed explanation of the procedure and relevance of the study was provided in the language best understood by the respondents. Participation in this study was entirely voluntary. Verbal or written consent was obtained from volunteers and caregivers.

4.11.3 Beneficence

There were no monetary benefits for participating in the study. However the study provided avenue for participants to access more information about their health status and generated data which will stimulate other research interest among children and adolescents with intellectual disabilities.

4.11.4 Non-Maleficence

The study was not injurious to the subjects in anyway. Blood sample was not collected and no other form of invasive procedure was involved.

4.11.5 Voluntariness

Participants had the right to decline participation in the study or withdraw participation from the study at any time without affecting any health service they may seek from personnel.

4.9 Procedure

Ethical approval was obtained from the Oyo State Ethical Review Committee (See Appendix VII); permission to carry out the study was also obtained from the Ministry of Education,

Oyo State (See Appendix VIII). Consent was obtained from the participants' parents/caregivers and the assent of the participants was obtained (See Appendix III and IV). The Explore Curriculum was adapted for use by the teachers through a step-wise process as described above. The socio-demographic data of each participant was completed by interviewing the teachers and the matron-in-charge of the hostels. The MESSIER questionnaire was completed in a semi-structured interview of the teachers by the investigator to determine the pre intervention social skills level of each participant.

Participants received lessons in their classrooms from the adapted *Explore curriculum* three times a week; duration for each lesson was between 30-45 minutes. Each lesson consisted of introduction of the topic of discussion, self-talk story where the teacher gave a narrative overview of the topic (Figure 1). An important part of each lesson is the role play by the participants (Figures 2 and 3), this usually included two participants playing out a scenario relating to the topic under discussion. The role play was facilitated by the teachers and investigator. After eight weeks of commencing the adapted *Explore* curriculum lessons, the MESSIER questionnaire was completed again in a semi-structured interview of the teachers for each participant to determine their post intervention social skills levels. The Intelligent Quotient (IQ) of the participants was assessed at the beginning of the study by the investigator using the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV). An average of 90 minutes was spent assessing each participant on the WISC-IV. The data obtained was entered into the Statistical package for Social Science (SPSS) version 20 and subjected to appropriate analysis.

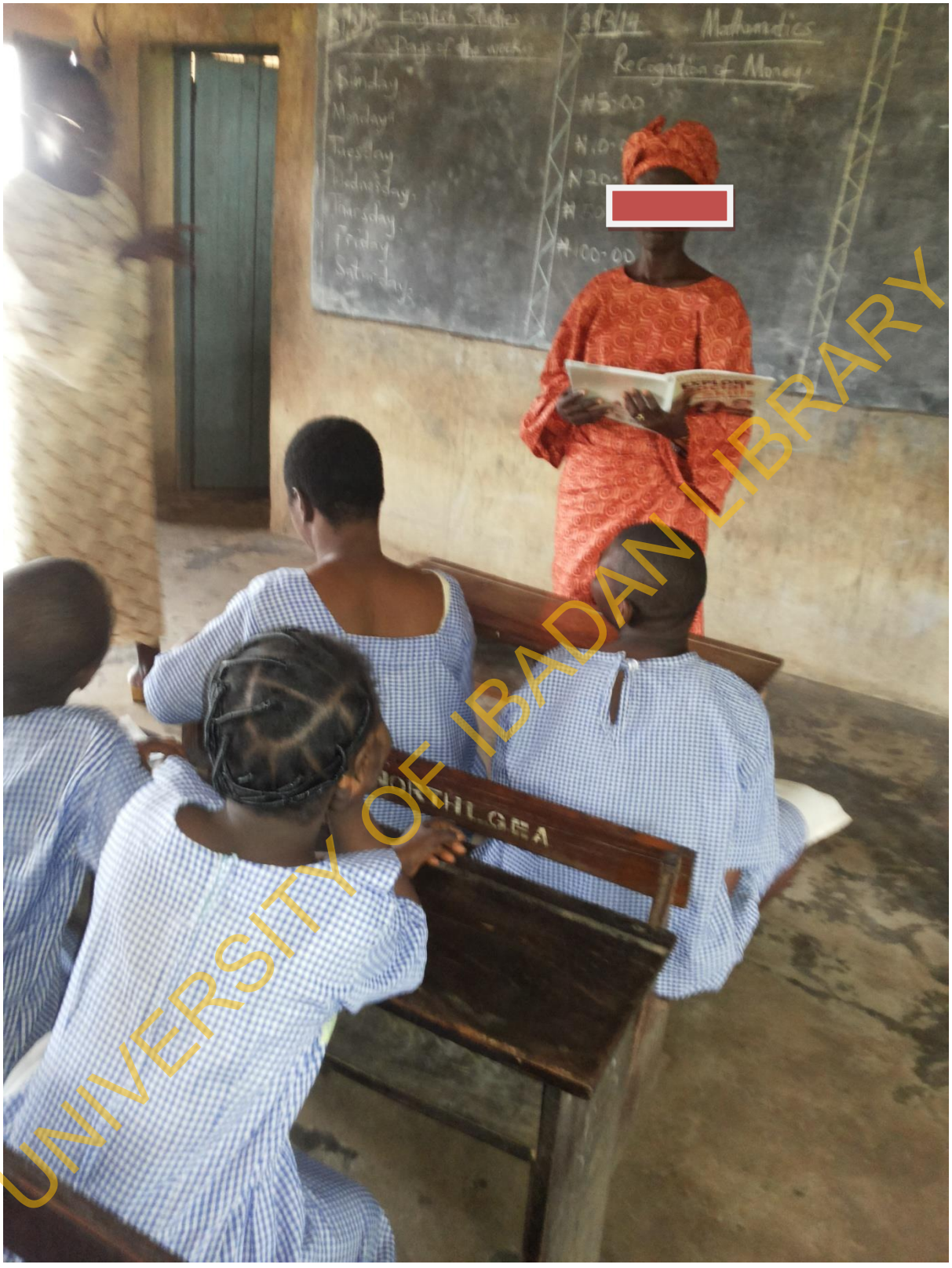


Figure 1: Teachers giving a lesson from the *Explore* Curriculum

Figure 2: Participants performing a role play on "Meeting a New Person"

Figure 3: Participants performing a role play on "Crossing the Street"

4.10 Data Management and Analysis

Summary statistics such as mean, median standard deviation and percentages were used to summarize the socio-demographic variables, the IQ categories and the social skills categories.

The paired t-test was used to determine the difference between the pre-intervention and post-intervention scores on the social skills of the participants.

The significance of the changes within categories of social skills impairment between pre and post intervention was tested using the Wilcoxon signed –rank test.

The difference between pre and post-intervention scores of social skills by Socio-demographic characteristics was assessed using the Paired t-test.

The difference between pre and post- intervention scores on the MESSIER items was assessed by the paired t test.

Pre and post intervention analysis of social skills across socio-demographic variables was investigated using the Mann-Whitney U Test and the Kruskal Wallis Tesst.

The items on the MESSIER were subjected to a factor analysis.

CHAPTER FIVE

RESULTS

5.0 Introduction

A total of 30 adolescents attending the Home School for Handicapped children, Ijokodo, Ibadan, Nigeria participated in the study. The results are presented below.

5.1 Socio-demographic characteristics of the participants

Table 3 shows the socio-demographic characteristics of the participants. Their ages ranged from 12 to 19 years with a mean age of 15.70 ± 1.89 years. There were fifteen males (53.3%) and fourteen females (46.7%). Ten of the participants (33.3%) came from a polygamous family settings, sixteen (53.3%) of the participants' mothers had no formal education and over thirty six percent of the participants' parents were not married. Nineteen of the participants (96.3%) lived in the boarding facility provided by the school and the mean number of years they had spent in school was 2.46 ± 1.47 years.

Table 3

Socio-demographic characteristics of the participants

N= 30

Variable	Frequency (%)
Age (Years)	
12-14	10 (33.3)
15-19	20 (66.7)
Gender	
Male	16 (53.3)
Female	14 (46.7)
Religion	
Christianity	23 (76.7)
Islam	7 (23.3)
Tribe	
Yoruba	26 (86.7)
Igbo	4 (13.3)
Family Type	
Monogamy	20 (66.7)
Polygamy	10 (33.3)
Marital Status	
Married	19 (63.3)
Not married	11 (36.7)
Father's level of Education	
No formal Education	10 (33.3)
Primary	11 (36.7)
Post Primary	9 (30.0)
Mother's level of education	
No formal Education	16 (53.3)
Primary	9 (30.0)
Post Primary	5 (16.7)
Living in school or not	
Yes	29 (96.7)
No	1 (3.3)
No of years in school	
< 3 years	15 (50)

3-5 years	15 (50)

5.2 The Wechsler Intelligence Scale for Children (WISC) scores of the participants

All the participants (100%) scored below 69 on the Wechsler Intelligence Scale for Children-Fourth Edition (Table 4). Table 5 shows the distribution of the participants' scores on both the full and sub-scale of WISC-IV. Their full IQ scores ranged from 40 to 56. The highest mean score was on the Perceptual Reasoning Index sub-scale (56.73±8.78) while the lowest mean score was on the Verbal Comprehension Index sub-scale (50.30±5.11).

Table 4

Wechsler Intelligence Scale for Children (WISC) scores of the participants

N= 30

IQ Category	Frequency (%)
Very Superior (130 and above)	Nil
Superior (120 -129)	Nil
High Average (110 -119)	Nil
Average (90-109)	Nil
Low Average (80-89)	Nil
Borderline (70-790	Nil
Extremely low (69 and below)	30 (100)

Table 5

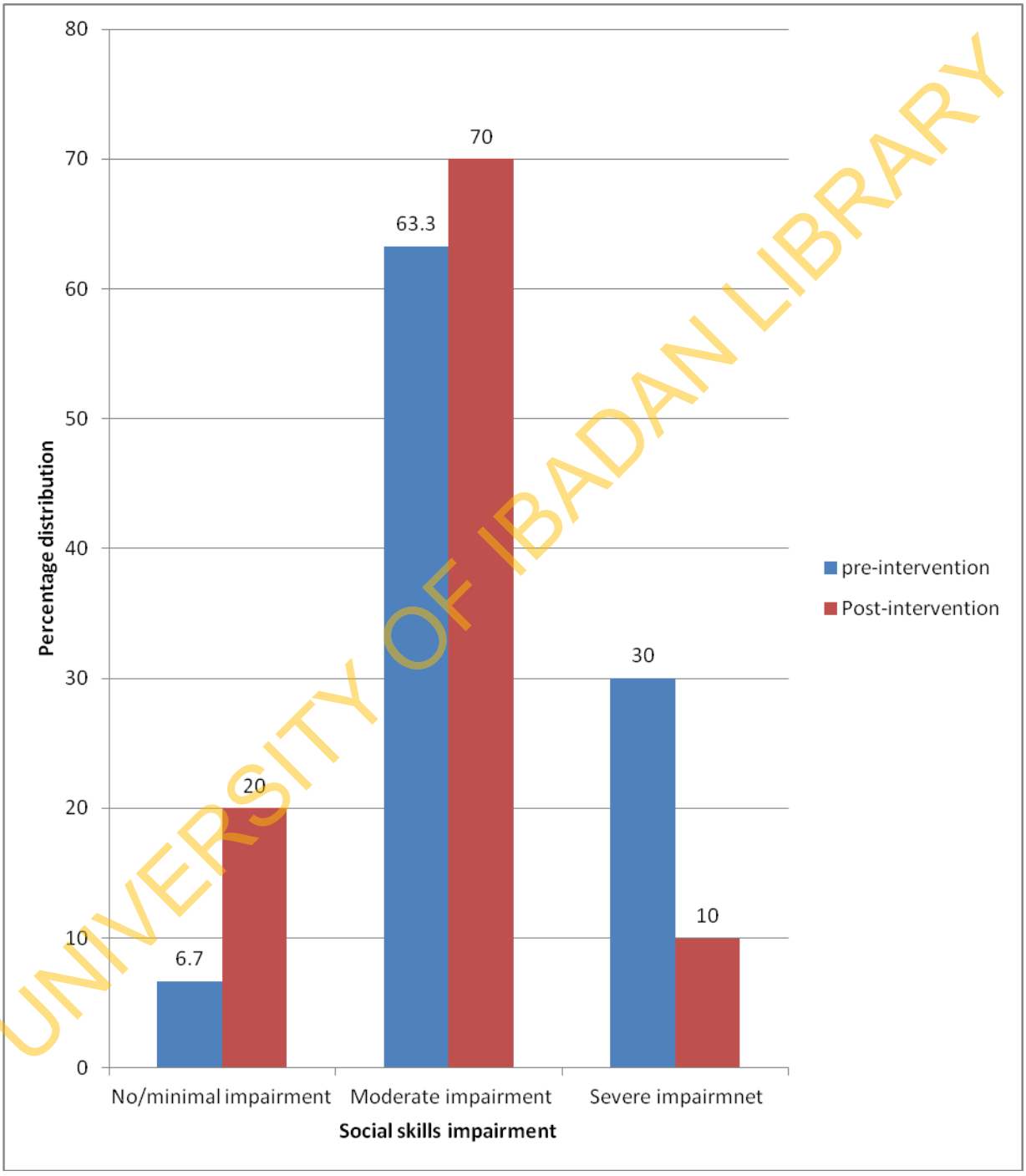
Distribution of IQ scores on the full and sub-scales of the WISC-IV

N=30

WISC scales	Mean Scaled Score	Mean IQ score	Maximum score	Minimum score
Full IQ	19.47± 7.88	44.00 ± 4.57	56.00	40.00
Verbal Comprehension index	5.2 ± 2.14	50.30 ± 5.11	61.00	45.00
Working memory Index	3.03 ±1.42	52.23±3.30	65.00	50.00
Perceptual Reasoning Index	8.87±4.39	56.73± 8.78	79.00	45.00
Processing Speed Index	3.23± 1.76	53.67±5.15	70.00	50.00

5.3 Pre and Post-intervention levels of the Social Skills Impairment of the Participants on the MESSIER

Figure 4 shows the social skill categories of the participants on the Matson Evaluation of Social Skills for Individuals with Severe Retardation (MESSIER) questionnaire. Eighteen of the participants (63.3%) had moderate social skills impairment while two (6.7%) and ten (30%) of the participants had no/minimal and severe impairments respectively at baseline. At the end of the intervention, there was a 20% reduction in the number of participants in the severe social skills impairment category and 13.3% increase in the number of participants in the no/minimal social skills category. Wilcoxon signed-rank test shows that the change within the categories of social skills was statistically significant ($Z = -2.887$; $p=0.004$).



N=30

Figure 4: Pre and Post –Intervention categories of social skills impairment

5.4 Distribution of pre and post-intervention social skills scores of participants on the MESSIER

Table 6 shows the distribution of the pre and post- intervention social skills scores of the participants. Majority of the participants had higher post-intervention scores on the Messier questionnaire as compared with their pre- intervention scores. However, a few participants had lower post- intervention scores.

Table 6

Distribution of the pre and post-intervention social skills scores of participants on the MESSIER

Participant	Pre-intervention score (a)	Post-interventions core (b)	Difference in Pre and Post scores (b minus a)
1	115.00	103.00	-12.00
2	98.00	118.00	20.00
3	137.00	174.00	37.00
4	129.00	137.00	8.00
5	147.00	191.00	44.00
6	145.00	118.00	27.00
7	154.00	158.00	4.00
8	106.00	133.00	27.00
9	137.00	142.00	5.00
10	128.00	142.00	14.00
11	100.00	103.00	3 .00
12	104.00	108.00	4.00
13	110.00	122.00	12.00
14	128.00	142.00	14.00
15	137.00	147.00	10.00
16	125.00	136.00	11.00
17	133.00	122.00	-10.00
18	128.00	148.00	20.00
19	138.00	145.00	7.00
20	138.00	162.00	24.00
21	126.00	138.00	12.00
22	100.00	140.00	40.00
23	157.00	158.00	1.00
24	101.00	118.00	17.00
25	114.00	123.00	9.00
26	142.00	152.00	10.00
27	120.00	114.00	-6.00
28	93.00	112,00	19.00
29	102.00	121.00	19.00
30	117.00	128.00	11.00

Note:
MESSIER: Matson Evaluation for Individuals with Severe Retardation.
Scoring Code;
< 111 = Severe Impairment

111-151= Moderate Impairment
>151= Severe Impairment

5.5 Difference between pre and post- intervention scores on MESSIER scales

Table 7 shows the difference in the pre and post-intervention social skills total scores of the participants. The mean pre and post- intervention total scores were 126.63±17.91and 135.97±20.81 respectively with a mean difference of 9.34 (t =3.71; p=0.001). There was also a statistically significant difference in the general positive sub-scale (t = 2.87; p=0.008).

Table 7

Difference between pre and post- intervention scores on MESSIER scales

N=30

MESSIER Scale	Pre-intervention mean (S.D)	Post-intervention mean (S.D)	Mean Difference	t	p
Positive Verbal	11.86 (5.28)	14.43 (6.64)	2.57	1.94	0.063
Positive Nonverbal	22.77 (8.11)	21.80 (7.50)	0.97	0.98	0.338
General Positive	33.83 (12.17)	37.37 (10.23)	3.53	2.87	**0.008**
Total Positive	68.13 (23.88)	73.23 (18.96)	5.10	1.92	0.364
Negative Verbal	17.40 (5.75)	18.87 (8.90)	8.71	0.92	0.364
Negative Nonverbal	19.83 (7.64)	22.63 (10.11)	2.80	1.60	0.121
General Negative	18.80 (6.02)	19.47 (7.15)	0.67	0.66	0.517
Total Negative	57.03 (16.68)	59.93 (19.40)	2.90	0.90	0.378
TOTAL	126.63 (17.91)	135.97(20.91)	9.34	3.71	**0.001**

Note

The significant value ($p < 0.05$) is in bold

MESSIER= Matson Evaluation of Social Skills for Individuals with Severe Retardation

5.6 Pre and Post-intervention Analysis of Social Skills by Socio-demographic characteristics

Table 8 shows the pre and post-intervention analysis of social skills by socio-demographic characteristics using the Mann Whitney U and Kruskal Wallis tests. The results show that the distribution of the mean difference between pre and post intervention scores differs significantly ($p= 0.015$) across categories of mother's level of education. There were no statistically significant differences in the distribution of the mean differences across other socio-demographic variables.

Table 8

Mean difference between Pre and Post-intervention Analysis of Social Skills by Socio-demographic variables

N=30

Socio-demographic variable	Mean difference (between pre and post scores)	p
Sex		
Male	14.88 ± 9.29	0.790[a]
Female	16.71 ± 11.78	
Religion	16.48±11.28	0.737 [a]
Christianity	13.29 ± 6.73	
Islam		
Tribe	15.27 ± 10.08	0.576 [a]
Yoruba	18.75 ± 13.45	
Igbo		
Family Type		
Monogamy	17.75 ± 11.72	0.650 [a]
Polygamy	11.70 ± 5.46	
Marital status of parents		
Married		
Not married	10.00 ±15.72	0.471 [a]
	12.00 ± 16.70	
Father's level of Education		
No formal Education	13.06 ± 6.03	
Primary	14.44 ± 10.99	0.805[b]
Post primary	26.60 ± 14.94	
Mother's level of education		
No formal Education	12.86 ± 8.03	**0.015** [b]
Primary	18.90 ±12.33	
Post primary	16.30 ± 9.60	

Note
The significant value ($p < 0.05$) is in bold

[a] Mann Whitney U-Test

[b] Kruskal Wallis Test

5.7 Difference between pre and post- intervention scores on the MESSIER Items

Tables 9a, 9b and 9c show the results of the paired t-test of the difference in the mean scores between the pre and post-intervention assessment for each item of the MESSIER. The p values of items with statistically significant difference are shown in bold. A total of fourteen (16.5%) items showed statistical significant difference between the pre and post-intervention assessment.

Table 9a

5.7 Difference between pre and post- intervention scores on the MESSIER Items

N=30

Item	Mean Pre	Mean post	Mean difference	t	p
1. Turns head	1.63±1.02	1.67±0.92	0.03±0.72	0.254	0.801
2. Looks at face	1.97±0.81	1.73±0.83	0.23±0.86	1.489	0.147
3. Responds to voice	1.63±1.22	1.80±0.96	0.17±0.53	1.720	0.096
4. Distinguishes caregiver	1.70±1.75	1.63±0.85	0.07±0.74	-0.494	0.625
5 Interest in unfamiliar	1.77±0.97	1.80±0.66	0.03±1.09	0.166	0.869
6 .Expresses emotions	1.67±1.03	1.63±0.76	0.03±0.96	0.189	0.851
7. Shows affection	1.37±1.16	2.17±0.79	0.80±1.37	3,188	**0.003**
8.Shows interest in people	1.70±1.12	1.60±0.86	0.10±1.06	-0.516	0.610
9. Extends hand	1.87±1.14	1.87±0.86	0.00±1.05	0.000	1.000
10. Plays with toy	1.53±1.07	1.47±0.86	0.06±1.14	0.320	0.752
11. Simple interaction	1.60±1.00	1.43±1.01	0.16±1.18	0.776	0.444
12. Distinguishes people	1.80±1.10	1.87±1.01	0.06±1.42	0.258	0.798
13. Interest in activities	1.50±0.97	2.30±0.88	0.80±1.42	3.077	**0.005**
14. Imitates movements	1.57±0.89	2.03±1.13	0.47±1.48	1.728	0.095
15. Smiles in response	1.77±0.86	2.30±0.92	0.53±1.28	2.283	**0.030**
16. Addresses by name	1.67±1.24	1.80±0.85	0.13±1.38	0.528	0.601
17. Desire to please	1.57±1.10	1.60±0.89	0.03±1.52	0.120	0.905
18. With prompting	1.80±0.89	2.07±0.91	0.27±1.17	1.246	0.223
19. Without prompting	1.47±0.90	1.73±0.91	0.27±1.23	1.188	0.245
20. Has a friend	1.90±1.06	1.40±0.89	0.50±1.33	2.055	**0.049**
21. Imitates phrases	1.70±0.86	1.76±1.09	0.07±0.98	0.372	0.712
22. Shows a preference	1.40±1.07	1.77±0.97	0.30±1.34	1.224	0.231
23. Says “please”	0.53±1.00	1.47±0.82	0.93±1.05	4.877	**<0.001**
24. Labels own emotion	1.20±0.99	1.60±0.93	0.40±1.00	2.183	**0.037**
25. Shares	0.93±1.08	1.43±0.90	0.50±1.46	1.881	0.070
26. Orients to noise	1.47±1.25	1.47±0.68	0.00±1.34	0.000	1.000
27. Responds to speech	1.30±1.12	1.53±0.97	0.23±1.38	0.925	0.363
28. Imitates sounds	1.46±0.82	1.53±1.04	0.07±1.20	0.304	0.763

29Attempts to communicate	1.80±1.03	1.83±0.74	0.03±0.99	0.183	0.856
30. Follows rules	1.43±0.86	1.56±1.04	0.13±0.78	0.941	0.354

Note
The significant value ($p < 0.05$) is in bold

Table 9b

Difference between pre and post- intervention scores on the MESSIER items Contd.

N=30

Item	Mean Pre	Mean post	Mean difference	t	p
31. Follows facility rules.	1.40±1.00	1.83±0.91	0.43±1.01	2.359	**0.025**
32. Apologizes	0.80±1.19	0.83±0.91	0.03±0.93	0.197	0.845
33. Talks with food	1.43±0.90	1.67±1.21	0.23±1.17	1.097	0.282
34.Responds appropriately.	1.20±1.19	1.23±0.82	0.03±1.29	0.141	0.889
35.Returnsborrowed items.	1.00±1.08	1.33±1.01	0.33±1.11	0.660	0.514
36. Responds to activities.	1.53±1.04	1.63±0.89	0.10±0.88	0.619	0.541
37. Disturbs others.	1.23±1.25	1.40±1.00	0.17±0.99	0.926	0.362
38. Prefers to be alone.	1.07±1.14	1.37±0.89	0.30±1.29	1.273	0.213
39. Isolates self.	1.30±1.18	1.27±0.90	0.03±1.18	0.154	0.879
40. Hugs with rigidity.	1.53±1.17	1.63±0.91	0.10±1.54	0.356	0.725
41.Cries inappropriate	1.37±1.25	1.27±1.01	0.10±1.03	0.532	0.599
42. Temper outbursts.	1.57±1.17	1.60±1.00	0.03±1.33	0.138	0.891
43.Repetitive vocalizations	1.70±1.18	1.63±0.93	0.07±1.17	0.311	0.758
44.Communicates verbally	1.23±0.97	1.43±0.86	0.20±0.76	1.439	0.161
45. Engages in self-injury	1.33±1.30	1.40±1.07	0.07±0.74	0.494	0.625
46.Communicates gestures	1.43±0.86	1.56±0.85	0.13±0.94	0.779	0.442
47Initiate communication	1.40±1.07	1.44±1.06	0.04±0.64	0.000	1.000
48Doesn't attend to people	1.73±1.01	1.73±0.83	0.00±0.91	0.000	1.000
49. Not follow instructions	1.63±1.22	1.50±1.11	0.13±0.82	0.891	0.380
50. Resists being touched.	1.20±1.19	1.20±1.03	0.00±0.79	0.000	1.000
51. Avoids eye contact.	1.17±0.99	1.470.97	0.30±0.95	-1.725	0.095
52. Has trouble waiting	1.37±1.35	1.30±1.09	0.07±1.23	0.297	0.769
53. Prefers objects.	1.40±1.24	1.40±1.07	0.00±0.80	0.000	1.000
54. Says "hello"	1.17±0.95	2.03±0.94	0.87±1.19	3.970	**<0.001**
55. Says "good-bye"	1.03±1.06	2.20±0.81	1.17±1.21	5.299	**<0.001**
56. Appropriate posture.	1.93±1.05	2.00±0.95	0.07±0.74	0.494	0.625
57. Initiates activities	1.73±1.01	1.63±0.96	0.10±0.92	-0.593	0.557

58.Interacts positively	1.73±0.98	1.63±0.90	0.23±0.63	2.041	**0.050**
59. Interrupts teacher.	1.23±0.98	1.53±0.97	0.30±1.44	1.140	0.264
60. Likes to hold hands.	1.86±0.97	1.26±0.96	0.10±0.55	1.000	0.326

Note
The significant value ($p < 0.05$) is in bold

Table 9c

Difference between pre and post- intervention scores on the MESSIER items Contd

N=30

Item	Mean Pre	Mean post	Mean difference	t	p
61. Follows excessively	1.96±1.16	1.96±0.99	0.00±1.02	0.000	1.000
62. Pushes, hits, kicks	1.40±0.97	1.46±1.28	0.07±1.31	0.278	0.783
63. Disrupts activities	1.57±1.14	1.77±1.00	0.20±1.32	0.828	0.415
64. Speaks while others are.	1.70±1.00	2.00±0.95	0.30±0.84	1.964	0.059
65. Does the opposite	1.46±1.04	1.43±0.90	0.03±0.72	0.254	0.801
66. Is timid or shy.	1.80±1.09	1.82±0.92	0.02±0.53	0.000	1.000
67. Exhibits mannerisms.	1.70±1.15	1.84±0.95	0.13±1.01	-0.724	0.475
68. Touches others.	1.23±1.04	1.37±0.85	0.13±0.68	1.072	0.293
69. Holds onto others.	1.53±1.20	1.56±1.01	0.03±0.89	0.205	0.839
70. Uses gestures.	1.66±0.92	1.50±0.90	0.17±0.65	-1.409	0.169
71. Demands attention	1.43±1.04	1.46±0.97	0.03±1.09	0.166	0.869
72. Reacts poorly	1.23±1.04	1.46±0.97	0.20±0.66	1.649	0.110
73. Curses.	1.53±1.33	1.80±1.23	0.27±1.08	1.352	0.187
74. Sleeps.	1.57±1.19	1.77±0.97	0.20±0.80	1.361	0.184
75.Embarrassing comments	1.83±1.09	2.06±0.94	0.23±1.20	1.229	0.229
76. Complains often.	1.47±1.25	1.77±0.23	0.30±1.02	1.608	0.119
77. Makes noises.	1.27±1.20	1.60±0.97	0.33±1.35	1.355	0.186
78. Waves hello.	1.43±1.14	2.00±0.69	0.57±1.25	2.482	**0.019**
79. Thanks or compliments	1.13±1.43	1.43±1.01	0.30±1.24	1.329	0.194
80. Negative statements.	1.87±1.32	1.60±1.25	0.27±0.78	1.861	0.073
81. Cooperates	1.53±1.03	1.80±0.90	0.27±0.69	2.112	**0.043**
82. Seems unaware	1.90±1.09	1.47±0.94	0.43±0.94	2.538	**0.017**
83. Interesting interacting	1.67±1.06	2.07±0.64	0.40±1.04	2.112	**0.043**
84. Speech no emotion	1.87±1.09	1.90±0.84	0.03±1.27	0.143	0.887
85. Simple instructions	1.74±1.09	1.90±0.94	0.13±0.77	0.941	0.354

Note
The significant value ($p < 0.05$) is in bold
MESSIER: Matson Evaluation of Social Skills for Individuals with Severe Retardation

5.8 Factor analysis of the MESSIER Questionnaire

A factor analysis was carried out to determine the factor structure of the MESSIER. Three factors with eigenvalues greater than 1 were derived. These 3 factors accounted for 43.2% of the total variance. The analysis of the factor structure showed that the 'general positive' scale loaded strongly on factor 1 while the 'positive nonverbal and negative nonverbal' scales loaded on factor 2 and 'the general negative scale loaded on factor 3 (Tables 10a, 10b and 10c).

Table 10a

Factor analysis of the MESSIER Questionnaire

N=30

MESSIER Item	Factor 1	Factor 2	Factor 3
1. Turns head	.404	.480	
2. Looks at face	.627		
3. Responds to voice		.613	
4. Distinguishes caregiver		.709	
5 Interest in unfamiliar	.512		
6 .Expresses emotions	.607		
7. Shows affection	.561		
8. Shows interest in people	.504	.592	
9. Extends hand	.461		
10.Plays with toy			
11.Simple interaction.			
12. Distinguishes people	.407	.599	
13.Interest in activities			
14. Imitates movements	.617		
15. Smiles in response			
16. Addresses by name	.602		
17. Desire to please		.724	
18.With prompting	.624		
19. Without prompting	.654		
20. Has a friend.		.483	
21. Imitates phrases	.637		
22. Shows a preference.		.556	
23. Says “please”	.634		
24. Labels own emotion			
25. Shares		.689	
26. Orients to noise.		.632	

27. Responds to speech		.644	
28. Imitates sounds.			
29 Attempts to communicate	.634		
30. Follows rules	.672		

Note:

Messier = Matson Evaluation of Social Skills for Individuals with Severe Retardation

Main components analysis, showing all varimax-rotated loadings ≥ 0.40.

Table 10b

Factor analysis of the MESSIER Questionnaire Contd

N=30

MESSIER Item	Factor 1	Factor 2	Factor 3
31. Follows facility rules.	.521		
32. Apologizes		.567	
33. Talks with food			
34. Responds appropriately.		.729	
35. Returns borrowed items.	.445		
36. Responds to activities.	.704		
37. Disturbs others.			.647
38. Prefers to be alone.			.463
39. Isolates self.			.568
40. Hugs with rigidity.			.669
41. Cries inappropriate			.555
42. Temper outbursts.			
43. Repetitive vocalizations			.575
44. Communicates verbally	.482		
45. Engages in self-injury			.717
46. Communicates gestures	.672		
47 Initiate communication	.698		
48 Doesn't attend to people		.556	
49. Not follow instructions			.778
50. Resists being touched.			.601
51. Avoids eye contact.			.679
52. Has trouble waiting		.572	
53. Prefers objects.			.506
54. Says "hello"			

55. Says “good-bye”	.484
56. Appropriate posture.	.545
57. Initiates activities	.614
58. Interacts positively	.707
59. Interrupts teacher.	
60. Likes to hold hands.	

Note:

Messier = Matson Evaluation of Social Skills for Individuals with Severe Retardation

Main components analysis, showing all varimax-rotated loadings ≥ 0.40.

Table 10c

Factor analysis of the MESSIER Questionnaire Contd

N=30

MESSIER Item	Factor 1	Factor 2	Factor 3
61. Follows excessively			
62. Pushes, hits, kicks		.761	
63. Disrupts activities		.608	
64.Speaks while others are.			
65. Does the opposite		.590	
66. Is timid or shy.			.599
67. Exhibits mannerisms.			
68. Touches others.		.458	
69. Holds onto others.		.604	
70. Uses gestures.			
71. Demands attention			
72. Reacts poorly			.620
73. Curses.			.558
74. Sleeps.			.482
75. Embarrassing comments.		.737	
76. Complains often.		.469	.559
77. Makes noises.			
78. Waves hello.	.535		
79. Thanks or compliments			
80. Negative statements.			.599
81. Cooperates			

82. Seems unaware			
83. Interesting interacting.	.483		
84. Speech no emotion.			
85. Simple instructions.	.708		
Percent of total variance (rotated)	**16.4%**	**15.6%**	**11.2%**

Note:

Messier = Matson Evaluation of Social Skills for Individuals with Severe Retardation

Main components analysis, showing all varimax-rotated loadings ≥ 0.40.

Testing of Hypotheses:

Sub-Hypothesis 1: There will be no significant difference between the pre and post-intervention 'positive verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 2: There will be no significant difference between the pre and post-intervention 'positive non-verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 3: There will be no significant difference between the pre and post-intervention 'general positive' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p < 0.05, then the null hypothesis is rejected

Sub-Hypothesis 4: There will be no significant difference between the pre and post-intervention 'negative verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 5: There will be no significant difference between the pre and post-intervention 'negative non-verbal' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 6: There will be no significant difference between the pre and post-intervention 'General negative' social skills of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 7: There will be no significant difference between the pre and post-intervention 'Total' social skills score of the adolescents with intellectual disability after an eight week intervention using the *Explore* curriculum.

Since p < 0.05, then the null hypothesis is rejected.

Sub-Hypothesis 8: There will be no significant difference in the impact of sex on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 9: There will be no significant difference in the impact of on the effect of the Explore curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 10: There will be no significant difference in the impact of religion on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 11: There will be no significant difference in the impact of tribe on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 12: There will be no significant difference in the impact of family type on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 13: There will be no significant difference in the impact of marital status of parents on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since p > 0.05, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 14: There will be no significant difference in the impact of father's level of education on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since $p > 0.05$, there is no sufficient evidence to reject the null hypothesis.

Sub-Hypothesis 15: There will be no significant difference in the impact of mother's level of education on the effect of the *Explore* curriculum on the social skills of the adolescents with intellectual disability after an eight week intervention.

Since $p < 0.05$, the null hypothesis is thereby rejected.

CHAPTER SIX

DISCUSSION

6.0 Socio-demographic characteristics of the participants

The mean age of the participants was 15.70 years with two-thirds (66.7%) in the late adolescent age range of 15-19 years. This age range is different from what is obtained in studies from mainstream schools in Nigeria. A study that was carried out among 1,768 secondary school students in Ibadan, Nigeria, where the present study site is located, found that over 80% of the participants were in the age range of 10-17 years (Omigbodun *et al*, 2008). A study among adolescents with intellectual disability in the USA found a mean age of 16.4 years (Murray and Doren, 2013). The observed higher age might be due to the fact that adolescents with intellectual disability have difficulty accessing appropriate education (Sinai *et al*, 2013), and this difficulty often results in their starting school late and remaining in school for a longer period. According to the World Health Organisation, less than 5% of

children with intellectual disability have access to education in the developing world(Australian Institute of Health and Welfare [AIHW], 2004; WHO, 2007). In addition, the difficulties and stigma associated with intellectual disability may make it difficult for them to cope in mainstream schools (Cooney *et al*, 2006; Mclntyre *et al*, 2005; Jahoda and Markova, 2004). Unfortunately there are very few schools with the special resources that are needed to cater for this group of children and adolescents (Nunes *et al*, 2003), especially because most developing countries are yet to fully adopt an Inclusive Education System (Ajuwon, 2012; Hornby, 2012 Sherman and Deppeler, 2005).

The gender proportions observed with more than half (53.3%) of the participants being males are similar to findings from around the world. A similar study among adolescents in a developmental centre in the United States of America found that 61% of the participants were males (Murray and Doren, 2013). Similarly, a study among adolescents attending special schools in Netherlands obtained a gender ratio of 58.2% boys and 41.8% girls (Oeseburg *et al*, 2010). Developmental disorders are commoner in males and it is well established that at all levels of intellectual disability, there is a higher prevalence of males (Sussmann *et al*, 2009; Mehra *et al*, 2009). It might also be due to the fact that male children are given more attention in this part of the world (Ajibode *et al*, 2003). Parents may have made a greater effort to place their male children in a school with the hope that outcome will improve. Parents attach less importance to educating the female child especially those with intellectual disability **(Padencheri and** Russell, 2004**).** Studies carried out in mainstream schools also revealed a preponderance of males (Omigbodun *et al*, 2008).

Parents of 11 (36.7%) of the thirty participants were either separated or divorce, this rate is over 3 times higher than what was obtained in a study of about 2000 adolescents in mainstream school in rural and urban Southwest Nigeria. Omigbodun *et al* obtained a divorced/separated rate of 11%. It has been documented that childhood chronic illnesses and

the presence of a child with disability are major sources of family distress and dysfunction (Smith *et al*, 2009) which could lead to family discord. Studies have also shown that raising a child with a disability causes marital strain and increases the probability of divorce or separation (Swaminathan *et al*, 2006; Riechman, 2004). Children and adolescents with developmental disabilities are often dependent upon their parents to meet their needs (Plant and Sanders, 2007), as a result, parenting demands and stress are higher among parents of individuals with intellectual disability. The period of dependency continues for longer periods leaving little room for a renewed marital relationship (Smith *et al*, 2009; Seltzer *et al* 2000). This may be intensified during adolescence when the prognosis may dawn on the parents for the first time. Another important factor that can lead to parental separation is societal stigma on families with children and adolescents with disabilities (Hartley *et al*, 2005). Societal stigma on families of children with disabilities is worsened by the extended family practice in Nigeria which allows for significant interference in decisions within the nuclear family (Bamisaiye *et al*, 1974). Another possible explanation of this observation is that intellectual disability in a child could also be a consequence of an already strained marriage. It has been documented that children within marriages that are undergoing difficulties are at a higher risk of developing mental and physical problems (van Gent *et al*, 2012). This is because the parents are usually preoccupied with the difficulties and discord and may neglect the care and supervision of children or care during the ante-natal period. This might lead to a higher risk of having a child with a disability. It may therefore be reasonable to conclude that the relationship between marital status of the parents and intellectual disability in the child found in this study may be multifaceted and bidirectional.

An overwhelming majority of the adolescents (86.7%) were of the Yoruba ethnic group which is one of the three major ethnic groups in Nigeria with the other two being Igbo and

Hausa. This observation is expected in view of the fact that the study site was located in Ibadan, Southwest Nigeria, a predominantly Yoruba speaking region.

More than half (53.3%) of mothers of the participants had no formal education. This finding has also been observed in mothers of children with other types of disabilities (Thuy and Berry, 2013; Ha *et al*, 2011; Awadalla *et al*, 2010). An explanation for this is that mothers who have no formal education might be limited in their ability to make informed decisions about the health of their children and might also have difficulty accessing health care for them (Othero *et al*, 2010). Utilization of ante-natal care by mothers who are not educated might be limited and this in turn may lead to an increased risk of complications like asphyxia and brain infection in the baby that can subsequently lead to intellectual disability (Morgan *et al*, 2008). Protective mechanisms against intellectual disability have being associated with high level of maternal education (Walker *et al*, 2011, these mechanisms include less maternal depression, ability to access and benefit from interventions and having a better nutritional status (Walker *et al*, 2011). In addition the facility where the present study was done is owned and supported by the State Government and fees charged are highly subsidised and affordable. In the city of Ibadan where this facility is found, there are private schools for children and adolescents with ID but the fees can only be afforded by those in the high socio-economic bracket, hence the large proportion of mothers without formal education.

6.1 Wechsler Intelligence Scale for Children (WISC) scores of the participants

All the participants scored below 69 in the test of intelligence, this is defined as extremely low IQ on the WISC category. This is not surprising because according to the International Classification of Disease (ICD-10), an IQ below 70 is an important criterion required for making the diagnosis of intellectual disability (World Health Organisation, 1992). Moreover, studies among children and adolescents with intellectual disability attending special schools

have consistently found low IQ scores as compared with those in inclusive education (Fernell and Ek, 2010). It has been documented that adolescents with intellectual disability attending special schools tend to have the severe and profound types of disability which is often reflected on tests of intelligence like the WISC (Oeseburg *et al*, 2010). In contrast, children and adolescents with the mild type of intellectual disability are not likely to attend special schools because their disabilities are often not identified (Ke and Liu, 2012; Femell and Ek, 2010; Karande *et al*, 2008) and they often end up attending the mainstream schools (Girimaji and Srinath, 2010). However, adolescents with ID in inclusive education, where all children, including those with disabilities receive similar education (Takashi, 2013), tend to perform slightly better on tests of intelligence. This might be because studies have shown that inclusive education offers better outcomes for children with intellectual disability (White, 2012; Dessemontet, 2012; Calabrase *et al*, 2008). Inclusive education fosters better psychological development, improves academic performance (Farrell *et al*, 2011) and promotes positive adaptive abilities (Vianello and Lanfranchi, 2011; Hardiman *et al*, 2009). Inclusive education gives students with disabilities the opportunity to participate in the least restrictive environment so that they receive as much education as possible with non-disabled students (Lamport *et al*, 2012 Khudorenko, 2011).

The right to education of individuals with intellectual disability is enshrined in the United Nations Convention on the Rights of Persons with Disabilities. Article 24 of the Convention calls for inclusive education for people including children and adolescents with disabilities, and obliges member countries to provide reasonable accommodation in education systems (United Nations, 2006). Given the current situation, inclusive education' is not a reality for a very significant proportion of children and adolescents with intellectual disabilities in low and middle income countries (White, 2012; Khudorenko, 2011; Girimaji and Srinath, 2010). The World Health Organization (WHO) estimates that only five per cent of children and

adolescents with disabilities in developing countries have access to supports or services of any kind, and that less than two per cent attend school (WHO, 2007). Children and adolescents with intellectual disabilities who attend school in LAMI countries like Nigeria are likely to attend special or segregated educational establishments (Hornby, 2012). Despite the segregation, there is no curriculum available for the adolescents with special needs. Teachers are left to use the mainstream curriculum resulting in poorer performance by the students in these schools (Ajuwon, 2012; Hornby, 2012; Sherman and Deppeler, 2005).

6.2 Pre-intervention levels of social skills impairment of the participants

Over 90% of the participants had moderate and severe levels of social skills impairment before the intervention with a mean score of 126.63±17.91. A previous study found a mean score of 155.21±40.37 on MESSIER in a study conducted among 534 individuals in a developmental centre that offers residential and medical facilities in the United States of America (Matson and Beisioji, 2008). The difference in the mean scores of this US based study and the current study might have been because the participants were adults with a mean age of 27 years. Another study that assessed the social skills of 100 individuals with intellectual disability in the United States of America using the MESSIER found significant impairment in all the subscales of the MESSIER (Smith and Matson, 2010). Other previous studies also showed that children with intellectual disability have significant impairment in social skills (de Bildt *et al*, 2005; Bielecki and Swender, 2004). These might be because individuals with intellectual disability often have problems in detecting and understanding contextual clues and situations, they are unable to identify emotional and social relationships, and do not understand others' feelings and perceptions.

6.3 Effect of the intervention on social skills

There was a statistically significant (p=0.001) difference in the mean change (10.73) between the pre and post-intervention scores on the social skills scales after eight weeks of intervention. This is keeping with what similar studies have found (Murray and Doren, 2013). For example, there was a study in the United States that used a similar curriculum; the Working at Gaining Employment Skills (WAGES) in a randomised control trial of 222 adolescents with developmental disabilities. The authors found significant improvements in the mean score difference between pre and post assessment of the adolescents on the Social Skills Rating System (SSRS) in the study group (Mean difference = 1.52) as opposed to those in the control group (Mean difference= 0.51) (Murray and Doren, 2013). Other forms of interventions have been found to be effective in individuals with intellectual disability (Allor *et al*, 2013; Browder *et al*, 2012; Cannella-Malone, *et al*, 2011 Alwell and Cobb, 2010). A systematic review of ten studies on social skills interventions among adolescents and young people with disabilities found a significant (z= 4.61, p= .001) effect size (2.25) and concluded that social skills interventions are effective in this population (Alwell and Cobb, 2010).

6.4 Pre and post-intervention analysis of social skills by socio-demographic characteristics

The results showed that mother's level of education significantly affect the difference between the pre and post-intervention social skills scores and the mean difference was lowest among participants whose mothers had no formal education as opposed to those with either primary or post primary education. This is in keeping with previous studies that found that children of mothers with no education tend to have poorer outcome of intellectual disability interventions (Chapman *et al*, 2002). Studies on socio-demographic risk factors for ID have suggested that low maternal educational level, among several other factors, are associated with poorer outcome in children with intellectual disability (Chapman *et al*, 2002). A cohort study that was conducted in Finland to determine the relationship between maternal socio-

demographic factors and intellectual disability, over an interval of 20 years found that indicators of socioeconomic disadvantage such as low level of education and low socioeconomic status and multi-parity had the largest impact on the incidence of ID in offspring (Heikura *et al*, 2007).

In addition, children with ID whose mothers have no education tend to have the more severe forms of intellectual disability as opposed to children whose mothers had higher education. Another important factor that might be responsible for poorer outcome in children of mother who has no formal education is poverty. Poverty has been strongly linked to no or low education (Newachek and Kiu, 2005), this is because the affected children are often unable to access health care for early identification and intervention which is an important determining factor for outcome in children with intellectual disability (Ke and Liu, 2012). They are usually unable to afford appropriate interventions for the affected children (Parish *et al*, 2004). Poverty has also been reported as an underlying condition for many children with disabilities and raising children with disabilities has been reported to be expensive (Shattuck & Parish, 2008; Parish *et al*, 2008; Emerson, 2007). In addition, studies have shown that the care-giving responsibilities of raising a child with disabilities creates significant barriers to employment for mothers (Parish *et al*, 2004) especially those who are already disadvantage in the highly competitive labour market because of their low educational qualifications (Parish, 2006). The inability of the mother to get a job will contribute to the financial hardship of the family, hence children and adolescents with intellectual disability in such families tend to receive inadequate care (Kuhlthau *et al*, 2005). In addition, the better educated mothers, realising the importance of the intervention may have continued to practice this after formal school hours, hence the better outcomes in their children and adolescents.

Oftentimes the cause of the intellectual disability is as a result of inability to access quality health care during pregnancy which in turn has been linked to maternal education level (Morgan *et al*, 2008). This is because a mother with low educational attainment might not have access to information or cannot afford the available health care, resulting in peri-natal complications which have been linked to intellectual disability (Sussmann *et al*, 2009). Studies have also shown that some of the mothers with low education have some degree of intellectual disability (Smith and Keenan, 2013) themselves which might explain the low level of educational attainment. As a result their children with intellectual disability might not have received adequate stimulation during the first few years of life, resulting in worse outcomes of the intervention they might be receiving now. A study concluded that mother's education level is a significant predictor of a child's age at the time special education needs are identified (Oswald *et al*, 2012).

6.5 Difference between pre and post- intervention scores on the MESSIER Items

Analysis of the items on the MESSIER questionnaire showed that fourteen items were statistically significant when the pre and post-intervention scores were compared. Thirteen out of these items were on the positive scales of the questionnaire. quantitative differences in social behaviour for this population appear to be more evident in a lack of positive social skills rather than the presence of more overt negative social behaviours Studies have shown that individuals with intellectual disability find it easier to learn positive skills than dropping negative ones (Wilkins, 2008).

6.6 Factor analysis of the MESSIER Questionnaire

The study showed that the MESSIER questionnaire mapped on three factors. One of the factors was largely positive and one was negative, the third factor loaded for both positive nonverbal and negative nonverbal. The MESSIER contains well defined positive and negative items with good internal consistency (Matson *et al*, 2005). In a previous study, factor analysis of the MESSIER yielded two dimensions: one factor described positive items and the other described negative items (Paclawskyj *et al*., 1999). The present study was able to derive a third factor containing both negative and positive nonverbal items. This means that two subscales loaded on one factor; therefore these two subscales could have been theoretically built out of one subscale.

CHAPTER SEVEN

CONCLUSION

In this study of 30 adolescents with intellectual disability, there was a high prevalence of social skill impairments among participants at baseline. All the participants had extremely low intelligence quotient scores on the Wechsler Intelligence Scale for Children (WISC) - Fourth Edition. There was a significant improvement in the social skill scores of the participants at the end of eight weeks of intervention using the adapted *Explore* Curriculum. Mother's level of education was the only socio-demographic variable that was significantly associated with change between pre and post-intervention social skills scores. The factor analysis of the Matson Evaluation of Social Skills for Individuals with Mental Retardation

(MESSIER) questionnaire showed that the positive and negative items can be mapped clearly into positive and negative scales. The adaptation of the *Explore* Curriculum made it a useful teaching tool for teachers in this environment.

CHAPTER EIGHT

STRENGTHS AND LIMITATIONS

Strengths:

1. The study was an intervention study, an important strength of the study.
2. The adaptation of the *Explore* curriculum for use by the teachers in this environment is an aspect of the study that many other researchers will find useful.
3. The fact that the teachers were actively involved in the adaptation process and in the delivery of the intervention is an important strength of the study.

4. The intervention took place in a familiar setting to the participants; this might have contributed to their co-operation during the study.
5. After an extensive manual and electronic search of the literature, as far as the author is aware, this is the first study, to determine the effect of an intervention on the social skills of adolescents with intellectual disability in this region. The data generated by this study has contributed substantially to the body of knowledge in this discipline.

Weaknesses:

1. Randomisation was not feasible due to a few numbers of students in the school.
2. The students presented with a varying degrees of intellectual disabilities. This study was unable to establish the individual underlying causes of the disabilities.

CHAPTER NINE

RECOMMENDATION

1. The use of the adapted *Explore* Curriculum should continue in the current school because it has been shown to be effective. The curriculum should be package for use in schools with special needs children and adolescent throughout the state and can later be extended to other states of the federation.

2. All children should be encouraged to attend school, even if some children might need increased levels of support to develop their academic and social skills once they are enrolled in school.
3. Children and adolescents with intellectual disability should not be removed from the classroom in order to be provided necessary interventions, but should receive support in their classrooms, preferably in inclusive settings where there are peers who can serve as models for appropriate social and academic school behaviours.
4. Individualized Education Plans (IEPs) should be designed for each student with intellectual disability in order to maximize their participation through appropriate adaptations, modifications to activities, and materials, and/or curricula.
5. Government should provide the appropriate curricula and materials including teaching aids and educational packages for teachers in special education settings.

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Appendix I

SOCIO DEMOGRAPHIC QUESTIONNAIRE

Serial number---------- Date of Interview----------

Name of School

1. **Age/ Date of Birth**

2. **Gender**

   a. Male b. Female

3. **Class**

4. **Religion**

   a. Christianity b. Islam c. Others, specify

5. **Tribe**

   a. Yoruba b. Igbo c. Hausa

6. **Family type**

   a. Monogamous b. Polygamous c.

7. **Marital status of parents**

   a. Married b. Divorced/Separated c. Widowed

8. **Father's level of Education**

   a. Primary b. Secondary c. Tertiary

9. Mother's level of Education

a. Primary b. Secondary c. Tertiary

10. How long have you been in the school?

11. Do you live in the school?

a. Yes b. No

12. Are you on any medication?

a. Yes b. No

13. If yes, give name(s) of medication

Appendix II

Matson Evaluation of Social Skills in Individuals with Severe Retardation (MESSIER) (Matson, 1995)

For each item, please mark the box for Never, Rarely, Sometimes or Often. It would help us if you answered all items as best as you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour

Child's Name ..... Male/Female

Item	Never	Rarely	Sometimes	Often
1. Turns head in direction of caregiver.				
2. Looks at face of caregiver when spoken to.				
3. Responds to voice of caregiver or another person.				
4. Distinguishes caregiver from others.				

5. Shows interest in unfamiliar people.				
6. Expresses two or more recognizable emotions.				
7. Shows affection toward familiar people.				
8. Shows interest in people other than caregivers.				
9. Extends hand toward familiar person.				
10. Plays with toy or object alone or with others.				
11. Plays simple interaction game with others.				
12. Distinguishes between people.				
13. Shows interest in activities of other people.				
14. Imitates simple movements.				
15. Smiles in response to positive statements.				
16. Addresses at least two familiar people by name.				
17. Shows desire to please caregiver.				
Item	**Never**	**Rarely**	**Sometimes**	**Often**
18. Participates in game or activity with others with prompting.				
19. Participates in game or activity with others without prompting.				
20. Has a friend.				
21. Imitates phrases heard previously.				
22. Shows a preference for certain friends over others.				
23. Says "please" when asking for something.				
24. Labels own emotional states.				
25. Shares without being told to do so.				
26.Orients to noise.				
27. Responds to speech of others.				

28. Imitates sounds.				
29. Attempts to communicate using words or sounds.				
30. Follows rules in simple games without being reminded.				
31. Follows facility rules.				
32. Apologizes for unintentional mistakes.				
33. Talks with food in mouth.				
34. Responds appropriately when introduced to strangers.				
35. Returns borrowed items.				
36. Responds appropriately to activities in the environment.				
37. Disturbs others.				
38. Prefers to be alone.				
39. Isolates self.				
40. Responds to hugs with rigidity.				
41. Cries at inappropriate times.				
Item	**Never**	**Rarely**	**Sometimes**	**Often**
42. Has major or minor frequent temper outbursts.				
43. Exhibits inappropriate repetitive vocalizations.				
44. Communicates most needs verbally.				
45. Engages in self-injury or other inappropriate behavior to avoid social contact				
46. Communicates most needs with gestures.				
47. Initiates verbal communication.				
48. Often does not attend to people or the environment.				
49. Does not follow simple instructions.				

50. Resists being touched.				
51. Avoids eye contact.				
52. Has trouble waiting for needs to be met.				
53. Prefers objects to people.				
54. Says "hello" when entering a room.				
55. Says "good-bye" when leaving a room.				
56. Has appropriate posture.				
57. Initiates most of own activities				
58.Interacts positively with others.				
59. Interrupts teacher or caregiver helping another.				
60. Likes to hold hands with others.				
61. Follows caregivers around excessively.				
62. Pushes, hits, kicks, and so on peers or caregivers.				
63. Disrupts activities of others.				
64. Speaks while others are speaking.				
Item	**Never**	**Rarely**	**Sometimes**	**Often**
65. Does the opposite of what he or she is told.				
66. Is timid or shy in social situations.				
67. Exhibits peculiar or odd mannerisms in public.				
68. Touches others inappropriately.				
69. Holds onto others and will not let go.				
70. Uses arm or hand gestures to communicate.				
71. Demands excessive attention or praise.				
72. Reacts poorly to correction.				
73. Curses.				
74. Sleeps unless directed				

into a new activity.				
75. Makes embarrassing comments.				
76. Complains often.				
77. Makes loud inappropriate noises.				
78. Waves hello appropriately.				
79. Thanks or compliments others.				
80. Makes negative statements about self.				
81. Cooperates with caregivers.				
82. Seems unaware of what is going on around him or her.				
83. Shows interest in interacting.				
84. Speech shows no emotion.				
85. Carries out simple instructions.				

This is the end of the questionnaire. Thank you for your time!

Appendix III

INFORMED CONSENT FORM

EFFECT OF THE *EXPLORE* CURRICULUM ON THE SOCIAL SKILLS OF CHILDREN WITH INTELLECTUAL DISABILITY IN A SPECIAL SCHOOL IN IBADAN

My name is ----------, I am a Masters student from the Centre for Child and Adolescent Mental Health, University of Ibadan.

I want to carry out a study among the students of the school for the Handicapped, Ijokodo, Ibadan. The study is to find out the effect of a curriculum on the social skills of the students.

In the study, the curriculum will be taught to the students in class three times in a week for eight weeks, the curriculum is to help the students to improve on their ability to relate well in school and in the community. Your child's teacher will also be asked to provide some information on how your child is relating to his/her peers and the teachers in school.

Your child/ward's participation in this research will not cost you anything.

All information collected in this study will be given code numbers and no names will be recorded. This cannot be linked to your child in any way and your child's name will not be used in any publication or reports from this study.

Participation in the study is completely voluntary. Your child/ward is not obliged to participate in the study.

You are free to withdraw your child/ward's participation at any time during the study without any adverse effect on your child.

Consent: Now that the study has been well explained to me and I fully understand the content of the study process, I will be willing to allow my child/ ward take part in the study. Thank you very much.

Signature of parent/Guardian----------

Date----------

Appendix IV

CONSENT FORM

Iwe gbolohun akopa fun eto iwadi

EFFECT OF THE *EXPLORE* CURRICULUM ON THE SOCIAL SKILLS OF CHILDREN WITH INTELLECTUAL DISABILITY IN A SPECIAL SCHOOL IN IBADAN

Oruko mi ni Dokita ----------, lati ile eko giga University ti Ibadan.

Mo fe se eto iwadi ijinle laarin awon omo ileiwe fun awon akande eda, ti Ijokodo, Ibadan. Eredi iwadi ijinle yi ni lati mo anfaani lilo iwe atona lati ko awon omo nipa iwuwa si lawujo.

Lakoko iwadi yi, awon oluko yi o ma lo iwe atona yi lati ko awon akeko ni igba meta laarin ose fun ose mejo gbako. Iwe atona yi ni a lero wipe yio ran awon akeko yi lowo nipa bi a ti nwuwa larin ile iwe ati lawujo. Oluko omo yin yi o ma so fun wa bi omo yin se n wuwa si laarin awon akegbe re ati si awon oluko

Ikopa omo yin ninu iwadi yi ko ni na yin lowo rara.

Gbogbo ohun ti awon oluko ba ba wa so nipa omo yin ko nii lu si ita, afi laarin awọn olujiroro ti o ṣe eto ẹkọ yii.

Ikopa omo yin ninu eto yii ki se tipatipa. Aaye wa fun yin lati sọ pe e ko fe ki omo yin tesiwaju ninu iwadi yi nigbakigba ti e ba fẹ.

Gbolohun Akopa

Niwon igba ti alaye nipa iwadi yi ti ye mi yekeyeky, mo faramọ ki omo mi ko ipa ninu eto yii. Jọwọ bu ọwọ lu iwe naa ni aaye to wa nisalẹ yii.

E se pupo.

_____

Obi/ Alagbatọ ---------- Date ----------

Appendix V

Explore Social Skills Curriculum

Appendix V Contd

Sample lessons from the Explore Curriculum

Lesson Title: Getting Ready for School

Narrative

Although getting ready for school is as much of an organizational problem as a social skill, students who come to school unprepared will have problems. Sometimes they're anxious about how they look, are hungry, or are concerned about something like homework they left at home. This skill should be taught to those who need stepping-stones to promote success in other areas. The aid of parents or guardians must be enlisted as necessary to help monitor the morning routine.

Objective

The student will follow a morning routine which includes getting up after the alarm rings, grooming, eating breakfast, and putting all homework into a backpack before leaving for school.

Lesson

1. Introduce the lesson by reading the teacher's script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher's Script

Say, "You have a lot of things to remember when you're getting ready to go to school. Make sure you get up when the alarm rings. Check yourself in the mirror to see that you look okay, be sure to eat breakfast, put all of your homework and school supplies in your backpack, and dress for the weather."

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A parent/guardian and a student putting homework in a backpack so it's not left at home.

Parent/guardian: "Have you finished your homework?"

Student: "Yes."

Parent/guardian: "Put your homework in your backpack so that you don't forget to take it to school."

Student: "I will." (Student gathers up all homework and puts it into a backpack.)

Parent/guardian: "Did you pack all of your homework?"

Student: "Yes."

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Getting ready for school can be less chaotic if a daily routine is established. Each skill can be broken down into smaller steps; for example, put clothes to wear out the night before. A checklist or assignment book can be developed for checking and packing up homework. Backpacks and outerwear clothing should be placed in the same spot every day. Students who struggle with getting up after the alarm rings may need a breakfast bar or other foodstuffs placed in the backpack so that they will not be hungry when they arrive at school.

Lesson Title: Greeting Teachers

Narrative

Many students walk down hallways, on the school grounds, or in the school parking lot without acknowledging adult staff whom they know. It is often considered “uncool” to greet adults, especially present or former teachers. This is common amongst teens. Teachers often complain about this behavior, but schools seldom address it. Yet there are compelling reasons to encourage giving acknowledgment. Positive social skills in this area have long-term beneficial results. It helps to establish cordial relationships with staff, and these skills generalize to other adults whom students know, such as their supervisor at work.

Objective

The student will greet a familiar adult staff person in the school building and on the school grounds.

Lesson

1. Introduce the lesson by reading the teacher’s script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher’s Script

Say, “When you see teachers and other adults in the school you know, greet them with respect. Say, “Hi,” and use Mr., Mrs., or Ms. and their last name. This is the right thing to do. It makes the school a more pleasant place to be for everyone.”

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A student walks towards a teacher in the hallway.

Student: (Looks at teacher.) “Hi, _____ (says teacher’s name)."

Teacher: ‘Hi, _____ (says student’s name)."

Student and teacher continue walking.

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students who have social etiquette skills create a warm and friendly environment in a school community. Teens need to be taught the difference between public and private behavior. In other words, how they acknowledge school staff (public behavior) is different from greeting friends or family members (private behavior). Students who do not possess this skill need to be taught in smaller steps such as smiling and saying, “Hi.”

Lesson Title: Crossing the Street

Narrative

There are safety rules that students need to learn when crossing streets. Students must cross at corners and not in the middle of the block. They should use crosswalks and pedestrian signs. Teaching students to read Walk and Don't Walk symbols in their neighborhood is important. They need to look for moving cars before crossing the street even if there is a Walk sign.

Objective

The student will cross the streets at the corner, use crosswalks and traffic signals, and pay attention to safety rules when crossing streets.

Lesson

1. Introduce the lesson by reading the teacher's script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher's Script

Say, "When crossing the street, it is important to be careful and follow some safety rules. Before crossing, stop at the curb and look first to the left, then right, and left again. Make sure there are no moving cars before crossing the street. Continue to check for traffic while crossing. At traffic lights and pedestrian crossings, cross when the Walk signal is on, and look for moving cars before you cross even if the Walk signal is on. The Walk signal means to look and then cross safely."

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: Two friends are walking down the street and talking to each other. They come to a crosswalk and one tries to cross without looking for moving cars.

Student 1: "My cousin was here this weekend and we had the best time."

Student 2: "What did you do?"

Student 1: "We played video games and went to the park for a pick up game." (Student 1 starts to cross the street without looking.)

Student 2: "Stop! You must check for cars before crossing the street." (Both friends look for cars.)

Student 2: "Okay, it is safe to go." (The friends cross the street together.)

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students who struggle with making good judgments need to be taught basic rules for crossing streets. Students who walk to school must know the rules for safe street crossing. They need to avoid crossing in the middle of a block, especially if they are trying to cross a busy street. Students should not copy a pedestrian who is not using good safety rules when crossing a street.

Students must wait for the Walk sign at traffic lights and pedestrian signals. If they see a flashing Don't Walk sign before they cross the street, wait until the sign flashes Walk. The Walk sign doesn't mean it is safe to walk; pedestrians still must look for moving cars before crossing.

Lesson Title: Meeting a New Person

Narrative

Many students struggle with how to meet new people, whether adults or peers. Often when meeting someone for the first time, they stand silently or feel awkward because they don't know what to say or how to act. As basic of a social skill as this is, many students have not been taught the etiquette meeting new people.

Students need to know that when in a public place (e.g., school or working situations) there is a code of social conduct that is expected. It includes how to introduce themselves and greet others so others are comfortable. Students also need to know the difference between greeting an adult and a person their own age.

Objective

When meeting someone new, students will make eye contact, introduce themselves, listen for the other person's name, and confirm meeting the person.

Lesson

1. Introduce the lesson by reading the teacher's script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher's Script

Say, "It's important to know the right way to meet someone new so you know how to do it when it happens. When you meet someone for the first time, look him in the eye, tell him your first and last name, and pay attention when he tells you his name. Then say, 'It's nice to meet you,' and say his name back to him. People like it when you're polite about meeting them."

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A student wants to introduce himself to a new student.

Student 1: "Hi, are you a new student?"

New Student: "Yes."

Student 1: "My name is _____ (says name)."

New student: "Hi, my name is _____ (says name)."

Student 1: "It's nice to meet you, _____ (says new student's name as he extends his hand)."

New Student: "Thanks." (Students shake hands.)

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students need to know the difference between meeting an adult and a peer. Use Mr., Mrs., or Ms., and their last names to address teachers and other staff. Some parent volunteers may prefer having students use their first name.

In some social situations students need to be taught to shake hands when they meet someone new, especially if the person extends a hand first. They need to learn how to introduce a friend or adult to a new person. Teens should learn how to respond when someone else introduces them.

Appendix VI

Sample lessons from the Adapted *Explore* Curriculum

Lesson Title: Getting Ready for School (Adapted)

Narrative

Although getting ready for school is as much of an organizational problem as a social skill, students who come to school unprepared will have problems. Sometimes they're anxious about how they look, are hungry, or are concerned about something like homework they left at home. This skill should be taught to those who need stepping-stones to promote success in other areas. The aid of parents or guardians must be enlisted as necessary to help monitor the morning routine.

Objective

The student will follow a morning routine which includes getting up after the alarm rings, grooming, eating breakfast, and putting all homework into a school bag before leaving for school.

Lesson

1. Introduce the lesson by reading the teacher's script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher's Script

Say, "You have a lot of things to remember when you're getting ready to go to school. Make sure you get up when the alarm rings. Check yourself in the mirror to see that you look okay, be

sure to eat breakfast, put all of your homework and school supplies in your school bag, and dress for the weather."

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A parent/guardian and a student putting homework in a backpack so it's not left at home.

Parent/guardian: "Have you finished your homework?"

Student: "Yes."

Parent/guardian: "Put your homework in your school bag so that you don't forget to take it to school."

Student: "I will." (Student gathers up all homework and puts it into a school bag.)

Parent/guardian: "Did you pack all of your homework?"

Student: "Yes."

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Getting ready for school can be less chaotic if a daily routine is established. Each skill can be broken down into smaller steps; for example, put clothes to wear out the night before. A checklist or assignment book can be developed for checking and packing up homework. School bag and outerwear clothing should be placed in the same spot every day. Students who struggle with getting up after the alarm rings may need a breakfast bar or other foodstuffs placed in the school bag so that they will not be hungry when they arrive at school.

Lesson Title: Greeting Teachers (Adapted)

Narrative

Many students walk down hallways, on the school grounds, or in the school parking lot without acknowledging adult staff whom they know. It is often considered “uncool” to greet adults, especially present or former teachers. This is common amongst teens. Teachers often complain about this behavior, but schools seldom address it. Yet there are compelling reasons to encourage giving acknowledgment. Positive social skills in this area have long-term beneficial results. It helps to establish cordial relationships with staff, and these skills generalize to other adults whom students know, such as their supervisor at work.

Objective

The student will greet a familiar adult staff person in the school building and on the school grounds.

Lesson

1. Introduce the lesson by reading the teacher’s script.
2. Read and discuss the self-talk story.
3. Read and discuss the steps.
4. Practice the steps by performing role-plays.
5. Review the steps.
6. Teach how to use the self-monitoring checklist.
7. Students write and discuss solutions to the problems.
8. Assign the skill to the students.

Teacher’s Script

Say, “When you see teachers and other adults in the school you know, greet them with respect. Say, “Good morning Sir/Ma,”. This is the right thing to do. It makes the school a more pleasant place to be for everyone.”

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: A student walks towards a teacher in the hallway.

Student: (Looks at teacher.) “Good Morning/Afternoon Sir/Ma, _____ (shows courtesy by kneeling/bowing depending on student’s gender)."

Teacher: “How are you”, _____ (says student’s name)."

Student and teacher continue walking.

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students who have social etiquette skills create a warm and friendly environment in a school community. Teens need to be taught the difference between public and private behavior. In other words, how they acknowledge school staff (public behavior) is different from greeting friends or family members (private behavior). Students who do not possess this skill need to be taught in smaller steps such as smiling and saying, “Good Morning/Afternoon Sir/Ma.”

Lesson Title: Crossing the Street (Adapted)

Narrative

There are safety rules that students need to learn when crossing streets. Students must cross at corners and not in the middle of the block. They should use crosswalks and pedestrian signs where available. Teaching students to read pedestrian symbols in their neighborhood is important. They need to look for moving cars before crossing the street even if there is a Walk sign.

Objective

The student will cross the streets at the corner, use crosswalks and traffic signals where available, and pay attention to safety rules when crossing streets.

Lesson

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2. Read and discuss the self-talk story.
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4. Practice the steps by performing role-plays.
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7. Students write and discuss solutions to the problems.
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Teacher's Script

Say, "When crossing the street, it is important to be careful and follow some safety rules. Before crossing, stop at the curb/walkway and look first to the left, then right, and left again. Make sure there are no moving cars before crossing the street. Continue to check for traffic while crossing.

Sample Role-play

Create role-plays so students can practice the steps before doing them outside of the classroom. Discuss each role-play after it is performed.

Situation: Two friends are walking down the street and talking to each other. They come to the spot where they want to cross the road and one tries to cross without looking for moving cars.

Student 1: "My cousin was here this weekend and we had the best time."

Student 2: "What did you do?"

Student 1: "We played video games and went to the field to play football." (Student 1 starts to cross the street without looking.)

Student 2: "Stop! You must check for cars before crossing the street." (Both friends look for cars.)

Student 2: "Okay, it is safe to go." (The friends cross the street together.)

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students who struggle with making good judgments need to be taught basic rules for crossing streets. Students who walk to school must know the rules for safe street crossing. They need to avoid crossing in the middle of a block, especially if they are trying to cross a busy street. Students should not copy a pedestrian who is not using good safety rules when crossing a street.

Students must wait for the Walk sign at traffic lights and pedestrian signals where they are available. If they see a flashing Don't Walk sign before they cross the street, wait until the sign flashes Walk. The Walk sign doesn't mean it is safe to walk; pedestrians still must look for moving cars before crossing.

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Say, "It's important to know the right way to meet someone new so you know how to do it when it happens. When you meet someone for the first time, look him in the eye, tell him your first and last name, and pay attention when he tells you his name. Then say, 'It's nice to meet you,' and say his name back to him. People like it when you're polite about meeting them."

Sample Role-play

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Student 1: "Hello, are you a new student?"

New Student: "Yes."

Student 1: "My name is _____ (says name)."

New student: "Hello, my name is _____ (says name)."

Student 1: "It's nice to meet you, _____ (says new student's name as he extends his hand)."

New Student: "Thanks." (Students shake hands.)

Continue with additional role-plays until students can perform the steps without prompts.

Additional Information

Students need to know the difference between meeting an adult and a peer. Use Ma or Sir to address teachers and other adults.

In some social situations involving older persons students need to be taught to show courtesy (Kneel or bow/ prostrate depending on student's gender).

Ethical Approval