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PEDAGOGICAL APPROACHES AND THE IMPROVEMENT OF MENTAL PERFORMANCE IN AUTISTIC CHILDREN IN PROMHANDICAM MIMBOMAN- YAOUNDE

A dissertation Submitted in Partial Fulfilment of the Requirements for the Award of a Master's Degree in Specialized Education

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To

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SUMMARY

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LIST OF ABREVIATIONS AND ACRONYMS

AAC:	Augmentative and Alternative Communication
AAPEP:	Adolescent and Adult Psycho educational Profile
ABA:	Applied Behavior Analysis
APA:	American Psychological Association
ASD:	Autism Spectrum Disorders
C M I:	Cerebral and Motor Infirmities
CA:	Chronological Age
CARS:	Childhood Autism Rating Scale
DLS:	Daily Living Skills
DSM:	Diagnostic and Statistical Manual of Mental Disorders
DTT:	Discrete Trial Training
EDUC-REHAB:	Education and Rehabilitation
ICD:	International Classification of Disability
IEP:	Individualized Educational Plan
IQ:	Intelligent Quotient
MA:	Mental Age
MKO:	More Knowledge Orders
MR:	Mental Retardation
PECS:	Picture Exchange Communication System
PEP-R:	Psycho educational Profile-Revised
SCLT:	Social Cognitive Learning Theory
SNE:	Special Need Education
TEACCH:	Treatment and Education of Autistic and Communication related Handicapped Children
UNESCO:	United Nations Educational Scientific and Cultural Organization
WHO:	World Health Organization
ZPD:	Zone of Proximal Development

ABSTRACT

This study is based on the use of pedagogical approaches and improvement of mental performance of children with autism spectrum disorder. Children with autism spectrum disorder faces challenges in different domain depending on their area of special needs. Some of their challenge can be seen in their process to perform simple tasks like; going to the toilet, eating, and drinking water, wearing dresses and shoes with little or no assistance. The problem of this study is the mental performance of children with autism spectrum disorder. To analyze this problem, we made use of the Constructivist Theory of Piaget and Bandura's Social and Cognitive Learning Theories (SLT/SCLT). These theories help to explore the impact of teaching approaches on the enhancement of mental performance of children with autism spectrum disorder.The main aim of this study is to explore how pedagogical approaches help to improve the mental performance of autistic children. We formulated the following general research question: How do pedagogical approaches enhance the improvement of mental performance in autistic children? To answer this question, we formulated a research hypothesis as follows: pedagogical approaches enhance the improvement of mental performance in autistic children through TEACCH, ABA, and PECS. Through the qualitative method, the observation grid and interview guide was used as tools to collect data in three cases of autistic children from PROMHANDICAM Mimboman-Yaoundé. We used observation and tools of TEACCH, ABA and PECS teaching approaches in a classroom situation owing to the fact that some autistic children do not talk and cannot be interviewed. Data was categorized and analyzed on tables following the observations made under the various teaching approaches and on the level of mental retardation of the various participants. The results of the various observations made showed that some of these children are partially helped since they can carry out some of their task without the help of the teacher or peers while some are still lacking behind as they are unable to do anything by themselves without the help of their teacher and peers. We therefore concluded that effective usage of the TEACCH, ABA and PECS pedagogical approaches brings an increase in mental performance in children with autism spectrum disorder. We therefore suggested that, the government should open training centers for specialized educationist and also equip the centers responsible for children with special needs without leaving out children with autism spectrum disorder.

Key words: Autism Spectrum disorders, pedagogical approaches, mental performance, autistic child, mental retardation.

RESUME

Cette étude est intitulée : Approches pédagogiques et amélioration des performances mentales chez les enfants autistes : une étude de cas à PROMHANDICAM Yaoundé. Il est basé sur l'observation des défis des enfants autistes pour effectuer des tâches simples comme ; aller aux toilettes, manger et boire de l'eau, porter des robes et des chaussures avec peu ou pas d'aide. Le problème de cette étude est celui du défi que les enfants autistes ont à faire eux-mêmes certaines choses de base. Pour analyser ce problème, nous avons utilisé la théorie comportementale Watson, Skinner, Pavlov, la théorie constructiviste de Piaget, la théorie constructiviste sociale de Vygotsky et les théories de l'apprentissage social et cognitif de Bandura (SLT/SCLT) pour explorer l'impact des approches pédagogiques sur l'acquisition de l'autonomie chez les enfants autistes. L'objectif principal de cette étude est d'explorer comment les approches pédagogiques aident à améliorer les performances mentales des enfants autistes. Nous avons formulé la question de recherche générale suivante : Comment les approches pédagogiques améliorent-elles l'amélioration des performances mentales chez les enfants autistes ? Pour répondre à cette question, nous avons formulé une hypothèse de recherche comme suit : les approches pédagogiques améliorent l'amélioration des performances mentales chez les enfants autistes grâce à TEACCH, ABA et PECS. L'échantillon de population était composé de six enfants autistes de PROMHANDICAM MIMBOUMAN-Yaoundé. Pour collecter les données, nous avons utilisé l'observation et les outils des approches pédagogiques TEACCH, ABA et PECS en situation de classe du fait que certains enfants autistes ne parlent pas et ne peuvent être interrogés. Les données ont été catégorisées et analysées sur des tableaux suivant les observations faites sous les différentes approches pédagogiques et sur le niveau de retard mental des différents participants. Les résultats des différentes observations faites ont montré que les performances mentales des enfants autistes s'améliorent relativement s'ils sont bien aidés. Nous avons donc conclu que l'utilisation efficace des approches pédagogiques TEACCH, ABA et PECS apportent une augmentation des performances mentales chez les enfants autistes. Nous avons donc suggéré que les écoles spécialisées instituent des programmes intégrant les parents et les membres des ménages avec des enfants autistes en vue de les former sur la sensibilisation et la meilleure façon de gérer les enfants. L'étude a également suggéré que le gouvernement devrait investir dans la formation et l'équipement d'un plus grand nombre d'enseignants pour gérer les enfants autistes.

Mots clés : Troubles du spectre autistique, approches pédagogiques, performance mentale enfant autiste.

INTRODUCTION

Autism spectrum disorder is a developmental which is offend defined by impaired behavioural and intellectual diagnosis ranging from mild to severe. Autism is viewed by the DSM-V as a pervasive developmental disorder (PDD) marked by abnormal or impaired development in social interaction and communication combined with a restricted repetitive activities and interests (Gresham, Beebe-Frankenberger, & MacMillian, 1999). Some of the characteristics of autism include abnormal behavioural problem and nonverbal impairment and hyper reactive which may result to obsessive behaviour. In addition to these characteristics, 80% function in the mentally retarded range, with an IQ below 70 (Baron-Cohen & Bolton, 1993). This developmental disorder causes a defect in the systems which process incoming sensory information, causing the individual to over-react to some stimuli and under-react to others (Grandin, 1986). The characteristics of children with autism spectrum disorder differs as their severity and as their special needs differ depending on their area of special needs since level of autism also differs which can be mild, moderate and severe. As a result, children with special needs often present different areas of difficulties or special needs. This call for the intervention of specialized educationist that can meet the need of such children depending on their area of special needs in an organized environment suiting the needs of the children with special needs without leaving out children with autism spectrum disorder.

More so, the cause of autism spectrum disorder is still to be known and since there is no accurate treatment for this spectrum, some strategies and pedagogical approaches have been put in place which if well used there will be an effective intervention on the special needs of these children. Pedagogical approach to Hogue is a set of principles, belief, ideas about the nature of learning which translate into classroom. Research in this area suggests that a highly structured and individualized program is best (Case-Smith, 2000) suggesting that the TEACCH program might be an effective treatment for individuals with autism. The mission of the TEACCH program is to enable individuals with autism to function meaningfully and as independently as possible in the community. This philosophy lends itself well to be used in conjunction with occupational therapy intervention. This is evident as stated in the definition of occupational therapy as the "therapeutic use of self-care, work, and play activities to increase independent function, enhance development, and prevent disability; may include adaptation of task or environment to achieve maximum independence and to enhance quality of life" (Christansen & Baum, 1997).with the effective use of the TEACCH, ABA and PECS pedagogical approaches brings an increase in mental performance in children with autism spectrum dis order. Disability according to the WHO, in 1972 supported by the international

classification of disability termed disability in three term that is deficiency, incapacity and disadvantage.In Cameroon, a person with disability is legally designated in the law no 83/013 of July 21 1983 on the protection of the protection of disabled persons in its article that any person who struck by physical or mental deficiency, congenital or accidental, has difficulties in performing the functions normal to abled body person. That is, persons with disabilities include those who have long-term physical, mental intellectual and sensory impairment the interaction of which with various barriers may hinder their full and effective participation in society on an equal basis with other. Wood defined disability as the consequence of diseases on the person analyzing to three levels of impairment corresponding to the anatomical psychological structure, disability is a partial or total reduction in the ability to perform a normal activity.

It is also hypothesized that children utilizing the TEACCH program will have an increase in the ability to independently complete functional tasks including activities of daily living (selfcares and socialization) and work and leisure activities. If the hypotheses are supported, it will suggest that the TEACCH program is an effective treatment for individuals diagnosed with autism. Understanding the components of the TEACCH program may lead to the advancement and increased use of the program or development of additional programs for individuals with autism.

The word autism has long been used in the field of mental disability and it is increasingly being used today. Many centuries have passed since Kanner (1943) first observed young children with a behavioural syndrome he labelled "autistic disturbances of affective contact" characterized by delayed language development, impaired social interaction, aloofness, poor eye contact, repetitive behaviour, and an intense desire for routine. Based on Kanner's work, the medical community began to treat some children with what became known as early infantile autism, but educators remained largely unaware of the condition. By mid-twentieth century the condition was thought to be quite rare, with the prevalence of autism estimated to be only 4 to 5 in 10,000 children (American Academy of Paediatrics, 2001).

Today, when a child is diagnosed as being retarded, he becomes a part of this problem; he is different and his needs are special. The role of those who work in the field of mental retardation is to help these children in every way possible. This includes helping the parents with the difficult task of raising a special child to live as full and happy a life as possible. They have to help the parents and the child function at the maximum of their abilities by providing supportive

environment and home programs in an attempt to reduce the effects of the disability upon the child, so that he may live happily within our social system with the best possible integration, help the parents with the care and management of the child while he is young, thus attempting to prevent later maladaptation occurring as a result of early mismanagement, to reduce the frustration of parents who want to provide what is best for their child through teaching and counselling about the special techniques which may be required of them to meet the needs of their autistic child.

Because some research work has been done on the follow up of autistic children, special teaching approaches like the Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), Applied Behaviour Analysis (ABA), and Picture Exchange Communication System (PECS) have been developed in order to take care of these children. Special education structures provide ego support to parents by emphasizing their actual achievements, providing success experiences for them in their interaction with the child and teaching them to understand the child's cognitive developmental pattern. Social structures support ego development providing an environment adapted to his needs, providing reinforcing relationships, providing standards and expectations appropriate to the developmental level and assuring that these standards and expectations are meaningful to him, thus allowing him a sense of personal control within his environment. The teaching structure of this children plays an enormous role in their lives especially when the individual education plan is well implemented and the chain and objective is being respected by the parties involve then the outcome and effect will be very far reaching and effective as these children will receive the needed help In their areas of special needs.

This study is structured in two main parts; the theoretical framework and the methodological and operational framework. Chapter one elaborates the problem and states the objectives, questions and the hypothesis. Chapter two makes a review of teaching approaches and autism, while chapter three makes a review of related theories. Chapter four presents research methodology including data collection instrument. In chapter five, data is presented and analysed, while in chapter six, results are interpreted and discussed with suggestions.

CHAPTER 1: PROBLEMATIC OF THE STUDY

1.1 Context of study

Over the years, the phenomenon of autism has been demystified by different understandings and perceptions of different individuals. In 1911 Blueler a German psychiatrist says autism defines the subject symbolic inner life. With a wider view of understanding this phenomenon, diverse arguments have been raised. Autism spectrum disorder is a developmental disability caused by differences in the brain. It's a neurodevelopmental disorder. Children with autism spectrum disorder (ASD) face various challenges in their communication, social interaction, and learning skills. These challenges can affect their mental performance and academic achievement in educational settings. Therefore, it is important to identify and implement effective pedagogical approaches that can enhance their communication, socialization, and cognition. To help them achieve their full potential and participate in inclusive education, they need appropriate and effective pedagogical approaches that address their specific needs and strengths. Autism spectrum disorder (ASD) is a developmental condition that affects how a person communicates, interacts, and behaves with others. ASD can cause challenges in social skills, language, learning, and cognition. Children with ASD may have different needs and abilities than their typically developing peers, and may require specialized support and intervention to help them reach their full potential.

One of the main goals of education for children with ASD is to improve their mental performance, which refers to their cognitive functions such as memory, attention, reasoning, problem-solving, and executive skills. Mental performance can affect various aspects of a child's life, such as academic achievement, social relationships, self-regulation, and independence. Therefore, it is important to find effective pedagogical approaches that can enhance the mental performance of children with ASD. Pedagogical approaches are methods or strategies that teachers use to facilitate learning and instruction.

To contextualize, according to Hoque (2016), the Pedagogical approach is a set of principles, beliefs, or ideas about the nature of learning which is translated into the classroom. In other to understand the theoretical language on the children with special needs, meeting the needs of children with verbal and nonverbal impairment depends on the strategies of implementation of this method. The structure teaching of Schopler is known as TEACCH which involves classroom teaching and its structure and nature of teaching strategies as well as environmental setting TEACCH 1994 (Treatment and Education of Autistic and Related Communication Handicapped Children), These gains were fairly small in comparison to cognitive gains

reported by Lowaas (1987) for children receiving early intervention using ABA-based methods with discrete trial training

Ozonoff and Cathcart (1998) evaluated the effectiveness of a TEACCH-based program implemented by parents in a home program intervention for young children with autism. In addition, another pedagogical approach is the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Frost & Bondy, 2002) is a structured instructional system that facilitates communication through the exchange of graphic picture symbols.

Furthermore, behavioural analysis is a scientific approach which helps to understand behaviour based on the principles of respondent and operant conditioning as originally described by Skinner (1953). Disability is often diagnosed too late, which implies a delay in care and which is extremely dangerous for the future of children with this disability. According to the latest statistics published by the Ministry of Public Health on September 18, 2018, more than 100 000 children are autistic as a whole.

The theoretical approach like applied behavioural analysis ABA by loowas in the 1970s based on Skinner's operant conditioning which is an early behavioural reinforcement technique aimed to reduce unwanted behaviour in children with mental retardation without leaving out children with autism spectrum disorder such that they can attain behavioural skills. Also, the picture exchange communication system PEC is a pedagogical approach by Frost and Bondy in 2002 which was used at the Delaware autistic program for preschool children with autism and related pervasive developmental disorder. PEC involves teaching children with autism and mental retardation to exchange a picture or symbol which helps in communication skills for children with ASD.

More so, TEACCH according to Mesibov in 2004 is a structured learning that emphasizes cognitive development through the use of visual cues that is it helps in the adaptation to the environment. PEC is one of the pedagogical approaches that helps children with ASD and mental retardation which helps parents and professionals to develop the skills and strategies to help children with autism and mental disabilities to adapt to their given environment at home, community and school.

Apart from the above-mentioned pedagogical approaches which when applied that these children with autism spectrum disorder still face the difficulties of attaining autonomy while the Applied Behaviour Analysis (ABA) pedagogical approach does not stress enough on the child's learning environment, whereas the Picture Exchange Communication (PECS)

pedagogical approach does not stress enough on the Individualized Educational Plan (IEP). TEACCH, ABA and PECS do not talk much about the role of the teacher and the need for special need for educators to be well-trained for the proper application of these pedagogical approaches. Less emphasis has been laid on the need to contextualize the usage of the TEACCH, ABA and PECS teaching approaches. This study will therefore be scrutinizing the role of the environment, IEP, the context of application and the role of special educators in the usage of teaching approaches to impact autonomy acquisition in children with autism spectrum disorder.

According to the American Centre for Disease Control and Prevention (2018). The prevalence of autism reached one in fifty-nine children in the United States in 2014, again in sixty-eight 68 in 2008. The Centers for Disease Control and Prevention also mentions the following figures. One-third of people with autism have an intellectual disability. According to the Government of Canada (2018), the estimate of the prevalence of autism, including children and adults, is 1 in 94. In children and adolescents aged 5 to 17 years, the prevalence overall ASD according to the 2018 National Autism Spectrum Disorder Surveillance System report is 1 in 66.

More so, Africa is generally a traditional society and their conceptions of autism is often associated with mystical occurrences such as a generational curse, bad luck and punishment from the gods. There is no means to prevent the phenomenon and distinguish it through its symptoms and consequences. Therefore, the problem would not have risen from the existence of this spectrum but rather from the knowledge of ethnic desorption as discussed by the American Psychiatrists Association (APA) 20000 and by the World Health Organizational Care, autism-like any other disability, has no racial, ethnic or social boundaries. It does not take into account the lifestyle or racism of the people. Due to their educational level, and geographic, cultural and racial limits, autism is often perceived as part of an abnormal or mystical process. Belief can also be associated and as with other mental illnesses, stigmatizing attitudes in this regard do not fail to exist as mentioned by Incichen, (2000).

Africans with autistic disorder, according to their respective culture, and whether they live in town or the countryside. In the Congolese community, there are many children suffering from this disability some of it is, ASD and mental retardation just to name a few. Some of these children with disability benefits from social diagnosis due to their behavioural attitude as cited by Joachim (2010). Children with autism spectrum disorder actually do not receive a specific diagnosis, but rather the misinterpretation of the disorder characterizes them.

Joachim in 2001 stated that 'All the qualities that attributes to children with strange behaviours are said to be children possessed by evil forces, which deprive them of normal behaviour'. Physical or mental disability is a source of stigmatization and marginalization of those who suffer from it. In most African cultures in general because they are often assimilated to crazy mystical occurrences as at times said to be a punishment from the gods, ancestral anger and generational curse. And some of these children are even suspected of being ghosts and some with certain pathological problems are abandoned to die. As much as autistic children are excluded from African society, their families are being indexed. Most parents of these children instead of going to the doctor for orientation, are mostly orientated by traditional healers because of their beliefs and prejudices about the disease. Until now some autistic children in Africa are still stigmatized, and marginalized since they are considered to possess supernatural forces.

In countries in central Africa like Chad, the Democratic Republic of Congo, Gabon, Equatorial Guinea Congo Republic-Brazzaville and Cameroon it has been estimated that in 2017, the prevalence of autism was 1.9% of the population in general. In 2015, the overall prevalence of autism spectrum disorders in the population aged 2 to 13 was 15.5 per 1,000 1.8%. According to most central African countries (2018), the estimate of the prevalence of autism, including children, was 1.9 in 1994. In children and adolescents aged 2 to 17 years, the overall prevalence of ASD according to the 2018 National Autism Spectrum Disorder Surveillance System report is 2.4 in 66 In 2015-2016, there were 14,429 autistic pupils in general education, that is a prevalence of 142 per 10,000 or 1 child out of 70. As an indication, in 2010-2011, there were 8,318 children with autism attending school in the public sector. In 5 years, between 2005 and 2011, the number of autistic students educated in the public sector in these countries in central Africa, in general, has doubled.

Cameroon according to the latest statistics published by the Ministry of Public Health (2018), more than 100 000 children are autistic in Cameroon. Yet many families continue to equate this disease with witchcraft or bad luck. The most recent studies estimate that the prevalence rate of people with autism varies between 90 and 120 individuals in 10,000, about 1% of the population (Kassem, 2018). In Cameroon, autism is associated with many practices like witchcraft, ancestral punishment, and ill luck. Yet autism results from a neurological dysfunction that compromises the brain's normal functioning.

In 2013 the Minister of Public Health estimated the number of autistic children at 100,000. According to the Minister of Public Health, relayed by the ELA Awakening - language -

empowerment center, 3000 children suffering from autism are born each year in Cameroon. In the absence of reliable and updated statistics on this disorder in Cameroon, we see that this disease, despite the communication propaganda that is made, still remains very little known to the general public. It is sometimes likened to paranormal phenomena, to a social curse. In most cases, children are diagnosed fairly early in life.

Furthermore, the rapid increase in the number of children with autism spectrum disorder is a call for concern in this era. Autism spectrum disorder is a complex neurological disorder that affects the acquisition of knowledge of skills and competence throughout life. Autism is a developmental condition that affects one through impaired communication, repetitive reactions and social skills as well as difficulties in behavioural activities, interest, and learning skills. These challenges can affect their academic achievement and quality of life. Therefore it is important to effective pedagogical approaches that can enhance their mental performance, and help them overcome these difficulties through the use of education. That is, setting up a milieu like a specialized educational center and an inclusive school where children with special needs can be helped to attain autonomy by them becoming independent, and useful to themselves and society.

More so, in order to carry out this study, I did an observation in PROMHANDICAM Mimboman Yaoundé. Before the child is admitted, the psychiatrist observes the child and the parents present the child's medical report to prove the child's disability before admission is approved. Thereafter, when the child is taken to his/her class, the class teacher dialogues with the parents to know the child's abilities and shortcomings so as to know the child’s other areas of special needs apart from that which is presented by the report.

Furthermore, the pedagogical approach used by the teachers in PROMHANDICAM is Individual Educational Plan. An individual educational plan is a plan designed for children with disabilities to help them achieve their goals and gain autonomy. Here, the teacher approaches the child without a teaching method mindful of the fact that it's the child's area of needs that commands the method the teacher will have to use to meet his/her needs. Then during lessons, the teacher uses differentiation that is the same content is taught in the same way to all learners, a collaboration method where the students complete a task with everyone contributing that’s peer-to-peer tutoring. In inclusive education, the teacher teaches the same lesson using different techniques so as to meet the child's special needs. The same thing is done in the special education section since they are of different disabilities. All pupils are able to

understand the same lesson with their different disabilities. One of the limitations is that lessons become slow, taking much time to teach a lesson.

Also, in the course of observation, three cases were noted on three students that are mild, moderate and severe autistic who had different areas of special needs one of them was junior with repetitive behavior which affects his learning ability. The special educationist uses differentiation and collaboration method. That is the teacher simplifies the lesson to Junior's learning capacity by letting him copy a line text and alphabetical pronunciation, sing and also involve him in card games teaches him what interest him and also allowed him work with his peers through games like paining dancing. After three months it was observe that, at times junior while alone will be able to repeat the rhymes and songs in school but he does it haphazardly and could only do it well when someone is there to tutor him. Hence attain autonomy for junior was so difficult.

Again, the second case was that of princess who is a moderate autist. She had difficulties in adapting to the school milieu, peers and her special educationist and she also had learning difficulties since princess had communication difficulties. The special needs educationist used the kinesthetic and linguistic teaching method that is where she taught princess oral presentation, speech, pronunciation verbalization and moving gesture. After three months, princess could pronounce her name and that of her peers though not clearly but the rhyming sound could be understood the peer she was trying to call out. The fact that princess could not call out clearly with all the effort put in by the educational specialist.

In line with the above, the third case was that of Emmanuel who was a severe autist who was very violent get nervous at any instance and also had adaptation problem. In so doing, the educational specialist had to first deal with his adaptation problem by doing what Emmanuel likes like singing and clapping each time he threatens to cry to go home. For him to get use to his peers, the teacher make his peers play games he love with him. And to do away with his violence and anger altitude was to make him to be happy all the time. But after three months it was observed that, though everything was done for Emmanuel to be happy he will at times become angry for no reason and bully his peers in violence. And also, there are times when he decides to go home, he will just leave the class and start moving towards the gate and if he is not stopped he will go out of school premise and there was even a day he moved out without the knowledge of the teacher it was not easy though he was later found moving in an unknown destination.

From the above reviews, it is seen that children with autism spectrum disorder differ in different stages and these have different areas of difficulties that prompt the special educationist to use different learning approaches like individual educational plan, collaboration learning approach and differentiation approach which entails kinesthetic, linguistic and peer to peer collaboration. Despite the effort put in place by the educational specialist to meet up with the need of these students, via the use of the mentioned learning approaches, it is seen that the attainment of autonomy for these children with autism to become independent and useful themselves and the society have been a point of focus especially in the specialized educational milieu. as a result of inadequate learning materials. Hence some of the suggested pedagogical approaches which will help to ameliorate the mental enhancement of autistic children so that, they can achieve autonomy become independent and useful in society are ABA, PECS and TEACCH.

1.2 Justification of the study

The vast nature of the field of specialized education has warrant the need the need for a breakdown into smaller specializations. Specialized education is a field of study to breakdown the learning abilities and set strategies that will facilitate learning and acquisition of knowledge easily. Thereby meeting the needs of children with learning difficulties with the necessary methods and strategies put in place to meet their needs. This field is divided into 3 main specializations namely social handicap physical handicap and mental handicap/disability. According WHO (2002) defines environmental factor preventing a feeling of a normal life role. Wood (2019) defines disability as a limitation of activities or restriction of participation in life activity suffered in his environment by a person due to a substantial, lasting or definite of alteration of one or more physical, sensory mental problem. In regards to disability it is a restriction or lack of ability to perform an activity within the range considered for a within the normal range. Mental handicap can define as the deficiency in mental and intellectual functions which leads to difficulties in reflection, understanding and conceptualization, automatically leading problems of expression and communication in the affected persons. In this regard Autism is phenomenon that affects the mental performance of children with other contributing factors from the environment such as enabling classroom, learning material and expertise in implementing these pedagogical approaches.

In reference to the research topic of pedagogical approaches to improve mental performance of children with Autism spectrums linked to the specialized of mental handicap in that connection which is the deficiency that hinders children to performing normal due to intellectual limitation. There is increasing concern regarding additional mental disabilities that

co-occur with autism spectrum disorder as reflected in recent research carried out to enhance the mental performance of students with autism spectrum disorder. The development of special needs milieu/center and methods to enhance the mental performance of children with this spectrum so that, children in this condition can attain autonomy is a necessity in this era. In 2013, the world health organization in Geneva defined autism as a pervasive neurodevelopmental disorder characterized by impaired communication, delay in functions related to the nervous system maturation, scholastic skills, hyperactivity, anxiety and emotions. These challenges can affect their academic achievement and quality of life. Therefore, it is important to carry out research on those pedagogical approaches that can enhance their mental performance and help them overcome their difficulties through the use of education

One of the main goals of education is to foster cognitive development and promote critical thinking skills. However, traditional teaching methods may not be suitable for students with ASD, who may have different learning styles and preferences. For example, some students with ASD may prefer visual or hands-on learning over verbal or abstract instruction. Some may benefit from structured and predictable routines, while others may need more flexibility and creativity. Some may have strengths in specific domains, such as mathematics or music, while others may struggle with them. The implementation of the method is a point of discourse with inadequate implementation, inadequate trained personnel in the special need domain and also inadequate didactic materials to enhance the learning process for autistic children so as improve their mental performance such that, they can become independent useful to themselves and society.

This study prints point pedagogical approaches and strategies to improve the mental performance of Autistic children, with the growing number of autistic children in Cameroon and the inadequate treatment provided by the government and other Non-Governmental Organizations to these children brings concern for this study to expose the different problems faced by children with autism spectrum disorder and the great role the government and Non-Governmental Organizations have to play in helping these children overcome their plight.

Therefore, this research aims to explore various pedagogical approaches that can cater to the diverse needs and abilities of students with ASD and improve their mental performance. Specifically, this research will examine the effects of three pedagogical approaches: differentiated instruction, which involves tutoring the content, process, and product of learning according to each student's readiness, interest, and learning profile; Also inquiry-based learning, which involves engaging students in authentic and meaningful questions and

problems that require them to use higher-order thinking skills, thirdly gamification, which involves applying game elements and mechanics to enhance motivation and engagement in learning.

In addition, many individuals are ignorant of the fact that children with this spectrum could be suffering from this disability. This study is then aims at creating awareness of the phenomenon of autism. Also, to provide possible solutions to enhance autonomy in children with autism spectrum disorder. Despite the efforts put in place by special educationists and educational researchers to search for the pedagogy that will serve as a means to meet up with the special needs of these children, autism spectrum disorder still remains very little or unknown to the public.

1.3 FORMULATION AND POSITION OF THE PROBLEM OF STUDY

Legend (1993) defines the problem of study as a question, a difficulty, a dysfunction novel and relevant enigma in a field of activities, for which no satisfactory answer is available and which pushes us to undertake research. In recent years there have been a rapid increase in the rate of autism spectrum disorder which is a call for concern in this era. That is to say, children with autism spectrum disorder (ASD) face various challenges in their cognitive function, acquisition of knowledge, social interest, emotional development and competencies throughout life. These impairments affect their academic achievement and quality of life. Therefore, it is important to find effective pedagogical approaches that can enhance their mental performance and facilitate their learning process.

Furthermore, there is a predicament about the teachers who are supposed to use the above-mentioned teaching approaches in order to impart knowledge and enhance the performance of mentally retarded children and consequently their insertion in to society. Some of these teachers do not have adequate training on mental retardation and on the proper usage of the various teaching approaches meant to ameliorate the performance of these children. Also, the teacher-to-learner ratio is very low. One teacher at times handles many children and the implementation of an Individual Educational Plan (IEP) to improve the performance of mentally retarded children to attain autonomy cannot be effective without leaving out children with autism spectrum disorder.

The teacher approaches the child without a teaching method mindful of the fact that it's the child's area of needs that commands the method the teacher will have to use to meet his/her needs. Then during lessons, the teacher uses the differential approach that is, the teacher teaches

the same lesson using different techniques so as to meet the child's special needs. The same thing is done in the special education section since they are of different disabilities. Since all pupils are able to understand the same lesson with their different disabilities. One of the limitations is that lessons become slow, taking much time to teach a lesson.

Again, some of the children had a lot of difficulties in eating alone and needed a lot of help to do so. Going to the toilet and defecating or urinating alone was a big challenge to most of the children. Some became nervous and cry when they feel as going to the toilet while some simply defecate or urinate on their clothes. Some have difficulties putting on their clothes and buttoning up their shirts and wearing shoes correctly and could no consequently do it on themselves. Sometimes when they eat because their hands tremble, they end up missing the mouth or most of the food pours down on them. Likewise, taking and drinking water alone is one of the challenges I observed. They could not easily open the water bottle and drink normally. I also observed that these children could not easily ask for what they wanted in the classroom due to a deficit in verbal communication. The teachers constantly guess and ask them what they desired. The children were highly distracted and were not usually attentive in carrying out the assigned tasks.

In an effort to put in place so as to help children with autism is that, effective strategies and methods should be put in place such that these children can be aided at their different areas of needs and difficulties. Also more training programs should be organized to train teachers and parent on how to help children with disabilities attain autonomy and be helpful to themselves and society. Also, when a child’s disability is identified, instrument should begin. In so doing, helps to improve on the mental performance of children with disability without leaving out children with autism spectrum disorder.

In the theoretical domain, Lord and Schopler, in his structured teaching which is on cognitive development in children with autism. The Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Frost & Bondy, 2002) is a structured instructional system that facilitates communication through the exchange of graphic picture symbols. It is a tried-and-tested approach that uses pictures to develop communication skills. Behavioural analysis is a scientific approach which helps to understand behaviour based on the principles of respondent and operant conditioning as originally described by Skinner (1953).

From the above, it is seen that, the existing literature on this topic is limited and inconclusive, as different studies have used different methods, measures, and interventions. Thus this

research aims to address how we can design and evaluate pedagogical approaches that can improve the mental performance of children with ASD in various domains and settings like inclusive and specialized educational milieus. By so doing, to help students to attain autonomy, it require an understanding of autism and its characteristics as well as the essentials for planning the programs required to manage this disorder. Since there are many specialist in medicine and specialized educational professionals who are still trying to discover how autism spectrum disorder affects people and how to work effectively with people who are victims. Hence the problem of inadequate specialized educationist and inadequate equipped centers for children with special needs.

1.4. Domain and Specificity to Mental Handicap

This study is basically about psycho-pedagogy with a focus on mental disabilities with particular attention given to autism. Mental Disability is a condition in which the intellectual capacity of a person is permanently lower or undeveloped to the extent which prevents normal functions in society. This department trains and educates Specialized Educationists in different domains of study to be able to meet the special needs of persons with disabilities and vulnerable persons without leaving out children with autism. Autism is a complex lifelong developmental disability that typically appear during early without withstanding, an educational specialist can as well help this child meet the special needs. Children with special needs especial children with autism spectrum disorder offend have different areas of special needs depending on their areas of difficulties.

The relationship between mental handicaps and pedagogical approaches to improve the mental performance of autism is a complex and multifaceted topic. Mental handicap is a term that refers to a condition that limits a person's intellectual functioning and adaptive behavior. Autism is a developmental disorder that affects communication, social interaction, and behavior. Both mental handicap and autism can affect a person's learning abilities and outcomes.

Pedagogical approaches are the methods and strategies that teachers use to facilitate learning. There are different pedagogical approaches that can be used to improve the mental performance of students with mental handicap and autism, depending on their needs, strengths, and preferences. Some of the common pedagogical approaches are; Inclusive education; this approach involves including students with disabilities in a mainstream school environment, where they follow an inclusive curriculum along with able-bodied students. Inclusive education

can promote academic achievement, social integration, and self-esteem for students with disabilities, as well as foster positive attitudes and awareness among their peers (UNESCO, 2021; World Bank, 2019; Wodon et al., 2018). Innovative pedagogical approaches: These are original and creative methods that address the barriers and challenges faced by students with disabilities and mental health issues in the classroom. For example, some instructors use playful teaching, low-stakes writing, accessible evaluation methods, and technology to engage and support their students (Centre for Teaching Support & Innovation, 2018; Kim et al., 2018; Bank et al., 2018; Motut et al., 2018; McGuire et al., 2018; Bohórquez et al., 2018).

Critical pedagogy: This is an approach that challenges the dominant assumptions and practices in mental health services, and empowers students with disabilities to question and transform their social realities. Critical pedagogy encourages students to critically examine the sources and effects of their oppression, marginalization, and stigma, and to develop their agency, voice, and resistance (Morrow et al., 2009; Freire, 1970; hooks, 1994). These are some of the pedagogical approaches that can be used to improve the mental performance of students with mental handicaps and autism. However, there is no one-size-fits-all solution for this diverse group of learners. Teachers need to adapt their pedagogical approaches to the specific needs, interests, and goals of each student, as well as collaborate with other stakeholders such as parents, caregivers, therapists, and peers. By doing so, they can create a more inclusive, supportive, and empowering learning environment for students with mental handicaps and autism.

1.5 Research questions

The study is guided by a principal and specific research question as follows:

1.5.1- Principal research question

The principal research question is:

How do pedagogical approaches enhance the improvement of mental performance in children with autism spectrum disorder?

1.5.3. Secondary research questions

The following specific questions guide this study:

- How would pedagogical approaches using ABA facilitate the improvement of mental performance in autistic children?

- To what extend would pedagogical approaches using TEACCH facilitate the improvement of mental performance in autistic children?
- How do the pedagogical approaches using PECS facilitate the improvement of mental performance in autistic children?

1.6. Hypothesis of the study

This study is guided by a general hypothesis and a specific hypothesis as follows.

1.6.1-General hypothesis

The effective use of Pedagogical approaches to enhance the improvement of mental performance in autistic children via TEACCH, ABA, and PECS

1.6.2-Specific hypotheses

- The effective use of ABA to enhance the improvement of mental performance in children with autism spectrum disorder
- The effective use of TEACCH to enhance the improvement of the mental performance of autistic children
- The effective use of PECS enhance the improvement of the mental performance of children with autism spectrum disorder

1.7. Research objectives

The study is guided by a general objective and specific objectives as below.

1.7.1- General objective of the study

The main aim of this study is to explore how pedagogic approaches help to improve the mental performance of children with autism spectrum disorder. Much attention is given to the Treatment and Education of Autistic and related Communication Disabled Children (TEACCH), Applied Behaviour Analysis (ABA), Picture Exchange Communication System (PECS).

1.7.2- Specific objectives of the study

The specific objectives of this study are

- To demonstrate the influence of the pedagogical approaches through the use of TEACCH on the improvement of the mental performance of autistic children.
- To show how the pedagogical approaches via the use of ABA influence the improvement of autonomy of autistic children.

- To examine whether the use of PECS approaches would improve the mental performance of autistic children.

1.8 Interest in the study

- ✓ **Scientific interest in the study**
- ✓ Scientifically, this study will be of interest as it contributes to the advancement in the better understanding of the autism spectrum with regard to its prevalence and the neurological causes which characterize this neuro-developmental disorder which may lead to mental deficiency in children with autism spectrum disorder. It will also add scientific literature in the area of autism management.
- ✓ **Social interest of the study**

Most families that have children with autism spectrum disorder have that perception that these children cannot learn or do anything as they are seen as a curse and taboo in the families, especially in Africa in general and Cameroon in particular. This study will be able to integrate the changes of misconceptions and build the popular imagery opinion of those pedagogical approaches and how they can be used to meet the special needs of these children such that, these children with autism spectrum disorder can attain autonomy and become independent and put an end to the concept that hovers over the origin of this behaviour which indirectly consider the autistic child as a child of bad luck. This will be as a catalyst of change in the mentality of one another and contribute to the child's desires as their special needs will be met as the child will be able to gain autonomy and become independent and be useful to himself and the society as well.

- ✓ **Personal interest of the study**

This study permit one to understand what autism spectrum disorder is all about, how it affects the mental performance of children with this spectrum and the pedagogical measures put in place to meet the special needs of these children so that, they can be independent and useful to the community and the society as a whole.

1.9 Limitations of the study

The study will be limited to mental retardation specifically autism only, hence other forms of disability will be beyond the scope of the study. This study is a qualitative case study (Merriam, 1998) bounded by the parameters of one special school and purposeful sampling of six children

in PROHANDICAM Mimboman-Yaounde Cameroon who were receiving special education services in accordance with governments policy on disability and include children who have been diagnosed with any autism spectrum disorder including Autism, Pervasive Developmental Disorder-Not Otherwise Specified, Asperger's Syndrome, Rhett's Disorder, or Childhood Disintegrative Disorder. Furthermore, data will be collected by observation principally and document reviews.

Geographically, the study will be conducted in PROMHANDICAM Yaoundé II sub-division which is an urban setting in Nfoundi Division of the Centre Region of Cameroon. Therefore, this research may not be generalizable to other social centres or special education schools or different areas across the country. However, the findings may inform future investigations of these factors by providing a comparison population and sample. This study will be carried out from January to June 2021.

Type of research

This research is qualitative research. This researcher seeks to know why despite the existence of a multitude of pedagogical approaches, autistic children still find it difficult in improving their mental development and the reasons behind the ineffective application of the various pedagogical approaches (TEACCH, ABA, PECS and modelling) and consequently come out with proposed solutions (recommendations) that will help to curb this phenomenon and boast the performance of mentally retarded children via appropriate and effective usage (Exploitation) of the above mentioned pedagogical approaches.

1.10 Study variables

A variable refers to anything that can take on differing or varying values (Amin, 2005). This implies that variables can differ at various times for same objects or persons. The variables are normally classified into Dependent and Independent Variables. The two types of variables used in this study are:

1.10.1 Independent variable

An Independent variable is regarded as the predictor variable, it is that variable that is manipulated, and it influences the dependent variable (Kumar, 2011). The purpose of

manipulation is to confirm and determine the relationship between the indicators in the research. The independent variable in this study is pedagogic approaches.

1.10.2 Dependent variables

Dependent variable according to Kumar (2011) is a variable, which receives the effect of the course. Kant (2008), adds that it is a criterion variable and the variable of primary interest for the researcher, so the researcher sets out to understand and describes the variable. The dependent variable in this work is the mental performance.

1.10.3 Operationalization of variables

Table 1: **Operationalization of variables showing indicators, modalities and items Source.**

Variable	Modality	Indicators	Indices	Instrument
Independent variable (pedagogical approaches)	The TEACCH teaching approach.	-Physical environment -Visual aids -IEP -Daily routines	Concrete T/L materials to enhance methods e.g.-Soap, towels, plates, brushes, combs, Clothes, buttons, brooms, basins, mirror.	-Participant observation -TEACCH
	The ABA teaching approach	-Environment set up -IEP -Motivation	-Good infrastructure -Drawings -paintings -visual objects	-Participant observation -ABA
	The PECS teaching approach	-Visual aids -Classroom setup -IEP	-Trained teachers. -High teacher to pupil ratio. -Negative attitude. -Untrained personnel. Clothes, soap, cups,	-Participant observation -PECS
	-Modelling	-Environment set up -IEP -Motivation	Concrete T/L materials to enhance methods e.g.-Soap, towels, plates, brushes, combs, Clothes, buttons, brooms, basins, mirror.	-Participant observation -Modelling

Dependent variable (mental performance)	-Supporting	-Motivation -Attention -Retention	-Reproduction -Remembering -Problem solving -Social interaction -Thinking -Self-dependence -Decision making Task analysis	-Participant observation

1.11 Definition of concepts

Pedagogy:

According to Edwin A. Peel (1950) Pedagogy is the study of teaching methods which brings out the aims and value of education. Pedagogy is a method and practice of teaching which can be of teaching styles and theories. Teaching pedagogy is the way teachers deliver the content of the curriculum to a class' information is fact provided to learn about something or someone

Pedagogical approaches:

To Hogue 2006 Pedagogical Approach is the teaching strategies set aside to facilitate leaning depending on its method of implementation.

Improvement:

According to Andrew Lahy (2015), improvements as the act to achieve a desired goal or as a means to achieve a goal of this paper to ameliorate a situation to achieve positive results. With the aim of achievement. In the context of this study we define improvement as the amelioration of the disability situation of autistic children via the use of pedagogical approaches.

Mental improvements:

Mental performance refers to multiple mental abilities, including learning, thinking, reasoning**,** remembering, problem solving, decision making, and attention. The dominant approach to the measurement and conceptualization of mental performance in lifespan developmental psychology is the psychometric approach, which arose from efforts to define, measure, and quantify mental abilities using the most basic underlying constructs of abilities such as general intelligence.

Child:

According to UNICEF in a convention of child right journal in part one of article one a Child protection guidance points out that even if a child has reached 16 years of age and is living independently, in further education, a member of the armed forces, in hospital; or, in custody in the secure estate they are still legally children and should be given the same protection and entitlements as any other child (Department for Education, 2018a).

Autism:

WHO, (2010) in a Convention on ASD details infections, Autism spectrum disorders (ASDs) are described as "a group of developmental disabilities characterized by impairments in social interaction and communication and by restricted, repetitive, and stereotyped patterns of behaviour" (Centre for Disease Control and Prevention, 2012). While many characteristics of autism are the same, there are also many differences in individuals. This is "referred to as a spectrum disorder – that is, one in which symptoms can occur in many forms and with varying degrees of intensity" (Paula Kluth, 2003, p. 533). Autism spectrum disorder includes "autistic disorder, Asperger disorder, and pervasive developmental disorder not otherwise specified" (Centers for Disease Control and Prevention, 2013)

Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder (ASD) is a lifelong neuro-developmental disorder characterized by Persistent deficits in social communication and social interaction across multiple contexts; and the presence of restricted, repetitive patterns of behaviour, interests or activities (DSM5; APA, 2013).

Autistic child

The term autistic child is used in our presentation to designate a child with autistic disorder. We distinguish this child from other children of the siblings by the detail and we propose in this study, to study the influence that causes the communication level with his brothers and sisters (siblings), the parental cause of which influence the object to be a victim of such illness.

Disability

According to the World Health Organization 1972 supported by the International Classification of Disability (ICD) disability means three things; deficiency, incapacity and disadvantage. In Cameroon, the disabled person is legally designated in the Law No 83/013 of July 21, 1983 on the protection of disabled persons in its article **any person who struck by physical or mental deficiency, congenital or accidental, has difficulties in performing the functions normal to an abled body person**. Wood defined disability as the consequence of

diseases on the person analyzing to three levels of impairment corresponding to the anatomical psychological structure, disability is a partial or total reduction in the ability to perform a normal activity.

CHAPTER TWO:
LITERATURE REWIEW

AUTISM AND PEDAGOGICAL APPROACHES

The review of the main concepts of this chapter are: autism spectrum disorder, pedagogical approaches for children with autism spectrum disorder, pedagogical approaches and improvement mental performance in children with autism, and related works of other researchers.

2.1 AUTISM SPECTRUM DISORDERS

2.1.1 Definition of autism spectrum disorder

According to diagnostic and statistical manual 2013, autism spectrum disorders is a complex, lifelong neuro-developmental disability that typically appears during early childhood and can impact a person's communication skills, behavioural skills just to name a few.

2.1.2 Causes of autism spectrum disorder

The cause of autism spectrum disorder is said to be unknown and given the etiology of autism is still poorly understood but scientific approaches are nevertheless associated with autism. And some current researches suggests that, the complexity of this disorder and the fact of its symptoms and severity vary, some suggested causes of autism spectrum disorder are; genetic, neuro-psychological , psychoanalysis and neuro-biological.

- Genetics; several different genes appear to be involved in autism spectrum disorder. For some children with this spectrum, can be associated with a genetic disorder such as Rhett syndrome or fragile X syndrome. For some children genetic changes that is mutation may increase the risk of autism spectrum disorder. Still other genes may affect the brain development or the way brain cells communicate. This may lead to the early life damage of the cerebellum which could be the leading cause of autism. Hence some genetic mutation are inherited while some occur spontaneously which lead to the development of autism spectrum disorder.
- Neuro-psychology; we seek to understand the cognitive function of children with autism spectrum disorder for there are sets of mental capacities which permits a person to manage his or her behavior to initiate an action, plan and organize it. A central coherence that is function which makes it possible to situate a piece of information in its context. Deficit in mentality that is to say the capacity of an individual to attribute mental state. This mental deficit explains the disability in communication and imagination which leads to autism.

- Psychoanalysis; perceptions, sensory and motor peculiarities of children with autism leas to disorder in the constitution of the psyche which constitutes of body development. This will result to an emotional disturbance which is responsible for difficulties in the development and organization of sensory perceptions and cognition.

2.1.3 HISTORICAL EVOLUTION OF AUTISM SPECTRUM DISORDER

The term autism is derived from the Greek word Auto which means autism which is now known as autism spectrum was first used by a psychiatrist Bleuler in 1908 to morbid self-admiration and withdraw within self. Which he used to describe a schiphrenic patient.

In 1943, Kanner studied a group of children and described those that were severely affected. And in the same year, Bettelheim studied the effect of three therapy sessions with children who he called autistic. In 1964 psychologist, Rimland published a book entitle; *infantile autism*; the syndrome and its implications for a neural theory of behavior. He disagrees that, the cause of his son's autism was neither him nor his wife's parental potentials

It was in 1980s that research on autism gained momentum for it was increasingly believed that, parenting had no role in the causation of autism and there zee neurological disturbances and other genetic ailments like tuberous sclerosis, metabolic disturbances like chromosomal abnormalities like fragile X syndrome

2.1.4 Characteristics of autism spectrum disorder.

Stereotyped or repetitive speech, motor movements, or use of objects. Abnormal social approach Simple motor stereotypes Failure of normal back and forth conversation Echolalia Reduced sharing of interests, emotions, affect and response Repetitive use of objects Total lack of initiation of social interaction Idiosyncratic phrases.

- **Deficits in nonverbal communicative behaviors.** Excessive adherence to routines, ritualized patterns of behavior Poorly integrated verbal and nonverbal communication Excessive resistance to change such as motorist rituals Abnormalities in eye contact and body-language Insistence on same route or food Deficits in understanding and use of nonverbal communication Repetitive questioning or extreme distress at small changes Total lack of facial expression or gestures
- **Deficits in developing and maintaining relationships**. Highly restricted, fixated interests that are abnormal in intensity Difficulty making friends or focus apparent absence of interest in people Strong attachment to and/or preoccupation with unusual

objects Difficulties adjusting behavior to suit different situations Excessively circumscribed or preservative interests

- **Hyper- or hypo-reactivity** to sensory input unusual interest in sensory aspects of environment Apparent indifference to pain/heat/cold Adverse response to specific sounds or textures Excessive smelling or touching of objects Fascination with lights or spinning objects Content adapted from DSM 5 (2013) Social communication and interaction domain Repetitive and restrictive behavior domain.

2.1.5 Types of autism spectrum disorder

The DSM Diagnostic and Statistical Manual of Mental Disorders was published by the American Psychiatric Association (APA) and is used by clinicians to diagnose varieties of psychiatric disorders. The DSM-5 (2013) currently recognizes five different ASD subtypes, or speciffiers. They are:

- With or without accompanying intellectual impairment.
- With or without accompanying language impairment.
- Associated with a known medical or genetic condition or environmental factor
- Associated with another neurodevelopment, mental, or behavioral disorder.
- With catatonia.

Someone can be diagnosed with one or more specifiers. Prior to the DSM-5, people on the autism spectrum may have been diagnosed with one of the following disorders:

- Autistic disorder or classical autism.
- Asperger's syndrome.
- Rett syndrome.
- Pervasive development disorder-not otherwise specified (PDD-NOS)
- Childhood disintegrative disorder.

It's important to note that a person who received one of these earlier diagnoses hasn't lost their diagnosis and won't need to be revaluated. According to the DSM-5, the broader diagnosis of ASD encompasses disorders such as Asperger's syndrome.

2.1.6 Symptoms of ASD.

Autism symptoms typically become clearly evident during early childhood, between 12 and 24 months of age. However, symptoms may also appear earlier or later. Early symptoms may include a marked delay in language or psychical development. The DSM-5 (2013) divides symptoms of autism into two categories that is, communication problem and repetitive patterns of behavioural skills.

- **Problems with communication skills** issues with communication, including difficulties sharing emotions, sharing interests, or maintaining a back-and-forth conversation issues with nonverbal communication, such as trouble maintaining eye contact or reading body language difficulties developing and maintaining relationships.

Restricted or repetitive patterns of behaviour or activities include repetitive movements, motions, or speech patterns rigid adherence to specific routines or behaviours an increase or decrease in sensitivity to specific sensory information from their surroundings, such as a negative reaction to a specific sound fixated interests or preoccupations. Individuals are evaluated within each category and the severity of their symptoms is noted. In order to receive an ASD diagnosis, a person must display all three symptoms in the first category and at least two symptoms in the second category.

2.2 Treatment autism

2.2.1 Treatment of ASD in Africa

Autism is a global phenomenon with its dynamics characteristics and its treatment vary depending on the researchers and medical practitioners that is why every context has its own way of tackling this spectrum disorder. In the African context, since there is limited knowledge of autism spectrum disorder as a result, it is being equated to supernatural causes precipitated by angered ancestral spirits, ill luck, just to name a few. Thereby African believe strongly in the traditional healers soothsayers than modern medical practitioners. Since they believe children with special needs and autism have a root cause which is said to be a source or result of ill lukuck course as well as ancestral punishment so with this primitive assumption, they know taking these children with this spectrum to the traditional healers will help get rid of autism spectrum without necessarily putting them in the concerned centers.

2.2.2 Treatment of autism in Cameroon

There is no fix strategies put in place to treat this developmental disorder but with the given little knowledge about this neurodevelopmental disorder, the government through her constitutions that governs people with disability through the creation of a department at the ministry of social affairs which encourages the treatment of the spectrum through free education these children, opening of inclusive education and vocational training centers and the government through the ministry of health relayed by the ELA awakening - language - empowerment centre, 3000 children suffering from autism are born each year in Cameroon. In the absence of reliable and updated statistics on this disorder in Cameroon, we see that this disease, despite the communication propaganda that is made, still remains very little known to the general public. It is sometimes likened to paranormal phenomena, to a social curse. In most cases, children are diagnosed fairly early in life. so that, victims can become independent and be useful to the society

Apart from the above**,** there's no "cure" for autism, but therapies and other treatment considerations can help people feel better or alleviate their symptoms. Many treatment approaches involve therapies such as: behavioural therapy, play therapy, occupational therapy, physical therapy, speech therapy, Massages, weighted blankets and clothing. Meditation techniques may also induce relaxing effects. However, treatment results will vary. Some people on the spectrum may respond well to certain approaches, while others may not.

Alternative treatments for managing autism may include: high-dose vitamins chelation therapy, which involves flushing metals from the body hyperbaric oxygen therapy melatonin to address sleep issues. Research on alternative treatments is mixed, and some of these treatments can be dangerous as some have far reached side effects. `

2.3 PEDAGOGICAL APPROACHES OF AUTISM SPECTRUM DISORDER.

Autistic individuals acquire information at a very slow pace as compared to their normal peers, some special pedagogic approaches have been developed so as to help improve their mental performance like; include TEACCH, PECS and ABA

2.3.1 ABA Applied Behaviour Analysis (ABA)

Applied behaviour analysis is a scientific approach to understand behavioral based on the principles of respondent and operant conditioning as originally described by Skinner (1953). Antecedent conditions and consequences of behaviour are analyzed and manipulated, and

principles of positive and negative reinforcement, shaping, and fading are used to increase or reduce target behaviors (Heflin & Simpson, 1998; Lovaas, 1987).

Positive reinforcement is used to strengthen a behaviour by following that behaviour with something that is desired or valued. This leads to the improvement of mental performance in autistic children to obtain autonomy. Skills are broken down into small steps, and the child is given repeated opportunities to learn new skills with reinforcement. The goals of intervention and types of re-enforcers used are tailored to meet the needs of the individual child whose performance is measured by direct observation and data tracking (Heflin & Simpson, 1998; Lovaas, 1987).

Since the early 1960s numerous studies have been conducted using applied behaviour analysis (ABA) with autistic children of all ages, and ABA remains one of the most popular and widely used treatment strategies for children with autism spectrum disorders. Several researchers have conducted comprehensive reviews of a plethora of studies documenting the effectiveness of ABA-based interventions for developing communication, play, academic, and adaptive skills in children with autism spectrum disorders and reducing problem behaviors (Dawson& Osterling, 1997; Green, 1996; Matson et al., 1996). Although ABA is now widely accepted among researchers as strongly empirically supported and among the most effective interventions for children with autism, ABA remains among the most controversial and widely misunderstood treatment strategies. Based on the three-term contingency model of applied behavioral analysis (antecedent, response, and consequence), each discrete trial is further broken down into five parts to help improve on the mental performance of autistic children such that they can obtain autonomy. (Lovaas, 1987; Smith, 2001; Turbot & Najdowski, 2008):

2.3.2 PECS Picture Exchange Communication System

PECS is an approach that develops early expressive communication skills using pictures. It is also a functional communication system that develops important communication and social skills. PECS is appropriate for people of all ages with a wide range of learning difficulties originally developed for pre-school children with autism, PECS is now being successfully used with adults and children with a range of inadequate communication skills. It's never too late to start PECS, which can be used in conjunction with other approaches such as TEACCH, ABA.

PECS can be used anywhere that someone communicates Often, it can be introduced at home or in special schools, residential settings, outreach programs and/or care homes. PECS can be successfully implemented by family members or professionals. It does not require expensive

or complex equipment and overcomes disadvantages found with signing and other picture-based augmentative communication systems.

One reason for the success of PECS. In the integration of theoretical and practical perspectives from the fields of applied behaviour analysis (ABA) and speech and language therapy. With a functional perspective, PECS focuses on important and meaningful communication that is initiated by the student rather than being dependent on prompts from another person.

2.3.3 TEACCH

This method according to Schopler (1994), the initiator of this program, takes into account the features of the disorder and tries to minimize the child's difficulties using structured and continuous intervention, environmental adaptations, and alternative communication training. The TEACCH program was founded in 1971 at the University of North Carolina at Chapel Hill when the Department of Psychiatry enlisted the help of parents of children with autism as co-therapists for their own children (Schopler & Richler, 1971). Since then TEACCH has evolves into a worldwide, community-based program (Campbell et al, 1996).

Schopler (1995) there are four major components of structured teaching. These include: physical organization, schedules, work systems, task organization. Structured teaching is visually based, done in highly structured environments, with clear understanding of: Schedules, activities routines and expectations. The goal is to create environment for independence.

2.3.4 MAKATON

Makaton is a unique language program that uses symbols, signs to enable and support the development of essential communication skills such as attention and listening, recall, and organization of language and expression. That is Makaton is developed to meet the needs of children with inadequate verbal and non-verbal skills. It was created in the United Kingdom in the early 1970s by three British that is Margaret Walker speech therapist Kathy Johnson and Tony Cornforth specialized in helping deaf and mute people to help communicate with patients with mental disabilities.

When a child with autism spectrum is not familiarized with the different expressions and actions that will help the child to attain autonomy, especially in communication skills, the Makaton learning method will thus help this child with autism to enable him to use and reproduce days emotions books tools purposefully and thus will be able to understand the emotions others in order to interact with peers.

2.4 PEDAGOGICAL APPROACHES AND MENTAL PERFORMANCE OF CHILDREN WITH ASD

2.4.1 ABA

Applied behaviour analysis is a scientific approach to understand behavioral based on the principles of respondent and operant conditioning as originally described by Skinner (1953). The antecedent conditions and consequences of behaviour are analysed and manipulated, and principles of positive and negative reinforcement, shaping, and fading are used to increase or reduce target behaviors (Heflin & Simpson, 1998; Lovaas, 1987). The goals of intervention and types of rein forcers used are tailored to meet the needs of the individual child whose performance is measured by direct observation and data tracking (Heflin & Simpson, 1998; Lovaas, 1987). Based on the three-term contingency model of applied behavioral analysis (antecedent, response, and consequence), each discrete trial is further broken down into five parts to help improve on the mental performance of autistic children such that they can obtain autonomy. (Lovaas, 1987; Smith, 2001; Tarbox & Najdowski, 2008):

- **Cue:** (antecedent stimulus): The teacher gives the child a simple instruction such as "Sit here," "What is this?" or "Look at me."
- **Prompt:** The teacher provides supplementary assistance along with the cue to help the child respond correctly. For example the teacher may give the correct response or take the child's hand to guide him or her to perform the desired behavior. Prompts are gradually faded out and eliminated as the child progresses in therapy.
- **Response:** The response is anything the child says or does following the cue, including a correct response, an incorrect response, or failure to respond. The teacher typically allows the child 3 to 5 seconds to respond before a consequence is given.
- **Consequence:** The teacher reinforces a correct response with immediate positive reinforcement such as praise, hugs, food treats, or access to preferred toys. If the child responds incorrectly or fails to respond, the teacher gives vocal feedback (e.g., "no," "try again") or looks away and does not provide reinforcers.
- **Inter-trial interval:** After delivering the consequence the teacher pauses for a few seconds before beginning the next discrete trial.

The above parts of DTT if well applied especially in a classroom situation greatly improve the performance of performance of autistic children.

Naturalistic Teaching Procedures

Researchers have found that treatment gains made under the "artificial" and highly controlled conditions of DTT often lead to rote learning (improved mental performance) and do not generalize to other situations or other people in the child's everyday classroom and home environment (Allen & Cowan, 2008).

Naturalistic teaching procedures have been found effective with autistic children in the development of language and communication skills (e.g., McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; R. L. Koegel, Camarata, Koegel, Ben-Tall, & Smith, 1998); in teaching social interaction skills (e.g., Kohler, Anthony, Steighner, & Hoyson, 2001; Pierce & Schreibman, 1995, 1997); and in developing play skills (e.g., Stahmer, 1995).

Incidental Teaching

Incidental teaching (Hart & Risley, 1968) was one of the first naturalistic teaching procedures developed, and it remains one of the most popular naturalistic intervention methods used to improve the mental performance of autistic children (Allen & Cowan, 2008). Correct verbal responses are reinforced with teacher attention and access to desired objects (Allen & Cowan, 2008). McGee, Krantz, and McClannahan (1985) compared the effectiveness of discrete trial training (DTT) and incidental teaching conditions in teaching children with autism to use prepositions to describe the location of preferred items. In another study McGee et al. (1992) successfully trained typical peers to use incidental teaching methods to increase reciprocal peer interactions in children with autism.

Another modification of incidental teaching is a time-delay procedure whereby the teacher inserts a time-delay before giving help or a desired object to children with autism (Allen & Cowan, 2008). For example if a teacher notices a child trying open a toy box or get on a swing, the teacher might approach and wait 5 to 10 seconds for the child to ask for help. If the child gives a verbal response, the teacher praises the child and provides the desired help or toy. If the child does not respond, the teacher provides a man ("What do you want?") and waits for a verbal response. The teacher can model the correct response, but in subsequent trials the teacher gradually lengthens the time-delay to give the child0 a chance to respond independently (Allen & Cowan, 2008). Incidental teaching with time-delay has been found effective in increasing language development, use of social greetings, and spontaneous use of color adjectives while enhancing generalization in children with autism (Allen & Cowan, 2008; Charlop-Christy & Carpenter, 2000; Miranda-Linne & Melin, 1992).

Pivotal Response Training

Pivotal Response Training (PRT) is another major naturalistic approach to intervention for children with autism for the improvement of their mental performance (L. K. Koegel, Koegel, Harrower, & Carter, 1999). The goals of PRT are:

- To teach the child to be responsive to multiple learning opportunities that occur in the child's everyday natural environment;
- To decrease the need for constant, direct intervention by a teacher; and
- To decrease the need for removing the child from natural settings such as an inclusive classroom environment (L. K. Koegel et al., 1999).

The goals of PRT are approached by focusing intervention on a few core "pivotal" behaviors or responses, i.e. "behaviors that are central to wide areas of functioning such that a change in the pivotal behaviour will produce improvement across a number of behaviors" (R. L. Koegel, Koegel, & Carter, 1999Social and academic learning occurs in the natural environment throughout the day (R. L. Koegel et al., 1999).

leading to improve mental performanc. For example a child might be asked to get a green sweatshirt from among other green articles of clothing (pants, shirts, dresses), requiring the child to respond to both color (green) and object (sweatshirt). The number of cues can be systematically increased as the child masters a certain number of cues (L. K. Koegel et al., 1999).

A second target of pivotal response training research is developing self-initiated learning interactions. Children with autism exhibit low levels of question asking. Pivotal response techniques have been successfully used to increase question asking and initiation of conversation among children with autism (e.g., L. K. Koegel, Camarata, Valdez-Menchaca, & Koegel, 1998).

Another pivotal area often targeted in PRT research is motivation, which is often lacking in children with autism during everyday teaching and social interactions (L. K. Koegel et al., 1999). R. L. Koegel, O'Dell, and Koegel (1987) demonstrated that several variables were effective in producing spontaneous verbal language acquisition in nonverbal children, and that these variables were more effective in producing rapid language gains than a massed trial (DTT) procedure. In particular the researchers found that the following tactics increased the autistic children's motivation to learn:

- ✓ Use of child choice in stimulus selection;
- ✓ Frequent task variation, interspersing mastered tasks with new learning tasks;
- ✓ Use of natural reinforcers related to the task;
- ✓ Reinforcing the child's attempts or approximations along the way to mastery;
- ✓ And incorporating turn-taking within teacher-child interactions (R. L. Koegel et al., 1987).

A fourth pivotal behavior that has been a target of PRT research is that of self-management. Steps for teaching self-management include:

- Defining the target behaviors in observable terms;
- Identifying reinforces for the child to earn that are child-selected and naturally available in everyday settings;
- Choosing a self-monitoring device;
- Teaching the child to use the self-monitoring method (e.g., by discriminating between desired and undesirable behaviors and recording occurrences of the target behavior);
- Fading use of the self-monitoring device; and
- Confirming that the child is using the self-monitoring device in natural settings (L.K. Koegel et al., 1999).

Self-management procedures using PRT have been found effective for children with autism in inclusion school settings in improving social and play skills and increasing time on-task while reducing disruptive behavior (L. K. Koegel et al., 1999; R. L. Koegel, Koegel, & Surratt, 1992; Stahmer, 1995).

Milieu Teaching

Milieu teaching involves the integration of any number of the naturalistic teaching methods described above (e.g., incidental teaching, mand-modeling, time-delay procedures, and pivotal response training) within the context of a child's everyday activities and interests (Allen & Cowan, 2008). For example Kohler et al. (2001) used milieu teaching to increase the social interaction skills of four preschool children with autism in an inclusive preschool classroom.

This study is particularly important because it not only supports the effectiveness of naturalistic teaching methods, but it also reveals the critical importance of providing teachers with adequate

training in those methods with on-going opportunities for practice and feedback (Kohler et al., 2001).

The various applied behavior analytic (ABA) methods described thus far, including those using the Lovaas (1987) method with discrete trial training and those using naturalistic teaching methods such as incidental teaching, pivotal response training, and milieu teaching, are all comprehensive intervention approaches based on the principles of applied behavior analysis and behavioral psychology. An alternative approach, structured teaching or the TEACCH method (Schopler, Reichler, & Lansing, 1980), also enjoys widespread popularity as a comprehensive intervention program for children with autism spectrum disorders.

2.4.2 PECS

Picture exchange communication system is an approach that develops early expressive communication skills using pictures. More than using pictures for visual support, PECS is a functional communication system that develops important communication and social skills. PECS is appropriate for people of all ages with a wide range of learning difficulties originally developed for pre-school children with autism, PECS is now being successfully used with adults and children with a range of communication difficulties. It's never too late to start PECS, which can be used in conjunction with other approaches such as TEACCH, Portage and ABA.

PECS can be used anywhere that someone communicates Often, it's initially introduced at home or in special schools, residential settings, outreach programs and/or care homes. PECS can be successfully implemented by family members or professionals. It does not require expensive or complex equipment and overcomes disadvantages found with signing and other picture-based augmentative communication systems. One reason for the success of PECS is the integration of theoretical and practical perspectives from the fields of applied behaviour analysis (ABA) and speech and language therapy. With a functional perspective, PECS focuses on important and meaningful communication that is initiated by the student rather than being dependent on prompts from another person.

PECS focuses on communication that is relevant and motivating to each student Students are taught to exchange pictures for things they want in their environment. For example, if they want a drink they will give a picture of a drink to an adult who will then give them a drink.PECS has a clear program to follow, divided into six phases Beginning with using single pictures to communicate their needs, students are then taught to discriminate, or choose, between a variety of pictures and then to construct increasingly complex sentences. The pictures and sentence

strip are all stored in a portable communication book, attached with, so they can be easily removed when the student wants to communicate.

PECS and speech development

The aim of PECS is to give the learner a functional communication system. However, an exciting finding has been the number of children who develop speech after more than one year on the programme. The findings from the Delaware Autistic Program provide grounds for optimism, with 76% of all children placed on PECS acquiring speech as either their sole communication system or augmented by a picture-based system. PECS has also been successfully used for students who have developed speech, but may not be using it communicatively. Reassuringly, research also confirms that PECS does not delay or hinder speech.

The Picture Exchange Communication System (PECS) is a tried-and-tested approach that uses pictures to develop communication skills. It's appropriate for children and adults with a wide range of learning, speech and communication difficulties, including autism. Easy to access, affordable to implement and scientifically supported as one of the most effective communication interventions, PECS is an opportunity to open the door to spontaneous communication.

The Pyramid Approach to Education is a step-by-step approach to developing effective educational environments for people of all ages with communication and learning difficulties. Based on a behavioural perspective, it provides an invaluable foundation for professionals and family members who want to provide the best possible environment for successful learning in the home, school or community. Below are the six phases of PECS:

PHASE I: How to Communicate: Students learn to exchange single pictures for items or activities they really want.

PHASE II: Distance and Persistence: Still using single pictures, students learn to generalise this new skill by using it in different places, with different people and across distances. They are also taught to be more persistent communicators.

PHASE III: Picture Discrimination: Students learn to select from 2 or more pictures to ask for their favorite things. These are placed in a communication book a ring binder with strips allowing pictures to be stored and easily removed for communication.

PHASE IV: Sentence Structure. Students learn to construct simple sentences on a detachable sentence strip using an 'I want' picture followed by a picture of the item being requested.

PHASE V: Answering Questions: Students learn to use PECS to answer the question, "What do you want?"

PHASE VI: Commenting: Now students are taught to comment in response to questions like 'What do you see?', 'What do you hear?', 'What is it?', etc. They learn to make up sentences starting with 'I see', 'I hear', 'I feel', 'It is a', etc.

Attributes and Language Expansion Students learn to expand their sentences by adding adjectives, verbs, prepositions, etc.

The Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Frost & Bondy, 2002) is a structured instructional system that facilitates communication through the exchange of graphic picture symbols. PECS uses behavioral principles to teach children functional communication using black-and-white or color pictures. The pictures are kept on a PECS board with Velcro that the child uses to create a "sentence" by selecting and combining picture cards (e.g., "I want" card plus "milk" card), then giving the sentence strip to a teacher or parent in exchange for the desired object. PECS instruction has six phases. Instruction begins with teaching the child to exchange a picture symbol for a desired object in the immediate vicinity, then progresses to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next the child learns to recognize an "I want" symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, the child is taught to respond to direct questions (e.g., "What do you want?") using the picture symbols (Bondy & Frost, 1994; Frost & Bondy, 2002).

2.4.3 TEACCH; Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH)

The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) program has been specifically designed for children with autism and consequently children with mental retardation. According to Schopler (1994), the initiator of this program, takes into account the features of the disorder and tries to minimize the child's difficulties using structured and continuous intervention, environmental adaptations, and alternative communication training. The TEACCH program was founded in 1971 at the University of North Carolina at Chapel Hill when the Department of Psychiatry enlisted the help of parents

of children with autism as co-therapists for their own children (Schopler & Reichler, 1971). Since then TEACCH has evolves into a worldwide, community-based program (Campbell et al, 1996).

The framework for TEACCH is structured learning that emphasizes socio-cognitive development of learning through the use of visual prompts or cues in the environment that capitalized on visual processing strengths of children with mental retardation. According to Schopler et al., (1995) there are four major components of structured teaching. These include: physical organization, schedules, work systems, task organization. Within each component, considerations are given for the child's developmental levels (e.g. preschool or adolescent) and the child's individual needs. Today TEACCH is recognized as one of the most valid treatment programs for children with autism as well as the children with mental retardation. Naturalistic teaching and peer-based strategies to address the IEP objectives of pre-schoolers with autism and show that teachers often conduct instructional episodes in a 1:1 fashion during the naturalistic teaching phase. IEP has been becoming the curriculum core nowadays. It's created intentionally to help the individual learners with special needs to fulfil their own potential. In this situation, IEP goals and objectives have to be based on learner's special needs. The approach related to environment, ecology and curriculum has been addressed for wider application across all areas of school provision. Structured teaching is visually based, done in highly structured environments, with clear understanding of: Schedules, activities routines and expectations. The goal is to create environment for independence.

According to Iovannone et al., (2003), Structured Environments help individuals to understand and predict what is happening, predict expectations of an environment, acquire new skills, generalize new skills from one setting to another. The Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH) is a division of the Department of Psychiatry of the School of Medicine at the University of North Carolina at Chapel Hill, developed primarily for learners with various disorders. These include infantile autism, childhood psychosis, childhood schizophrenia, developmental disabilities, severe emotional disturbances, aphasia with behavior disturbances, and pervasive developmental disorders. Structured teaching, also referred to as TEACCH is a comprehensive intervention program that uses a different approach than traditional or modified ABA by combining features of behavioral and developmental orientations (Lord & Schopler, 1994; Schopler et al., 1980). Developed at the University of North Carolina at Chapel Hill starting in the 1960's, the TEACCH program is a skill-based approach that depends strongly on collaboration between teachers and parents.

Since 1972, TEACCH has been a mandated program for children with autism and is popular worldwide (Heflin & Simpson, 1998). According to Gresham et al., (1999); Heflin & Simpson (1998), TEACCH uses structured teaching to train children in the following areas: social skills, daily living skills, vocational skills, leisure skills and communication skills. According to Gresham et al., (1999), there exist four major components of TEACCH. These include: physical organization, task organization, visual schedules and work systems. Below are these components and how each works.

- **Physical structure of the environment**.

This is the first component of Structured Teaching under the TEACCH model as defined by Schopler et al., (1995). Mesibov et al., (2004), define physical structure as an organization of all settings that are clear, manageable, and interesting for students with autism but with a certain amount of individuality for each learner. For children with autism, the physical layout of the environment is crucial in helping them become more successful. Organization of items such as furniture can help to decrease anxiety, reduce overstimulation, limit distractions, and encourage independence. When setting up the environment it is important to consider items like lighting, noise, and barriers that may cause the child to experience anxiety, overstimulation, or distractions. Mesibov et al., (2004), also promote the labelling of certain items in the classroom such as the computer, desk, independent work stations, bathrooms, play areas, and where to sit at lunch. Scheuermann & Webber (2002), recommend that one-on-one instruction and independent work areas be located in parts of the room that are visually secluded from the rest of the room; especially when working with students who are easily distracted. Ganz (2007), said that the learner's work areas be near required materials so materials are easily accessible. However, it is believed that physical structure is a critical element when implementing Structured Teaching under the TEACCH model and should be considered, critically and intently, when designing the physical environment of a classroom. This consider the level of functioning, classroom layout, teaching areas, Number of learners, and accessibility of materials. Physical Structure gives Cues where to: sit, stand, line up, to go next, put things. What to attend to which activities and choices are available. Physical structure examples are; furniture, tiles and carpet tape labels and materials.

- **Daily schedules**

The second element of Structured Teaching under the TEACCH model is daily schedule. Mesibov et al., (2004) define daily schedule as a visual means to communicate the sequence of

an upcoming task or event. A daily schedule allows learners with mental retardation to become less dependent on adult cues and prompts. Schedules tell learners: which activities can be anticipated, when the activities will occur, and the order of the activities (Ganz, 2007; Schopler et al., 1995). Schedules also assist learners in adjusting to unusual activities or changes in normally occurring events (Schopler et al., 1995). According to Bryan and Gast (2000), daily schedule increased engagement and decreased disruptive behaviors. Daily schedules further involves; Visual representation, Planned activities in order they will occur, Uses symbols, words, pictures, objects, Promotes independence, Aid in transitions, Provides flexibility and predictability, Teaches concept of discrete events, Accommodates receptive language difficulties. Schedule take into consideration the following; the level of functioning, flexibility, portable versus stationary, reference versus locator, whole day versus part day and individual versus group.

The purpose of Visual Schedule include;

- Making abstract events more concrete.
- Providing room for flexibility.
- Help with transitions.
- Making the day predictable.
- Helping with language difficulties.
- Showing the beginning and end.

❖ **Independent Work Systems Definition and purpose**.

Work systems are the third component of Structured Teaching under the TEACCH model as defined by Schopler et al. (1995). TEACCH defines work systems as being able to visually answer four critical questions. The questions are: What is the work to be done? How much work is to be done? When is the work finished? And what comes next? (TEACCH, 2009). Hume and Reynolds (2010) points out how a work system is different from a visual schedule. They see the primary difference between work systems and visual schedules being one of purpose. The purpose of a visual schedule is to "indicate location and instruct a learners where to go….; work systems try to provide learners with a meaningful and organized strategy to help them start and complete a number of tasks or activities". The dependent variables that are typically targeted for increase with work systems are: on task behaviors, work completion, and independence (Bennett et al., 2011; Hume & Odom, 2007

Teaching Routines

This involves the following: Goal is to create a framework within the schedule, helps individuals become more flexible change content once routine is established, activities within a lesson, and steps in activity / task analysis. Examples of Routines include; Checking the schedule, following a Work System, what to do with finished work, relaxing or calming self , entering a room, waiting, making a choice, and asking questions.

- ❖ **Visual Task Organization.**

The fourth and final component of Structured Teaching under the TEACCH model, as defined by Schopler et al., (1995) is task organization. Similarities exist between the definition of a work system and the definition of visual task organization. Both components are designed to address the dependent variables of: increasing on task behavior, work completion and independence. The dependent variables that are typically targeted for both components also show similarity, those being reduction of distraction and adult prompting or correction (Bennett et al., 2011; Mavropoulou et al., 2011). Organization and clarity of tasks are achieved by simplifying the task parts, and highlighting the important details of the task (Ganz, 2007). Tasks should have only the necessary materials required for task completion and may need to have the individual parts of the task separated into containers or sections. Increases in task behavior along with a reduction in behavioral difficulties and increased communication were found by Panerai et al., (1998), using all four components of Structured Teaching under the TEACCH model with adolescents with autism.

- ✓ **Components of a Structured Task**

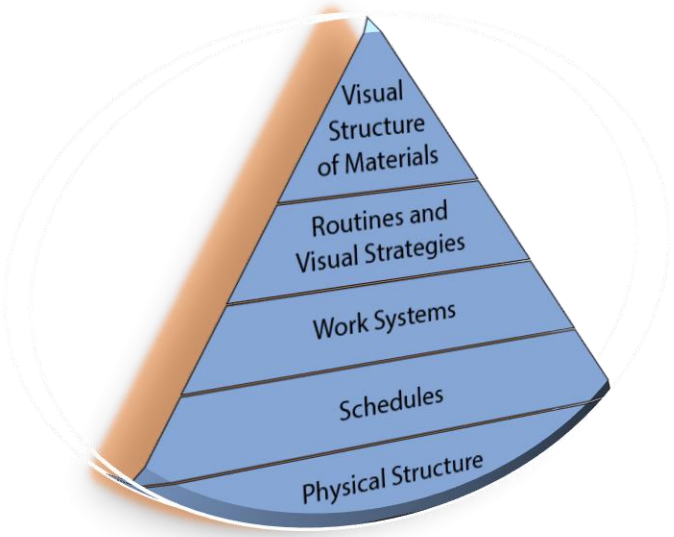
They include; visual organization, visual clarity and visual instructions.

- ✓ **Visual Organization:** Reduce stimulation and sensory input, containers for organization, limit the work area, and reduces anxiety.
- ✓ **Visual Clarity:** Highlights important information, color coding, numbering, labeling, limiting materials.
- ✓ **Visual Instructions:** Sequential, defines task, jigs-Cut out Picture Outline, written instructions and product sample.

Summarily in structured teaching environment it is good to; Pay attention to individual considerations, design the physical space and/or develop visual boundaries, develop the

schedule, create the work system, teach the routines, organize tasks, implement and monitor progress.

Figure 1: Structured teaching pyramid



2.4.4 MAKATON

Makaton is a unique language program that uses symbols, signs to enable and support the development of essential communication skills such as attention and listening, recall, and organisation of language and expression. That is Makaton is developed to meet the needs of children with inadequate verbal and non-verbal skills. It was created in the United Kingdom in the early 1970s by three British that is Margaret Walker speech therapist Kathy Johnson and Tony Cornforth specialized in helping deaf and mute people to help communicate with patients with mental disabilities.

When a child with autism spectrum is not familiarised with the different expressions and actions that will help the child to attain autonomy, especially in communication skills, the Makaton learning method will thus help this child with autism to enable him to use and reproduce days emotions books tools purposefully and thus will be able to understand the emotions others in order to interact with peers.

More so, when a child with autism spectrum disorder does not appropriate the signs and communication skills, the gesture code can be used to help meet the needs of this child with the use of gestural code which enable understanding of oral language thus, helps to meet the needs of communication skills. The daily teaching of signs and gesture accompanied by oral language. In all these, the study conduct by Albert Mehrebian in 1967 which chooses to

question on how stimulate non-verbal communication in autistic children. And since these children have the problem of attention and imitation, it is believed that the Makaton learning method seems to be more appropriate as the children with autism can attain autonomy in communication skills.

2.5 Pedagogical approaches in Africa

2.5.1 Traditional pedagogical approach

Traditional pedagogical approach is the most commonly used in most African countries for African's conception on autism generally, in a traditional society there is no specific term which describes autism spectrum disorder. There is no means to prevent the phenomenon and distinguish it through its symptoms and consequences. Therefore, the problem would not have risen from the existence of this spectrum but rather from the knowledge of ethnic desorption as discussed by the American psychiatrists Association (APA) 20000 and by the Organization. World health care, Due to their educational level, geographic, cultural and racial limits, autism is often perceived as part of an abnormal or mystical process. Believe can also be associated and as with other mental illnesses, stigmatizing attitudes in this regard do not fail to exist as mention by Joachim (2000). Children with autism spectrum disorder actually do not receive a specific diagnosis, but rather the misinterpretation of the disorder characterizes them.

2.5.2 Conventional pedagogical approach

Conventional pedagogical approach deals mostly with vocational training of children with disability without leaving out children with autism spectrum disorder. And the activities carried out are painting, cooking, carpentry, sweeping, washing of dishes and cloth just to name a few. Joachim in 2001 stated that 'All the qualities that attributes to children with strange behaviors are said to be children possessed by evil forces, which deprives them of normal behavior' mental disability is a source of stigmatization and marginalization of those who suffer from it in most African cultures in general because they are often assimilated to crazy wizards. And some children are even suspected of being ghost and some with certain pathological problems are abandoned to die. As much as autistic children are excluded in the African society, their families are being indexed. Most parents of these children instead of going to the doctor for orientation, they are mostly orientated by traditional healers and because of their belief and prejudices about the disease. Until now some autistic children in Africa are still stigmatized, marginalized since they are considered to possessed supernatural forces.

2.6 pedagogical Approaches use in Cameroon

In Cameroon, autism is associated with many practices. Yet autism results from a neurological dysfunction that compromises the normal functioning of the brain. Some educational milieu have put in place some learning strategies to enhance the improvement of children with disabilities without leaving out children with autism spectrum disorder.

2.6.1 Differentiation approach

A differentiation approach is a form of teaching where the same content is taught in different ways to the same learners. For everyone learns in their own way. Some students learn best through speech or writing. And there are some who understand best by sharing with their peers. Thus this teaching approach helps to meet the needs of students with diverse disabilities in the same classroom. However, given the differentiate approach, students with diverse disabilities without leaving out students with autism spectrum disorder special needs are met which help them to become independent and useful to the society.

2.6.2 Language empowerment approach

According to the Minister of Public Health, relayed by the ELA awakening - language - empowerment center, 3000 children suffering from autism are born each year in Cameroon. In the absence of reliable and updated statistics on this disorder in Cameroon, we see that this disease, despite the communication propaganda that is made, still remains very little known to the general public. It is sometimes likened to paranormal phenomena, to a social curse. In most cases, children are diagnosed fairly early in life.

Partial conclusion

From the above analysis which shows how pedagogical approaches of ABA, PECS TEACCH and MAKATON are being implemented to improve the mental performance of children with autism spectrum disorder such that, they can attain autonomy at the end in their different areas of special needs. Even though special educationist put in effort to implement these pedagogical methods on the children with disabilities and autism spectrum disorder, with inadequate materials for the implementation of these pedagogical approaches on these children with autism spectrum makes learning difficult and attainment of autonomy to be a nightmare But it is seen that, these pedagogical approaches are not effectively implemented as the children with autism are said to be partially ameliorated in some areas of their special needs as a result of inadequate tools effective implementation of these pedagogical approaches such that these children with autism can become independent and useful to the society.

CHAPTER THREE:

REVIEW OF RELATED THEORIES

In line with social science, research is always persuaded by theory and usually contributes to the findings of flow into the most applicable stock of knowledge. Partially, a theory is usually considered for the study's outcome. According to Mouza theory provides an explanation on how certain phenomena works. Historically, several theories have been discussed on the causality and trends on the improvement of mental performance of children with autism spectrum disorder which are used to explain this work: Behaviourist theory and Bandura's Social Learning Theory and Social Cognitive Learning Theory.

3.1 Piaget's Constructivism Learning Theory

Constructivist conceptions of learning have their historical roots in the work of Dewey (1929), Bruner (1961), Vygotsky (1962), and Piaget (1980). Bednar, Cunningham, Duffy, and Perry (1992) and Von Glasersfeld (1995) have proposed several implications of constructivist theory for instructional developers stressing that learning outcomes should focus on the knowledge construction process and that learning goals should be determined from authentic tasks with specific objectives. This constructivist view of learning considers the mentally retarded learner as an active agent in the process of knowledge acquisition. Driscoll (2000) explains that constructivist theory asserts that knowledge can only exist within the human mind, and that it does not have to match any real-world reality.

In line with this research, the effective application of TEACCH, PECS and ABA on children with mental retardation also enable them to derive their own personal mental model of the real world from their perceptions of that world. As they perceive each new experience, learners will continually update their own mental models to reflect the new information, and will, therefore, construct their own interpretation of reality. To Jean Piaget, the growth of knowledge is the result of individual constructions intrinsically made by the learners (Brooks and Brooks 2001; Snowman and Biehler, 2003). Piaget viewed the mind as a dynamic set of cognitive structures (schemas) that are used to help humans make sense of what they perceive. These structures grow in intellectual complexity along with maturation, through interactions with the world, gained experiences, and new information (Long 2000; Brooks and Brooks 2001; Monolis, 2011). Wadsworth (2004), adds that Jean Piaget (1896-1980) Theory of Constructivism is a theory which states that people acquire knowledge by experiencing things and in conjunction with knowledge that they already possess, "construct" their own understanding of these things. The theory is based on the belief that "the child, at first directly assimilating the external environment to his own activity, later, to extend this assimilation, forms an increasing number

of schemata which are both more mobile and better able to Interco ordinate" (Piaget, 1955). It suggests that we never learn anything from scratch, but rather that new information that we acquire builds on knowledge that we already have, and this constructs a new, broader understanding of the world around us. The theory postulates that the learners including mentally retarded learners need to be proactive in how they learn, taking new information, and shaping it to their understanding, rather than just sitting still and passively absorbing information like a sponge. Piaget argues that people produce knowledge and form meaning based upon their experiences. The table below shows the processes that according to Piaget are responsible for how individuals use and adapt their schemas and therefore learn and expand their existing knowledge bases:

3.1.1-Pedagogical goals of constructivist learning environments

Honebein (1996), summarizes what he describes as the seven pedagogical goals of constructivist learning environments as:

- To provide experience with the knowledge construction process.
- To provide experience in and appreciation for multiple perspectives (evaluation of alternative solutions).
- To embed learning in realistic contexts (authentic tasks).
- To encourage ownership and a voice in the learning process (child centered learning).
- To embed learning in social experience (collaboration and socialization).
- To encourage the use of multiple modes of representation, (video, audio text, etc).
- To encourage awareness of the knowledge construction process (reflection, metacognition). *

3.1.2-benefits of constructivism to mentally retarded children

Learn more, and enjoy learning more when they are actively involved, rather than passive listeners.

- Education works best when it concentrates on thinking and understanding, rather than on rote memorization. Constructivism concentrates on learning how to think and understand thereby enhancing cognitive development in mentally retarded children.

- Constructivist learning is transferable. In constructivist classrooms, mentally retarded learners create organizing principles that they can take with them to other learning settings.
- Constructivism gives mentally retarded learners ownership of what they learn, since learning is based on learners' explorations of their environment. Constructivist assessment engages the learners' initiatives and personal investments in there, physical models, and artistic representations. Engaging the creative instincts develops students' abilities to express knowledge through a variety of ways. The learners are also more likely to retain and transfer the new knowledge to real life.
- By grounding learning activities in an authentic, real-world context, constructivism stimulates and engages mentally retarded learners. MR Learners in constructivist classrooms learn to question things and to apply their natural curiosity to the world. This improves the mental performance of the children.
- Constructivism promotes social and communication skills by creating a classroom environment that emphasizes collaboration and exchange of ideas. Learners must learn how to articulate their ideas clearly as well as to collaborate on tasks effectively by sharing in group projects. Students must therefore exchange ideas and so must learn to "negotiate" with others and to evaluate their contributions in a socially acceptable manner. This is essential to success in the real world, since they will always be exposed to a variety of experiences in which they will have to cooperate and navigate among the ideas of others.

Caine (1991) suggest that brain-compatible teaching is based on 12 principles

- The brain is a parallel processor. It simultaneously processes many different types of information, including thoughts, emotions, and cultural knowledge. Effective teaching employs a variety of learning strategies.
- Learning engages the entire physiology. Teachers can't address just the intellect.
- The search for meaning is innate. Effective teaching recognizes that meaning is personal and unique, and that learners' understandings are based on their own unique experiences.
- The search for meaning occurs through 'patterning'. Effective teaching connects isolated ideas and information with global concepts and themes.

- Emotions are critical to patterning. Learning is influenced by emotions, feelings, and attitudes. The brain processes parts and wholes simultaneously. People have difficulty learning when either parts or wholes are overlooked.
- Learning involves both focused attention and peripheral perception. Learning is influenced by the environment, culture, and climate.
- Learning always involves conscious and unconscious processes. Students need time to process 'how' as well as 'what' they've learned.
- We have at least two different types of memory: a spatial memory system, and a set of systems for rote learning. Teaching that heavily emphasizes rote learning does not promote spatial, experienced learning and can inhibit understanding.
- We understand and remember best when facts and skills are embedded in natural, spatial memory. Experiential learning is most effective.
- Learning is enhanced by challenge and inhibited by threat. The classroom climate should be challenging but not threatening to students.
- Each brain is unique. Teaching must be multifaceted to allow students to express preferences.

In this perspective, teachers of mentally retarded children should be dynamic and vary their teaching methods and intervention strategies as well as use Individual Education Plan for their learners. Central to the tenet of constructivism is that learning is an active process. Information may be imposed, but understanding cannot be, for it must come from within. Constructivism requires a teacher to act as a facilitator whose main function is to help students become active participants in their learning and make meaningful connections between prior knowledge, new knowledge, and the processes involved in learning.

3.1.3-Constructivist theory and practice

When learners with MR are provided with materials that interest them during the learning process, there are high chances that they will master the content (Saad et al., 2015). Teachers should consider teaching students with disabilities the techniques of summarizing, paraphrasing, predicting and using visual images like in the use of PECS. All these skills involve active learning that is essential when it comes to mastery and remembrance of ideas. Therefore, besides active participation of students in the class, it is advisable for teachers to focus on areas of interest for learners. With extra guidance and preparedness, students with

intellectual disabilities can acquire and benefit from these skills in their practical life (Spooner, 2015). For this reason, teachers can take an active role in engaging learners with MR in complex writing assignments, study tasks and research projects among other assignments.

3.2.4-Connections with this research

This theory is directly linked to this research the constructivist view of learning considers the mentally retarded learner as an active agent in the process of knowledge acquisition. This is to tell us that mentally retarded children are not completely empty. They have some knowledge in them and can be able to construct new knowledge based on the "little" they already have as stipulated by the constructivist. Theory of Constructivism is a theory which states that people acquire knowledge by experiencing things and in conjunction with knowledge that they already possess, "construct" their own understanding of these things. The theory is based on the belief that "the child, at first directly assimilating the external environment to his own activity, later, to extend this assimilation, forms an increasing number of schemata which are both more mobile and better able to Interco ordinate". It suggests that we never learn anything from scratch, but rather that new information that we acquire builds on knowledge that we already have, and this constructs a new, broader understanding of the world around us. The theory postulates that the learners including autistic children need to be proactive in how they learn, taking new information, and shaping it to their understanding, rather than just sitting still and passively absorbing information like a sponge, hence this theory is directly linked to this study.

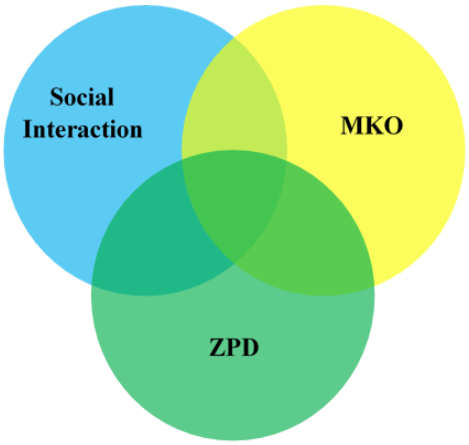
3.2-Vygotsky's Social Constructivists Theory of Learning

Vygotsky (1896-1934) was a Russian psychologist. He is considered as the father of Social Constructivist Theory. He followed the works of Piaget who is attributed as the roots of constructivism. While Piaget focused on stages of child development and individual construction of knowledge, Vygotsky identified the greater socio-cultural context.

3.2.1-Vygotsky's approach

Social Development Theory argues that social interaction precedes development; consciousness and cognition are the end product of socialization and social behavior. In this light, the teaching and learning environment of MR children should be that which facilitates social interaction which leads to the acquisition of basic DLS. It asserts three major themes regarding social interaction, the More Knowledgeable Other (MKO), and the Zone of Proximal Development (ZPD).

Figure 2: Vygotsky's approach



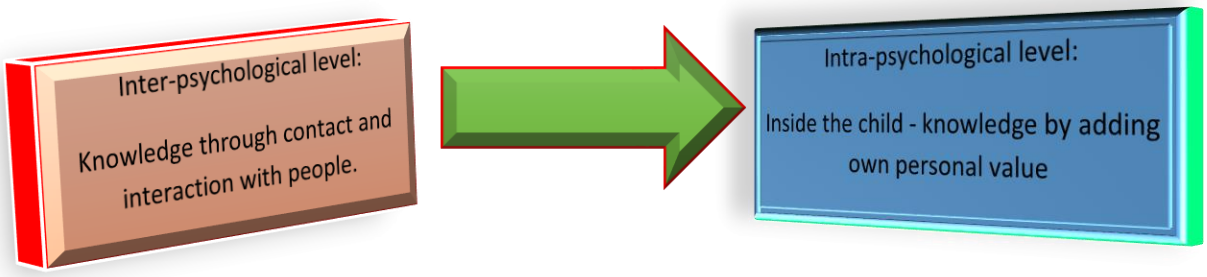
3.2.2Social Interaction.

Social interaction plays a fundamental role in the process of socio-cognitive development. Vygotsky felt social learning precedes development. He states: "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level.

- Social Level is between people which is called as inter-psychological and then individual level which is inside the child called intra-psychological.

In inter-psychological level, children gain knowledge through contacts and interactions with people and then later the child assimilates and internalizes this knowledge adding own personal value to it in intra-psychological level.

Figure 3: Social Interaction



3.2.3-The More Knowledgeable Other (MKO)

The MKO refers to anyone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept. The MKO is normally thought of as being a teacher, coach, or older adult, but the MKO could also be peers, a younger person, or even computers. In relation to this study, competent teachers and parents who are like co-therapist of MR children will boast the acquisition of DLS via TEACCH, ABA and PECS.

3.2.4-The Zone of Proximal Development (ZPD)

Vygotsky defines the Zone of Proximal Development (ZPD) as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” In the ZPD, a teacher and a learner work together on a task that the learner could not perform independently because of the difficulty level. Also it reflects the idea of collective activity, where learners who know more or are more skilled share that knowledge and skill to accomplish a task with those who know less. A good deal of guided participation is required when working in the ZPD and learners bring their own understandings to social interactions and construct meanings by integrating those understandings with their experiences in the context.

Figure 4: 

The Zone of Proximal Development of vygosky

3.2.5-Educational Applications of Social Constructivists Theory

Vygotsky emphasized that children and adults are both active agents in the process of child’s socio-cognitive development. When applying to teaching it means that both the teacher and a learners are seen as active agents in children’s learning especially MR children. The teacher's intervention in children's learning is necessary, but it is the quality of the teacher-learner interaction, which is seen as crucial in that learning**.**

- **Reciprocal teaching**: It involves interactive dialogues between teacher and learners. At first, the teacher models the activities. After that teacher and learners take turns being the teacher. During reading comprehension, if students learn to ask questions, then to

determine their level of understanding, teacher can include a question-asking strategy in the instructional sequence. Since students gradually develop skills, reciprocal teaching comprises the principle of social interaction and ZPD of the Vygotskian perspective.

- **Peer collaboration**: The shared social interactions when peers work on tasks cooperatively serve an instructional function. This method is mainly used in learning mathematics, science, and language arts which attests to the recognized impact of the social environment during learning.
- **Apprenticeship Programs**: As they occur in cultural institutions like schools and agencies which helps in transforming learners' socio-cognitive development. On the job, apprentices operate within a ZPD as mainly their works depend on tasks beyond their capabilities. Apprentices develop a shared understanding of important processes by working with experts and integrate this with their current understandings.

3.2.6-Vygotsky`S Social Constructionist View on Disability

Vygotsky's theories on methodology in special education and psychology have had a great impact on the socio-cognitive development of mentally retarded children. In his later works (1924-1934), first published in English in 1993 as "The Fundamentals of Defectology", Vygotsky developed a methodological framework for special education and psychology, with relevance for contemporary practical work with special need education. In his Cultural Historical Activity Theory, CHAT, Vygotsky formulated a practice oriented paradigm of education for children with special needs. Vygotsky`s social constructionist epistemology constitutes a basis in developing a unique vision for future models of special education, of an inclusion based on positive differentiation (Gindis 2003). According to Vygotsky`s theory on dysontogenesis (TD), a positive resource oriented Dysontogenesis(gr.«dys»-anomaly,«ontos»-being,«genesis»-development)-deficient development compared to normal individual development approach implies a favorable societal view on children with disabilities, giving preference to strengthening and empowerment of individual skills rather than the traditional stress on weaknesses or deviations. According to Gergen (1985:271), social constructionism stems from an epistemological position redefining psychological constructs such as "mind", "self" and "emotion" as socially constructed processes, to be „removed from the head and placed within the realm of social discourse". From this perspective "knowledge is not something people possess in their heads, but rather something people do together"

According to Vygotsky, higher mental functions are not independently constructed by children in early ontogenesis, but "rather than that, the development of mental process is mediated by adults in the context of social interactions with children" (Karpov 2005:10). Thorne claims that the Vygotsky concept of mediations is more than a means for solving problems and creating learning possibilities. Rather, "the process of mediation-in-interaction can be understood as part of the methods by which members construct learning environments, tasks, identities, and contexts" (Thorne 2005:399). Social Constructionism formulates an epistemological basis for Vygotsky`s Cultural-Historical Activity Theory (CHAT) as well as his Theory on Dysontogenesis (TD). The general views of Vygotsky's CHAT and TD constitutes a theoretical basis and methodology for modern inclusive education in contemporary world. Both the CHAT and the TD concern the characteristics and peculiarities of infant psychological development, the zones of proximal development, developmental education, the socio-cultural origin of disability, applying a dynamic approach to disability, emphasizing the importance of the social situation of development.

There is quite a wide range of perspectives on and approaches to Vygotsky`s theories and methodology concerning upbringing, education and evaluation of children with disabilities. Certain perspectives, have been fundamental in the establishment of inclusive education (Rodina 2007, in press) and constitute the core of the social constructionist view on learning and development "The Russian term 'Defectologia' implies a multidisciplinary science and refers generally to methods of evaluation in the study of children with disabilities. Defectologia includes relevant branches of medicine and psychology as well as pedagogy" (Judge & Oreshkina 2004:245).From Vygotsky's earliest scholarly works on the peculiarities of the development among mentally retarded and physically disabled children, there's a straight forward connection to the theory on higher psychological functions". Vygotsky`s developmental approach including the concept of ZPD, the concept of social situation of development, the concept of leading activity and age-related psychological new formations, the dynamic and socio-cultural approach to disability - including the idea of the structural complexity of disabilities, the resource oriented approach to disability forms the bedrock of providing and exploiting structured teaching environment for mentally retarded children.

3.2.7-Links with this research

The social constructivist theory is directly linked to this study through its three major themes which are; Social interaction, the More Knowledgeable Other (MKO), and the Zone of Proximal Development (ZPD). According theory, social interaction can take place in two

levels. Social Level is between people who is called as inter-psychological and then individual level which is inside the child called intra-psychological. In inter-psychological level, children gain knowledge through contacts and interactions with people and then later the child assimilates and internalizes this knowledge adding own personal value to it in intra-psychological level. Due to the fact that higher psychic functions do not only develop naturally but also via the mediation of environmental factors as stipulated by Vygotsky, this theory is directly linked to this study because environmental factors play a major role in the improvement of the mental performance of autistic children. Through the Zone of Proximal Development, as explained in the theory, mental performance of autistic children can be improved upon.

3.3-BANDURA'S SOCIAL LEARNING THEORY & SOCIAL COGNITIVE LEARNING THEORY (SLT & SCLT)

Bandura, one of the most eminent living psychologists known as the father of cognitive theory. His Social Cognitive theory has influenced many areas of inquiry in education, health sciences, social policy and psychotherapy among others.

3.3.1-Social Learning Theory (SLT)

Social learning theory is increasingly cited as an essential component of sustainable natural resource management and the promotion of desirable behavioural change. According to Muro & Jeffrey (2008), this theory has often been called a bridge between behaviorist learning theories and cognitive learning theories because it encompasses attention, memory, and motivation. However, on this regards, Bandura believes that direct reinforcement could not account for all types of learning. For that reason, in his theory he added a social element, arguing ***that people can learn new information and behaviors by watching other people***. This theory is directly linked to this research in that mentally retarded children will probably learn new information and behavior faster if their environment is well structured with the usage of visual aids. According to the elements of this theory there are three general principles for learning from each other. This theory is based on the idea that we learn from our interactions with others in a social context. Separately, by observing the behaviors of others, people develop similar behaviors. After observing the behavior of others, people assimilate and imitate that behavior, especially if their observational experiences are positive ones or include rewards related to the observed behavior. According to Bandura, (1997), imitation involves the actual reproduction of observed motor activities.

3.3.2-General principles of SLT

According to Newman B.M. & P.R. (2007), the principles of social learning are assumed to operate in the same way throughout life. Observational learning may take place at any age. Insofar as exposure to new influential, powerful models who control resources may occur at life stage, new learning through the modeling process is always possible. SLT poises that people learn from one another, via; ***Observation, Imitation, and Modeling***. Bandura demonstrated that cognition plays a role in learning and over the past years, social learning theory has become increasingly cognitive in its interpretation of human learning; these points supported by (Newman B.M. & P.R, 2007). Newman B.M. & P.R, (2007), supports that people who are being observed are ***called models*** hence teachers of mentally retarded children ought to be role models and the process of learning is called ***modeling***. Bandura's stated second and third stages of social learning, imitation and behaviour modeling, will occur if a person observes positive, desired outcomes in the first stage. If specialized instructors via their training programs understand the behaviour and general characteristics of mentally retarded children, via the appropriate behavior they can change the behaviour of these children through modeling. (Bandura, 1986).From this view, moral thinking and moral behaviour are influenced by observation and modeling. In consequence, learning includes moral judgments regarding right and wrong which can in part, develop through modeling. This simply means that in a well-structured teaching environment taking care of mentally retarded children with well trained personnel (model) who apply TEACCH, ABA and PECS appropriately will definitely enhance the mental performance of autistic children.

3.3.3-Observational Learning

Observational learning is a powerful form of learning that plays a significant role in human development and behaviour. Through observational learning, educators, therapists and parents can effectively use imitation to shape desirable behaviours and promote positive outcome. And its characterized by the elements of effective observational learning ***as attention, retention, reciprocation and motivation***. He demonstrated that children learn and imitate behaviors which they have observed in other people. On this process, he identified three basic models of observational learning:

- **A live model,** which involves an actual individual demonstrating or acting out a behaviour.

- **A verbal instructional model**, which involves descriptions and explanations of a behaviour.
- **A symbolic model**, which involves real or fictional characters displaying behaviours in books, films, television programs, or online media. In this light, a well-structured teaching environment with well trained personnel who apply TEACCH, ABA and PECS appropriately will definitely enhance the acquisition of basic DLS by mentally retarded children.

3.3.4- visual reenforcement

One of the other formats of learning is described as a form of internal reward, such as pride, satisfaction, and a sense of accomplishment. Based on some researchers such as Muro & Jeffrey (2008) supporting Bandura's SLT concepts, this kind of learning also emphasis on internal thoughts and cognitions and it can help connect learning theories to cognitive developmental theories. On this regards, Bandura (1986), criticized this process and believed that external, environmental reinforcement is not the only factor to influence learning and behavior. In this light, a well-structured teaching environment with well trained personnel who apply TEACCH, ABA and PECS appropriately will definitely improve the mental performance of autistic children.

3.3.5.-Social Cognitive Learning Theory (SCLT)

Based on the above discussion SCLT is a learning theory which has come out of the ideas that people learn by watching what others do, and that human thought processes are central to understanding personality. In this theory, Bandura gives a more comprehensive overview of human cognition in the context of social learning. The theory he expanded from social learning theory soon became known as social cognitive theory (Bandura, 1999). The SCLT places a heavy focus on cognitive concepts. It is also focused on how children and adults operate cognitively on their social experiences and how these cognitions then influence behavior and development. According to Bandura, individuals learn both behaviors and cognitive strategies by observing the behavior of others, and these acquisitions can be learned without being directly reinforced (Green & Peil, 2009). Mccormick & Martinko (2004), based on their studies introduce some basic assumptions of Bandura's SCLT. They think that; people can learn by observing others; learning is an internal process that may or may not result in a behavior change; learning can occur without a change in behavior (Observation without imitation). The following five cognitive features can influence behavior in SCLT; expectations of future

consequences & responses based on current situation/s; vicarious experiences of others' consequences; expectations about future consequences affect how we cognitively process of new information; expectations affect decisions about how to behavior; and none occurrence of expected consequences have effects.

3.3.5.1-Self-efficacy and SCLT

Self-efficacy in the Bandura theory introduced context of an explanatory model of human behaviour, in which self-efficacy causally influences expected outcomes of behavior, but not vice versa (Bandura, 1986c, 1995, 1998, 2004, 2006b). Self-efficacy beliefs exert their diverse effects through cognitive, motivational, emotional, and decisional processes. Efficacy beliefs affect whether individuals think optimistically or pessimistically, in self-enhancing or self-debilitating ways. They play a central role in the self-regulation of motivation through goal challenges and outcome expectations. (Mark & Campbell, 2011). On this regard self-efficacy lies at the center of SCLT and shows that beliefs about one's ability or capacity to execute a behavior successfully. In relation to this study, MR children will tend to engage in activities that enable them acquire basic DLS based on their sense of competence &/or past success. Betz (2007) and Mccormick, & Martinko, (2004), supported self-efficacy based on Bandura's idea and suggested that self-efficacy can effect on behaviour & cognition in the following ways: activity choice, goal setting, effort & persistence, learning & achievement.

3.3.5.3- Connection with this research

Bandura's SCLT is directly linked to this work through the modeling processes as described above. These processes are; attention, retention, motivation and reproduction. It children's' attention is drawn and they are motivated, they will be able to retain good behaviour and reproduce it when necessary. The theory is also linked to this work because of its social element, argument that people can learn new information and behaviors by watching other people. This is perfectly true for mentally retarded children as they need to be surrounded by people whom they can observe their behaviour and imitate. This theory is directly linked to this research in that mentally retarded children will probably learn new information and behaviour faster if their environment is well structured with the usage of visual aidsApart from the above analysis of constructivist theories of Piaget and Vygosky and the cognitive learning theory of Bandura, the Behaviourist theory is also one of the learning theories which helps children with autism spectrum disorder to improve on the mental performance such that they can become independent and useful for the society as a whole.

3.4 The Behaviourist Learning Theory

According to Watson in his book entitled manifesto of 2018 focus on observation stimulus-response behaviours and considers that, all behaviours are learned through events and situations within the environment. He believe that, a child's environment is the factor that shapes behaviours over their genetic temperament. That is the measure of a person's behaviour gives credence to emotions and innate instincts which holds that, human behaviour is taught through what is observed what a human is conditioned to do. This learning theory stems from the works of psychologists like Watson, Pavlov and Skinner. While behaviourism and cognitive schools of psychological thought may not agree theoretically, they have complement each other in practical therapeutic applications, such as in cognitive-behavioural therapy that has demonstrable utility in treating certain pathologies, such as phobias and developmental behavioural disorders.

In addition, behaviourism sought to create a comprehensive model of the stream of behaviour from the birth of human to their death. Behaviourism focuses on one particular view of learning: a change in external behaviour achieved through a large amount of repetition of desired actions, the reward of good habits and the discouragement of bad habits. In the classroom this view of learning led to a great deal of repetitive actions, praise for correct outcomes and immediate correction of mistakes. In the field of language learning as seen in the use of ABA. In relation to this, there are two types of conditioning which are operant and classical conditioning.

3.4.1-Operant conditioning

According to McMahon et al., (2016), it is important to consider the positive part of the behaviourist theory so that it can be used to improve the learning experiences of students with intellectual disabilities. An approach associated with the behaviourist theory is breaking down activities into smaller tasks that can be managed by students with intellectual disabilities (Aykut et al., 2014).

In addition, this theory requires organization and systematic planning. The teacher-directed and managed lessons which are beneficial for learners with intellectual disabilities with processing information, paying attention and recalling ideas. Most children achieve best results during the learning process when they know what to expect from a lesson. Their focus then shifts to new information conveyed so that they can be related to what is already known. The integration of constructivism and behaviourism influences the learning experience owing to its holistic nature

and teachers can completely address the shortcomings in socio-cognitive functioning and adaptive characteristics. This is achieved through the provision of directive instructions in several skill areas besides the general curriculum (Giangreco, 2017). Although such skills are more functional in nature, they are very important for the prospective independence of students with intellectual disabilities (Epps, 2016).

3.4.3-Links of behaviourism with this research

Children is focused on behaviour modification as described above, hence the behaviourist theory squarely fits in to this study. The operant conditioning theory that was theorized by Skinner focused on and organism learning by operating in its environment (structured environment). This is in The behaviourist theory is very much linked to this study in the area of behaviour modification owing to the fact that repetitive or restricted behaviour is one of the difficulties faced by autistic children. The Applied Behaviour Analysis (ABA) which is one of the approaches use in the follow up of mentally retarded accordance with the components of TEACCH which are; organized or structured environment, daily schedule, visual schedule and task organization. This shows that in these conditions as described in the TEACCH approach above, the repetitive or restricted behaviour of autistic children is greatly modified leading to an improvement in mental performance of these children.

CHAPTER FOUR

RESEARCH METHODOLOGY

According to Grawitz 2001 methodology is the science which studies the principles and methods of investigation. It is for the researcher to describe the approach that he uses for the review, objectives, questions and hypothesis. We shall also present the research design, site of study, sampling method, population, data collection instruments, method of data collection and analysis. Collection of data and the verification of hypotheses. It is therefore at this level of study that the recall of the question, hypothesis of the study the methodology adapted to one of the investigative tools, highlight of the variables and the site of the study

4.1 brief recall of elements of the problematic

In this context, we will recall some problematic elements that is; the problem of study, research question and research hypotheses.

4.1.1 Recall of the problem of study

Legend (1993) defines the problem of study as a question, a difficulty, a dysfunction novel and relevant enigma in a field of activities, for which no satisfactory answer is available and which pushes us to undertake research. Though in recent years there have been a rapid increase in the rate of autism spectrum disorder which is a call for concern in this era, there have also been a challenge of finding effective pedagogical approaches that can significantly improve mental performance in children with autism spectrum disorder. Also the inadequate specialized educators with inadequate skills to effectively teach with special needs without living out children with ASD. Despite the advancements in special education, there's still need for research and innovation practices that can address the unique learning needs of these children. Thereby to improve on the mental performance of children with autism spectrum disorder, there is the problem of inadequate trained personnel to implement these different pedagogical approaches, incorporation of parents and teachers and also inadequate tools and classroom instrument of study.

4.1.2 Recall of research questions

The principal research question is: How do pedagogical approaches enhance the improvement of mental performance in autistic children? From the above research question emerged the following specific questions guide:

- ✓ Does the ABA pedagogical approach facilitate the improvement of mental performance in autistic children?
- ✓ Does the TEACCH pedagogical approach facilitate the improvement of mental performance in autistic children?

- ✓ Does the PECS pedagogical approach facilitate the improvement of mental performance in autistic children?

4.1.2 Recall of the Secondary research questions

The following specific questions guide this study:

- ✓ Does the pedagogical approaches using ABA facilitate the autonomy in autistic children?
- ✓ Does the pedagogical approaches using TEACCH facilitate the autonomy in autistic children?
- ✓ Does the pedagogical approaches using PECS facilitate the autonomy in autistic children?
- ✓ Does the pedagogical approaches using modelling facilitate the autonomy in autistic children?

4.1.3- Recall of the hypothesis

The research hypothesis of this study is: The effective use of Pedagogical approaches to enhance the improvement of mental performance in autistic children via TEACCH, ABA, and PECS. From the above hypothesis, we had the following specific hypothesis:

- Effective use of ABA to enhance the improvement of mental performance in children with autism spectrum disorder
- The effective use of TEACCH to enhance the improvement of the mental performance of autistic children
- The effective use of PECS to enhance the improvement of the mental performance of children with autism spectrum disorder

4.2 Research site

The study site is PROMHANDICAM. It is an association which works in collaboration with partners like Cameroon cluster program and Cameroon Baptist Mission. It is located in the center region of Cameroon Yaoundé IV near Chateau Mimboman.

4.2.1 Justification of choice at the site

It is noted that, PROMHADICAM is often lead by its diverse effect in the lives of children living with special needs without leaving out children with autism spectrum disorder. As PROMHANDICAM is an association that works with different partners including the ministry of social affairs and the school have different sections like inclusive education, special needs

section, ken therapy. The school is well structure and well equipped with personnel and children with diverse special needs without leaving out children with autism spectrum disorder. So I choose this site for with its well structural educational and with the availability of the mentioned is a good catalyst to meet the needs of children with special needs and its entices with my field of study.

4.2.1- Presentation of the site of study

PROMHANDICAM is an institution in Mimboman in Yaoundé V Nfoundi Division of the Centre Region of the Republic of Cameroon. PROMHANDICAM Association was founded 1975 by colonel Daniel DE ROUFFIGNAC a retired French Air force who works as a private social work for people with disabilities in Cameroon based in Yaoundé and other neighboring countries. In 1966, he signed a partnership with the Catholic congregation of the Sons of the Immaculate Conception for management. PROMHANDICAM regularly receives help from several different organizations; Swiss Federation of the blind and partially sighted which subsidizes it through the Christian Blind Mission (CBM), the Non-Governmental Organization (NGO) Raoul Follereu.

The mission of this association (PROMHANDICAM) is to promote the development of people with disabilities in Cameroon. In this light, it promotes any action likely to facilitate the holistic inclusion of people with disabilities, promotes inclusive education for children and young people living with disabilities in mainstream schools, donates to save people with disabilities from the trauma of abuse, facilitates access to care, re-education, reinsertion into the society and rehabilitation service for people with disabilities.

This association is divided into two sections that is on the one hand, is educational section is subdivided into two that is, inclusive education which made up of normal pupils and pupils with special needs from nursery to complete primary section which is exclusively an inclusive educational section. We also have the special school is uniquely made up of pupils with special needs coordinated by specialized educationists. Their main function is to meet up with the special needs of the pupils with different disabilities like pupils with autism spectrum disorder, trisomy 21, weak bones, and pupils with brain impairment, cerebral palsy, sight impairment and blindness.

4.3 The type of research

This research is Qualitative research which is a form of naturalistic inquiry rooted in the constructivist view that multiple realities are socially constructed by individuals based upon

the different ways they perceive phenomena, interpret their lived experiences, and find meaning in their world

The purpose of qualitative research is to understand the nature or essence of people's lived experiences, the meanings they have constructed, and how they make sense of their experiences in the world (Merriam, 1998). A qualitative research design was selected not only to fill an obvious void in the research literature but to bring out the different strategies to meet the needs of children with special needs and bring out through the use of different instruments and the manner in which it can be used to analyze and bring out the different analysis depending on the participants.

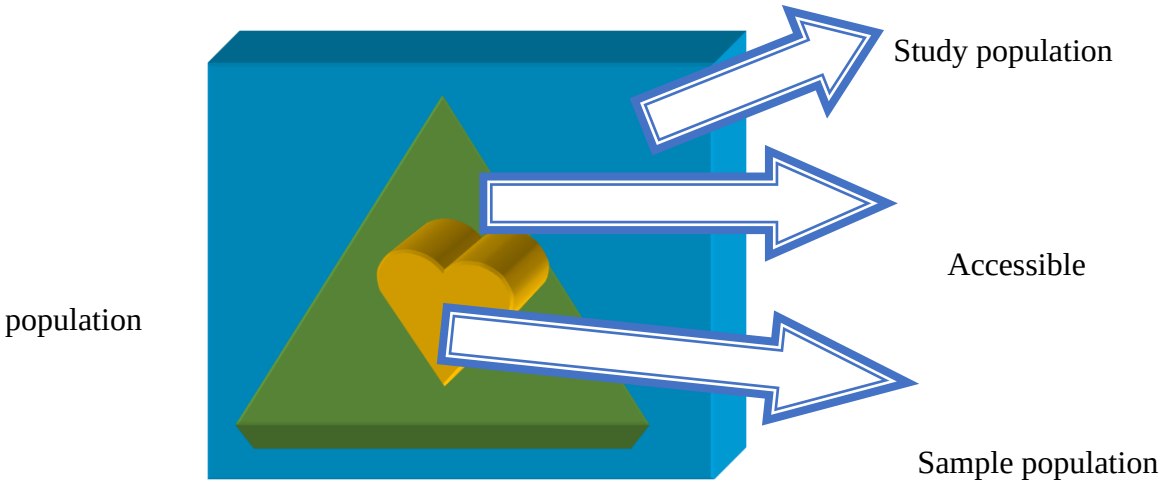
4.4 Research method

According to Nkoum, method comes from the Greek word methodos which means direction which leads to goal. So, one must choose this path so as to advance the objective of this study. It is in this sense that, Andoino and Bergeret 2010 stated that, method is logically ordered set of principles, rules, steps that paves the way to achieve results.

4.5- Study population

This has as population all the autistic children in Yaoundé V sub division of the Nfoundi Division of the Centre Region, with accessible population being the autistic children of PROMHNDICAM Centre Yaoundé as illustrated on the figure bellow.

Figure 5: Study population



4.5.1- Study sample

In accordance with qualitative research design, I used purposeful sampling in "selecting information rich for study in-depth" (Patton, 2002, p. 242). "Information rich cases are those

from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling" (Patton, 1990, p. 169). Children with autism spectrum disorders and special education teachers, were selected according to purposeful sampling criteria.

4.5.2 Criteria of population sampling

The population sampling was randomly selected as for special educationist in an inclusive education and how they carry out their classroom activities that is in the specialized educational section and in the inclusive educational section.

4.5.3 Children

- Inclusive criteria

Inclusive criteria of children with special needs vary depending on the specific context and purpose of the inclusion. However, in the educational criteria, children who have been identified as having specific learning disability and needs specialized instrument to support them due to cognitive, physical, emotional and behavioural challenges. Also, children maybe consider to have special needs based on their individual circumstances depending on their disability/ special needs such as communication deficit, hyper reactive, behavioural problem. Inclusive criteria should be flexible and individualized to meet the unique needs of each child.

- Exclusive criteria

Exclusive criteria of children with special needs refer to specific characteristics that may exclude children from certain programs and activities. These criteria are typically used to ensure that resources are directed towards children who have the most significant needs. Therefore, exclusive criteria for children with special needs should be used with caution and only when absolutely necessary. It is important to prioritize the right and wellbeing of all children and to explore alternative approaches that promote inclusion and equal access to opportunities.

4.5.4 Teachers

- Their inclusive criteria

Teachers who teaches children with special needs must possess a unique set of skills, knowledge and altitude to effectively support the diverse learning needs of their pupil/students. The inclusive criteria of these teachers include, educational qualifications. That is a teacher who teaches children with special needs must have the deep understanding of the principles

and practice of special education. A valid teaching license and certificate in special education, knowledge of different disabilities and their impact on learning. The teacher should have skills and competencies that is be strong pedagogical skills and the ability to adopt teaching methods to meet the individual needs of students. Have skills in behaviour management and de-escalation techniques. Have excellent communication and interpersonal skills to build relationship with children, parents and colleagues.

Also, these teaches must have the altitudes and values that is strong belief in the potential of all children. A commitment to equity and inclusion, passion for working with children with special needs, culture sensitivity and respect for diversity. These teachers must have that altitudes of willingness to collaborate and seek support from other professionals.

- Their exclusive criteria

Exclusive criteria of teachers that works with children with special needs refers to specific conditions or characteristics that may exclude individuals from teaching in this field. These criteria are used to ensure that only the most qualified and capable teachers are working with children with special needs. The exclusive criteria are: criminal background that is someone who have history of certain criminal offenses like child abuse or neglect. Maybe excluded from teaching children with special needs. Unsatisfactory performance that is a teacher who have received consistence poor evaluation or have been found to be ineffective in the classroom maybe excluded from teaching children with special needs.

4.5.5 Procedure of recruitment of participants

To recruit participants such that this research should be effective, I went to a chosen educational milieu where I meet special needs educators who help children with autism spectrum disorder and other children with special needs to help improve their mental performance so that they can become independent. Two teachers were being selected out of six teacher. These chosen teacher for this work are well qualified, well trained in this field and they are inclusive.

4.5.6 Characteristics of participants

For someone to be chosen as one of the participants in this research, that person must possess certain criteria like the inclusive criteria. Madam Sammy is one of the teacher that was recruited. Madam Sammy is a female teacher in PROMHANDICAM who is well qualified trained special educator (inclusive). That is she have the abilities to creating an inclusive and supportive learning environment where children with special needs can strive and reach their full potentials. She is about 38 years old and she have been working in this field for about ten

years and have been working with PROMHANDICAM for about seven years. Madam Sammy possess some unique set of altitude that enable her to make the learning environment and lessons to these children to be more of fun than a burden/stressful to them that is why in some of these children in this center are always happy when going there. And parent are satisfactory with the outcome of their children.

Also, Mr. John who happen to be one of the participant, is a male teacher in PROMHANDICAM who is a qualified special needs educator (inclusive). Mr. John is about 40years old and have been working in this field for about eight years and have been with PROMHANDICAM for about four years. He is a good patient and understanding in working with students who may have challenging behaviour and learning difficulties and also flexible in adapting lessons plans and teaching strategies to meet the changing needs of these children with special needs.

4.5.6.1 Characteristics of children

Children with autism spectrum disorder are characterized according to the level of autism spectrum disorder which can be mild, moderate, severe and profound and the level of their mental performance can be improved depending on how their child is being follow-up by the special educator, role of therapist, psychopathologist and the treatment of the child by the family matter without leaving out the child's environment.

Junior's learning capacity who is a mildly autistic by letting him copy a line text and alphabetical pronunciation, sing and also involve him in card games teaches him what interest him and also allowed him work with his peers through games like paining dancing. After three months it was observe that, at times junior while alone will be able to repeat the rhymes and songs in school but he does it haphazardly and could only do it well when someone is there to tutor him. Hence attain autonomy for junior was so difficult.

Again, the second case was that of princess who is a moderately autistic. She had difficulties in adapting to the school milieu, peers and her special educationist and she also had learning difficulties since princess had communication difficulties. The special needs educationist used the kinesthetic and linguistic teaching method that is where she taught princess oral presentation, speech, pronunciation verbalization and moving gesture. After three months, princess could pronounce her name and that of her peers though not clearly but the rhyming sound could be understood the peer she was trying to call out. The fact that princess could not call out clearly with all the effort put in by the educational specialist.

In line with the above, the third case was that of Emmanuel who was a severe autist who was very violent get nervous at any instance and also had adaptation problem. In so doing, the educational specialist had to first deal with his adaptation problem by doing what Emmanuel likes like singing and clapping each time he threatens to cry to go home. For him to get use to his peers, the teacher make his peers play games he love with him. And to do away with his violence and anger altitude was to make him to be happy all the time. But after three months it was observed that, though everything was done for Emmanuel to be happy he will at times become angry for no reason and bully his peers in violence. And also, there are times when he decides to go home, he will just leave the class and start moving towards the gate and if he is not stopped he will go out of school premise and there was even a day he moved out without the knowledge of the teacher it was not easy though he was later found moving in an unknown destination.

4.6- Data collection instrument

Two main instruments were used to collect data in this study. They are observation guide and interview guide.

4.6.1- Observation

The main instrument that was used to collect data is observation. Since some autistic children cannot speak and can therefore not be interviewed. We used direct observation since most of the children with special needs have the problem of speech impairment and made a written record of everything that went on in the classroom as I observed it unfold, since I wanted to provide the clear and complete narrative of what went on in the field (Thomas, 1998). During the observation, some the things I considered of during this period, would be my version of what was there Thomas (1998). What is observed (seen and heard) is the researcher's version of what is there.

In order to better carry out the observation, an observation guide was as seen below

Observation guide

Theme	Modalities	Indicators	-	+	-+
Pedagogical approaches	ABA	-does the teacher use this approach?			
		-is this teaching approach well implemented?			
		Can you see a palpable effect of this method on these children with special needs?			
	PECS	-does this approach facilitate acquisition of knowledge?			
		-does the use of this method facilitates the improvement of mental performance?			
		-is this method effective on acquisition of knowledge,			
	TEACCH	Is this approach effective?			
		-does this approach facilitate acquisition of knowledge?			
		-does this approach facilitate acquisition of knowledge?			
Improvement of mental performance of children with ASD	-Classroom activities	Is there full participation during classroom activities?			
	-social interactions	Do these children interact and cooperate during lessons?			
	-acquisition of knowledge	Do they improve on their learning skills?			
Teachers children with peers	-Teacher to Child	Do they interact with their teachers during lessons			
		Does the teacher give them room to interact with her?			
	-Child to peers	Do these children show interest to their teacher?			

		Are these children friendly to the teacher?			
	-Peer to peers	Do they interact amongst themselves?			
		Do they participate during joint activities amongst peers?			

4.6.2 Interviews

Another primary instrument of data collection for this study was conducting in-depth individual Interviews. According to Rubin and Rubin (2005) qualitative interviews are conversations in which a researcher gently guides a conversational partner in an extended discussion. The researcher elicits depth and detail about the research topic by following up on answers given by the interviewee during the discussion…in qualitative interviews each conversation is unique, as researchers match their questions to what each interviewee knows and is willing to share.

As a qualitative researcher assuming nothing a priori, I engaged in interviews with study teachers as conversational partners to elicit their understandings and meanings concerning the overarching research question: What are the perceptions of special education teachers, regarding Pedagogic approaches, interventions for children with ASD, the efficacy of various practices, and facilitators and barriers to successful intervention. The purpose of the interviews was to provide depth, detail, and richness – what qualitative researchers call "thick description" (Rubin & Rubin, 2005, p. 13) rooted in the first-hand experiences of study participants. Individual interviews were scheduled at a convenient time and place of each participant's choosing. Teachers generally chose to be interviewed after school in their own classrooms.

4.6.3 Interview Guide

An interview guide (see Appendices) containing semi-structured and open-ended questions was used to explore the perceptions of study participants regarding educational interventions for children with autism spectrum disorders and the four research questions that provided a framework for the study. To put participants at ease I began by asking study participants several broad demographic questions. Teachers were asked about their type of certification,

their number of years of teaching experience and the approximate number of children with ASD whom they have taught during that time, and the level (preschool, elementary, or secondary) and setting(s) in which they have provided services to children with autism spectrum disorders (full inclusion, resource setting, self-contained classroom, or some combination of these). All study participants were asked to describe how they have obtained training and knowledge about educating children with autism disorders. After obtaining general demographic data I asked open-ended questions designed to give interviewees opportunities to reflect upon and verbalize their experiences with specific educational interventions for children with ASD including those described in the research literature. The interview guide included questions regarding participants' perceptions of the efficacy of specific educational interventions and their opinions about factors that contribute to success in meeting the educational needs of children with ASD. I also asked study participants to reflect upon the barriers and challenges they have faced in implementing specific educational interventions and meeting the needs of children with ASD.

INTERVIEW GUIDE

Theme1 TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children). The use of TEACCH as a pedagogical approach

Sub1: method

I -How is this method helpful to you in improvement of mental performance of these children with special needs?

II –what are the different ways in which these children with special need are responsive to this teaching method?

Sub2: visual aids

I – How often do you use visual aids when teaching these children with special needs?

II - Can you please tell me how helpful is this visual aids on these children with special needs?

III- How helpful is visual aids to these children?

Sub3: Daily routine

I -What are some of the daily routines use in your class?

II-How helpful are these daily routines in the learning process to these children with special needs especially those with ASD

Sub4: Physical environment

I -What are the different impact of the physical environment in the learning process on these children with special needs especially those with ASD?

II -How inclusive is this physical environment to the needs of these children living with disabilities especially those with ASD?

Theme2: ABA (Applied Behaviour Analysis) use of ABA as a pedagogical approach

Sub1: method

I -Why do you use this method on these children with special needs?

II - Can you please tell me how effective is this method on these children with special needs?

Sub2: Attention

I -What do you do to gain the attention of these children with special needs?

II - How do you manage the behavior of a child with ASD who is hyper-reactive?

Sub3 individual educational plan

I -how do you design your individual educational plan for these children with special needs especially those with ASD?

II -what makes you to know that the individual educational plan put in place is helpful to these children with special needs especially those with ASD?

Sub4: motivations

I -How is the use of motivation helpful in the teaching process of these children with special needs especially to those with ASD?

II - how does these children with special respond to motivation?

Theme3 PECS (Picture Exchange Communication System) the use of PECS as a pedagogical approach

Sub1: visual aids

How does visual aids help these children in the learning process?

What are the different instruments do you used during class lessons on these children on their different areas of special needs?

Sub 2 classroom setting

Can you please tell me the different ways in which you set up your class such that it can accommodate these children with different disabilities?

Sub 3 individual education plan

How do you design an individual learning plan?

How effective is the individual education plan is on the improvement of the mental performance these children with different special needs?

Environmental setting

Can you please tell me the different ways in which the learning environment is being set up?

Can you please tell me how helpful is this environmental setting to these children with special needs?

4.7 Reliability of the Instruments

According to Mugenda (2003) reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Test retest method was used to check the reliability of the instruments. The instruments were piloted in two centre not included in the final sample of the study. Here, the tools ware given to the respondents to fill in and then the answered tools were scored manually. After a period of two weeks, the same instruments were administered to the same group and again scored manually. A comparison of the first and second scores was made using Pearson's product moment correlation coefficient to determine the reliability index of the instruments. According to Orodho (2008) a correlation coefficient of ≥ 0.7 is considered high enough for judging the instruments as reliable and the researcher adopted this recommendation.

4.7.1 Validity of the Instruments

Mugenda (2003) define validity as the accuracy and meaningfulness of inferences, which are based on the research results. Thus, content validity is a non-statistical method used to validate the content employed in the research instrument. Firstly, the researcher went through the instruments and compared their content with the set objectives to ensure that they contain all the information that address the study objectives. Secondly, the researcher discussed with supervisors and authorities in the area of autism intervention about content validity of the instruments and thereafter, incorporated their recommendations and inputs so as to improve on the validity of the instruments.

4.8-data analysis

Here, we used tables to report results related to the research questions based on content analysis. The presentation of the data of this research on tables according to the various teaching approaches (TEACCH, ABA and PECS) under which the observations were made, and also following the various categories of autistic children that were observed. The data was then arranged and grouped according to the particular research objectives. Mild autistic child who is while princess, moderate autistic child Emmanuel and the severe autistic child junior.

Content analysis

Pedagogical approaches	**code**	**modalities**	**code**	**Observation**		
				+	**-**	**+-**
Theme1: TEACCH	A	-Method	a			*****
		-Visual aid	b			*****
		-Daily routine	c	*		
		-Physical environment	d	*		
Theme2: ABA	B	-Method	e			*
		-Communication skills	f			*
		-Attention	g			*
		-Individual education plan	h	*		
Theme3: PECS	C	-Method	i		*	
		-Visual aid	j			*
		-Classroom setting	k	*		
		-Environmental setting	l			*

From the above table, the following remarks explain the signs on the table as it will be analyzed below;

+ Means effective

- Means not effective

+- Means partially effective

A, a, +- means the pedagogical method was partially used

B, h, + means the individual education plan method under ABA is effectively used

C, I, - means the method PECS is not effectively used

4.9 Presentation of TEACCH, PECS, and ABA as instruments of data collection

Under TEACCH, we arranged the classroom environment in a way that made movement less stressful for the children. There were no obstacles and they could easily move in and out with fewer difficulties. Visual teaching aids were well placed and were big enough for the children to see. Instructions were very clear and precise to avoid confusion.

Under ABA, we worked with the children individually in a room and depending of the specific needs of each child. Individual Educational Plan (IEP) was made for each child. When a child portrayed a good behaviour, I reinforced it by rewarding either with a small gift like a toy or a biscuit or verbally like bravo, good boy or with a clap. This was repeated until the behaviour was ameliorated.

Under PECS, I drilled children to exchange pictures for the items they need. The pictures of some items were placed and when a child selected the picture of an item and gave, that particular item was then given to him. For example if a child gave the picture of an apple and gave me, I in turn gave him an apple. This helped the children to express their desires and wants.

CHAPTER FIVE:

PRESENTETION AND ANALYSIS OF DATA

In this chapter, we present the results of data that were collected through observations constructed and administered questionnaires of the study. The technique used in data presentation is the one where data are organized and presented and analysis is made to show their impact on the entire study. It uses tables and charts to give a descriptive representation of the results. The first part begins with the analysis of the background characteristics of participants. This is followed by the analysis of the different variables with much emphasis and attention on the relationship that exists between the variables.

This study is aimed at exploring the role of pedagogic approaches (TEACCH, ABA and PECS) on the improvement of the mental performance of autistic children. It should be noted that whether a child is mentally retarded or not, the environment plays a very big role in cognitive development. The study investigated the incidence of structured teaching environment and cognitive development of autistic children taking note of the physical environment, the personnel and the teaching techniques and strategies can be used in an institution.

5.1 Presentation of participants

This study made use of two teachers purposefully selected from PROMHANDICAM Foundation Mimboman-Yaoundé Cameroon.

5.1.1 Presentation of teachers

-Madam Sammy is one of the teacher that was recruited. Madam Sammy is a female teacher in PROMHANDICAM who is well qualified trained special educator (inclusive). That is she have the abilities to creating an inclusive and supportive learning environment where children with special needs can strive and reach their full potentials. She is about 38 years old and she have been working in this field for about ten years and have been working with PROMHANDICAM for about seven years. Madam Sammy possess some unique set of altitude that enable her to make the learning environment and lessons to these children to be more of fun than a burden/stressful to them that is why in some of these children in this center are always happy when going there. And parent are satisfactory with the outcome of their children.

-Also, Mr. John who happen to be one of the participant, is a male teacher in PROMHANDICAM who is a qualified special needs educator (inclusive). Mr. John is about 40years old and have been working in this field for about eight years and have been with PROMHANDICAM for about four years. He is a good patient and understanding in working with students who may have challenging behaviour and learning difficulties and also flexible

in adapting lessons plans and teaching strategies to meet the changing needs of these children with special needs.

5.1.2 Presentation of children

-Junior's learning capacity who is a mildly autistic by letting him copy a line text and alphabetical pronunciation, sing and also involve him in card games teaches him what interest him and also allowed him work with his peers through games like paining dancing. After three months it was observe that, at times junior while alone will be able to repeat the rhymes and songs in school but he does it haphazardly and could only do it well when someone is there to tutor him. Hence attain autonomy for junior was so difficult.

-Again, the second case was that of princess who is a moderately autistic. She had difficulties in adapting to the school milieu, peers and her special educationist and she also had learning difficulties since princess had communication difficulties. The special needs educationist used the kinesthetic and linguistic teaching method that is where she taught princess oral presentation, speech, pronunciation verbalization and moving gesture. After three months, princess could pronounce her name and that of her peers though not clearly but the rhyming sound could be understood the peer she was trying to call out. The fact that princess could not call out clearly with all the effort put in by the educational specialist.

-In line with the above, the third case was that of Emmanuel who was a severe autist who was very violent get nervous at any instance and also had adaptation problem. In so doing, the educational specialist had to first deal with his adaptation problem by doing what Emmanuel likes like singing and clapping each time he threatens to cry to go home. For him to get use to his peers, the teacher make his peers play games he love with him. And to do away with his violence and anger altitude was to make him to be happy all the time. But after three months it was observed that, though everything was done for Emmanuel to be happy he will at times become angry for no reason and bully his peers in violence. And also, there are times when he decides to go home, he will just leave the class and start moving towards the gate and if he is not stopped he will go out of school premise and there was even a day he moved out without the knowledge of the teacher it was not easy though he was later found moving in an unknown destination.

5.2 data analysis from observation guide

Here the data will be analyzed according to the observation guide which include the children and the teachers.

5.2.1 The children

From the observation guide, which shows the observation of this work, where the children were observe to see and note the effect of the use of how effective is the pedagogical method on these children with special needs which it was done on three children that is junior, princess and Emmanuel.

- Again, Junior is a child with autism spectrum disorder. He is 14years old though he has been at the center for about 6years. But he is still very blank as he is hyper reactive. He a little prefer that the teacher should what he want rather than following the teacher instructions

Junior who one of the participant with mild autism spectrum disorder during classroom lessons of the method TEACCH. According to Lovaas (1987) found that children with autism spectrum disorder who receive TEACCH intervention showed significant improvement in IQ, language and social skills. Also Mesilobov et al. (2005) found that children with ASD receive TEACCH intervention and it led to improvement in adaptive behaviour cognitive skills and communication. This involves visual aid. This task breaks down complex task into small and also incorporate visual supports such as schedules and checklist which enhances understanding and communication. This support helped junior to stay organize follow instructions and express his needs. Like asking for water food and even request for permission when he is pressed. Also the physical environment plays an enormous role in junior's life as it helps him to understand expectation and reduce anxiety and also forcus on learning thereby improves juniors learning abilities and mental performance

Also the use of the method ABA (Applied Behavioural Approach) a study by Eikeseth (2007) found that ABA intervention led to improvement in cognitive skills behaviour and communication. Thereby enhancing improving their mental performance and problem solving. However, the use of ABA through individualized intervention such that the target here is junior's attention and collaboration with his peers. Thereby improvement of juniors learning abilities and mental performance.

More so, the use of the method PECS (picture exchange communication system) to Blondy and Frost (2001) found that children with ASD who uses PECS show significant effect on them when effectively used. The use of this method empowered junior to the point where he can

advocate for himself as they always uses picture and at the course of doing so calls for argument. Also helps for interaction of peers as junior interact to bring out the names of the different images before him thereby improves his learning abilities and mental performance.

-Again, Princess who is one of the children that was observe during this research. She is mild autistic who is 11years old. Though as an autist she is very sensitive and conscious of her lessons. Always active during lessons especially days that the teacher promises to offer motivation. Princess is already in her fourth year at PROMHANDICAM. She's so conscious of her daily routine and other aids the teacher always offer to her whenever she is in need and the steps to take during certain challenges. Ozonoff (2009) found that, TEACCH intervention associated with skills improved social and reduced behaviour problem. Daily routine, visual support and organization of the teaching environment helped princess to be able to express her needs hence improved on her mental performance though partially but the effect is sen in her action and movement. The method ABA, Smith

-Emmanuel is severe autist who is 9years old though he has been at the center for almost 3years, he is still very lacking as a result of little improvement at his daily routine and other activities even in writing and affirmation of some class lessons. Again, Junior is a child with severe autism spectrum disorder. He is 14years old though he has been at the center for about 6years. But he is still very blank as he is hyper reactive. He always prefer that the teacher should what he want rather than following the teacher instructions

Table: Presentation and analysis of the results after using TEACCH

Subject	**Physical environment**	**Visual aids**	**IEP**	**Daily routines**
S A1 A2 & A3	All the children could not easily move in class like going out and coming in at first, but later on started to do so with little or no help thanks to the fact that the class has been well	In the beginning they could not easily understand and perform tasks because illustrations were abstract. With the usage of real teaching materials like alphabet chart apple, plates cups and others, they now	At first, they had difficulties in psychomotor activities like arranging alphabet letters on an alphabet chart. With and IEP on this activity, they could now perform that activity in lesser	Arrived school in the morning, had challenges in greeting friends and the teacher, going to their respective seats, performing tasks, eating and playing. With repetition and guide

	structured and is now void of obstacles that can obstruct movements.	understood and executed tasks easily with little or no difficulties portraying an improve mental performance.	time with little or no help showing and improvement in mental performance.	from the entourage, they could dothese things with fewer difficulties showing that the mental performance had improved.
B1 B2 & B3	At the start, they all had much difficulties to move in class like going out and coming in, but later on gained a bit of autonomy to do so with little help thanks to the fact that the class has been well structured and is now void of obstacles that can obstruct movements.	At the beginning, they had too much difficulty in understanding and performing almost all tasks because illustrations were abstract. With the usage of real teaching materials like alphabet chart apple, plates cups and others, they now understood and executed tasks though still with difficulties and was therefore aided to perform the task.	At first, they all had difficulties in psychomotor activities like arranging alphabet letters on an alphabet chart. With IEP on this activity, each of them could now perform that activity in lesser time with the assistance of the teacher. This shows an improvement in mental performance.	Arrived school in the morning, had challenges in greeting friends and the teacher, going to their seats, performing tasks, eating and playing. With repetition and guide from the entourage, they could dothese thingS with less difficulty.
C1 B2 & C3	In the beginning, each of them had too much difficulties to move in class like going out and coming in. They later on gained a bit of autonomy to do so	At the start, they all had too much difficulty in understanding and performing almost all tasks because illustrations were abstract. With the usage of real teaching materials like alphabet	At first had a lot of difficulties in psychomotor activities like arranging alphabet letters on an alphabet chart. With and IEP on this activity, she could now perform	When they aarrived school in the morning, they had challenges in greeting friends and the teacher, going to their respective seats, performing tasks, eating and

	with help from the teacher thanks to the fact that the class has been well structured and is now void of obstacles that can obstruct movements. This showed an improvement in mental performance	chart apple, plates cups and others, they now understood and executed tasks though still with difficulties and was therefore aided to perform the task after a series of repetitions showing an improvement in mental performance.	that activity in lesser time with the assistance of the teacher as compared to the time that she usually take to perform the task. This implies an improvement in mental performance.	playing. With repetition and guide from the entourage, he could dothese things with fewer difficulties, showing that mental performance had been improved.

=A1 represents junior who have mild autism spectrum disorder

=B2 represents princess who have moderate autism spectrum disorder

=C3 represents Emmanuel who have severe autism spectrum disorder

All the Study participants A1, B2 and C3 (junior princess and Emmanuel) generally showed positive response towards to the application of TEACCH pedagogic approach and structured teaching method as seen on the above table. Viewing it as effective educational interventions for young children with autism disorders, I think that the age of the learners should play a role in how the environment is set up because children need an environment that has play and snack areas, spaces for individual work, as well as, an area to develop their self-help skills older children need an environment that encourages social interaction with peers, individual and whole group instruction, and areas to develop vocational skills, and places where they can pursue their specific interests. A one-on-one instruction and independent work areas located in parts of the room that are visually secluded from the rest of the room; especially when working with kids who are easily distracted is also good. I also found that the nearness children's work area to the required materials makes the materials easily accessible. Because visual skills tend to be more advanced than verbal skills among children with autism, instructions were often presented in pictures rather than spoken words. The labeling of certain items in the classroom such as the computer, desk, independent work stations, bathrooms, play areas, and where to sit at lunch also helps.

we did more of a modified TEACCH model and also contextualized it. TEACCH model is really beneficial to any child, not just to an autistic child. Because it's highly structured, and it's very visual, the room is set up in a certain way. It's set up into areas, like a work area and a play area and an eating area. And the children are not allowed to just freely roam about the room going wherever they please. They are directed to certain areas at certain time, everyone even at the end has their own independent work station. And it's very visual, and the whole concept is that as quickly as possible they need to work independently so as to encourage autonomy. And they work from left to right or top to bottom. And you don't do a lot of talking. You do more pointing and tapping, but you don't say a lot because they don't respond to the language. This shows the TEACCH teaching approach play an important role in the improvement of mental performance in autistic children.

The following pseudonyms are presentation of the participants according the children's level of ASD as seen on the table below;

=A1 represents junior who have mild autism spectrum disorder

=B2 represents princess who have moderate autism spectrum disorder

=C3 represents Emmanuel who have severe autism spectrum disorder

Table: Presentation and analysis of observation results after the use of ABA

participants	**Environment set up**	**IEP**	**Motivation**
A1 A2 & A3	Participants A1, A2 and A3 formerly, could not easily move in class like going out and coming in. They later on gained the autonomy to do so with little or no help thanks to the fact that the class has been well structured and was now void of	At first, some psychomotor activities like picking letters of the alphabet kept in one room and coming to order them well on an alphabet chart in another room was challenging for them. They averagely took about forty minutes to carry out this exercise, but with constant repetition through an Individualized Educational Plan (IEP) on that area, this	It was observed that motivation tremendously enhanced the accomplishment of almost all the tasks given to all the learners. Motivations boast their moral and encouraged them to perform given tasks. Motivation was verbal for example; good boy, good girl, bravo, that is good, and a clap. Facial

	obstacles that could hinder their movements.	activity was realised now with little or no help within twenty minutes indicating that there has been an increase in mental performance.	expression like smiling, signs of contentment and happiness also encouraged the children. Material motivation included the use of biscuits, sweets and bananas. All these made the children to be less distracted and concentrate.
B1 **B2** **&** **B3**	At first, they all had much difficulties to move in class like going out and coming in, but later on gained a bit of autonomy to do so with little help thanks to the fact that the class has been well structured and is now void of obstacles that can obstruct movements.	They much difficulties carrying out psychomotor activities like picking letters of the alphabet kept in one room and coming to order them well on an alphabet chart in another room. They usually lacks interest and were highly distracted. They took about fifty minutes to carry out this exercise, but with constant repetition and guidance from the teacher through an Individualized Educational Plan (IEP) on that area, this activity was realised within thirty minutes. With this IEP, distraction and lack of interest reduced tremendously.	I observed that motivation greatly enhanced the accomplishment of almost all the tasks given to both learners. Motivation boast their moral and encouraged them to perform given tasks. Motivation was verbal for example; good boy, good girl, bravo, that is good, and a clap**.**Facial expression like smiling, signs of contentment and happiness also encouraged the children. Material motivation included the use of biscuits, sweets and bananas. All these made the children to be less distracted and concentrate. This indicated that there had been an improvement in mental performance.

A1 A2 & A3	In the beginningwhen they were not motivated either verbally or with materials, they had little interest in concentrating and performing given tasks. When motivation was being used subsequently, they began concentrating and performing task bit by bit and needed someone to constantly be present with them to be able to guide them. Motivation was either verbal or material. Verbal motivation included expressions like; 'bravo', 'excellent', 'good', 'good boy', 'good girl', coupled with positive facial expressions like smiling and other signs of contentment. They were also motivated	It was observed in the beginning that they had very little attention in activities and were very much distracted when carrying out activities like filling a bottle with maize grains alone. They were distracted and often want to carry too many grains at a time to put in the bottle instead of picking one grain at a time and putting in the bottle. When their attention was drawn by constantly reminding by showing them how to concentrate and pick only one grain at a time, they latter on started to concentrate and pick one grain at a time instead of carrying all the grains at once to fill the bottle. Their autonomy to perform this particular exercise increased with constant repetition and drilling over a long period of time as the rate of distraction reduced while the ability to concentrate increased.	I noticed at first that the children have some difficulties in remembering and reproducing the behavior that has been observed, this due to their short attention span. They easily forget what they have just learnt and cannot reproduce it. For instance in the example of filling in the bottle with maize grains, they easily forget that they are supposed to concentrate and pick one grain at a time and not carrying all the grains at once.I therefore observed that by using the technique of rehearsal which include constantly reminding them and drilling them on this activity several times per day and over a long period, they latter on developed interest in this activity and the ability to perform the task on their own with little or no guidance from the teacher. This therefore means that some

	with small gifts like biscuits, apple, bananas and sweets. For example: when a child succeeded in sorting letter 'A' among alphabet letters and fitting it in its right position on the alphabet chart, he or she was given a biscuit, bonbon or I said 'bravo', 'good boy or girl to him or her. This made them to make efforts to carry out the task with little or no help and consequently gain some autonomy with times.		autonomy was gained in this particular of activity.
A1 **A2** **&** **A3**	In the beginning when they were not motivated either verbally or with materials, they showed no interest in concentrating and performing given tasks. When motivation was being used	It was observed in the beginning that they had little or no attention in activities and were very much distracted when carrying out activities like filling a bottle with maize grains alone. They were distracted and often want to carry too many grains at a time to put in the bottle instead of picking one	I noticed at first that the children have much difficulties in remembering, imitating and reproducing the behavior that has been observed, this due to their short attention span. They easily forget what they have just learnt and cannot reproduce it. For instance

	subsequently, they began concentrating and performing task bit by bit and needed someone to constantly be present with them to be able to guide them. Motivation was either verbal or material. Verbal motivation included expressions like; 'bravo', 'excellent', 'good', 'good boy', 'good girl', coupled with positive facial expressions like smiling and other signs of contentment. They were also motivated with small gifts like biscuits, apple, bananas and sweets. For example: when a child succeeded in sorting letter 'A' among alphabet letters and fitting it in its right position on the alphabet chart, he or she was	grain at a time and putting in the bottle. When their attention was drawn by constantly reminding by showing them how to concentrate and pick only one grain at a time, they latter on started to concentrate and pick one grain at a time instead of carrying all the grains at once to fill the bottle. Their autonomy to perform this particular exercise increased with constant repetition and drilling over a long period of time as the rate of distraction relatively reduced as well as the ability to concentrate increased.	in the example of filling in the bottle with maize grains, they easily forget that they are supposed to concentrate and pick one grain at a time and not carrying all the grains at once.I therefore observed that by using the technique of rehearsal which include constantly reminding them and drilling them on this a activity several times per day and over a long period, they latter on developed interest in this activity and the ability to perform the task on their own with little or no guidance from the teacher. This therefore means that little autonomy was gained in this particular of activity.

	given a biscuit, bonbon or I said 'bravo', 'good boy or girl to him or her. This made them to make efforts to carry out the task with help from the teacher and consequently gain a bit of autonomy with times.		
A1 A2 & A3	In the beginning when they were not motivated either verbally or with materials, they absolutely had no interest in concentrating and performing in the given tasks. When motivation was being used subsequently, they began concentrating and performing task bit by bit and needed someone to constantly be present with them to be able to guide them. Motivation	It was observed in the beginning that they had very little attention in activities and were very much distracted when carrying out activities like filling a bottle with maize grains alone. They were distracted and often want to carry too many grains at a time to put in the bottle instead of picking one grain at a time and putting in the bottle. When their attention was drawn by constantly reminding by showing them how to concentrate and pick only one grain at a time, they latter on started to concentrate and pick one grain at a time instead of carrying all the	It was noticed at first that the children had a lot of difficulties in remembering, imitating and reproducing the behavior that has been observed, this due to their short attention span. They easily forget what they have just learnt and cannot reproduce it. For instance in the example of filling in the bottle with maize grains, they easily forget that they are supposed to concentrate and pick one grain at a time and not carrying all the grains at once.I therefore observed that by using the technique of rehearsal which include

	was either verbal or material. Verbal motivation included expressions like; 'bravo', 'excellent', 'good', 'good boy', 'good girl', coupled with positive facial expressions like smiling and other signs of contentment. They were also motivated with small gifts like biscuits, apple, bananas and sweets. For example: when a child succeeded in sorting letter 'A' among alphabet letters and fitting it in its right position on the alphabet chart, he or she was given a biscuit, bonbon or I said 'bravo', 'good boy or girl to him or her. This made them to make efforts to carry out the task with much help from the teacher and	grains at once to fill the bottle. Their autonomy to perform this particular exercise increased a bit with constant repetition and drilling over a long period of time as the rate of distraction reduced bit while the ability to concentrate also increased a bit.	constantly reminding them and drilling them on this activity several times per day and over a long period, they latter on developed interest in this activity and the ability to perform the task on their own with little or no guidance from the teacher. This therefore means that relative autonomy was gained in this particular of activity

	consequently gain some autonomy with times.		

=A1 represents junior who have mild autism spectrum disorder

=B2 represents princess who have moderate autism spectrum disorder

=C3 represents Emmanuel who have severe autism spectrum disorder

-Applied Behaviour Analysis (ABA) With Discrete Trial Training (DTT) is one of the major pedagogic approach used in intervention for children with autism disorders to improve their mental performance. All Study participants A1, B2 and C3 (junior, princess and Emmanuel) portrayed gradual improvement in mental performance in some areas like eating alone, going to the toilette alone and many others from the application of ABA with DTT. For these children ABA with DTT was used in one-to-one instruction with reinforcers to develop beginning imitation skills and engagement as prerequisites for other learning activities. I did try to work one-on-one. It's not every child every day. This was done with a lot of reinforcers. With ABA if they do a skill they get a reinforcer. Some of them were working on sorting and matching fruits, eating with a fork, taking a bottle of water and opening it alone, using the toilette and wearing of shoes alone. With the children who are deeply autistic, we were just working on attending and interacting in some way. If it is tickling, if it's just babbling and I babble back to them. This was done typically with those who were very, very severely autistic. I perceived ABA with DTT to be helpful with such children in developing joint attention and simple imitation skills as a foundation for mastering more complex skills. This shows that the correct usage ABA greatly contributes to the improvement of mental performance in autistic children.

The three groups of children A1, B2 and C3(junior, princess and emmanuel) were seen to have gradually improved in their mental performance probably thanks to modelling, priming and role play. Priming involves providing a child with prompts, cues, and opportunities to practice target behaviour immediately before it must be performed. During priming a teacher models behaviour for the child and gives verbal cues or prompts about how to perform that behaviour. Modelling and prompting may be followed by opportunities to role play or act out expected behaviour for various social situations. Adult modelling and priming were also combined with reinforcement of appropriate responses. The use of priming with adult modelling and role play proved to be effective in facilitating communication and social skills in autistic children at all ages. We also found adult-mediated interventions easy to implement in the child's everyday

classroom environment in combination with naturalistic, incidental teaching methods. I used "incidental teaching" around a play table to facilitate social interaction with peers as it prompted children to share toys, thereby helping them learn to share independently. The assistance was either from behind, in front or by the side as explained in the examples bellow.

Table: *Presentation and analysis of the results after the use of PECS*

SUBJECT	**CLASS SET-UP**	**VISUAL AIDS**	**IEP**
A1 A2 & A3	At first, they could not easily move in class like going out and coming in, having access to objects they desired because the space was chocked-up and made access in and out more complicated. They later on gained the capacity to do so with little or no help thanks to the fact that the class has been well structured with images and pictures of items that they could desire at any moment and is now void of obstacles that can obstruct movements as well. This showed an improvement in mental performance.	In the beginning, basic communication like asking for desired items like water, cup, fruits like apple, orange, mangoes, pear, paw-paw and banana also including food was generally very difficult due to deficit in verbal communication. After keeping the pictures of all these items in his environment and subsequently drilling and modelling them on how to use these cards to ask for what he wants, they later on developed the autonomy to use pictures of items around him to request for the desired items with less difficulties showing that mental performance has improved.	All of them at first had difficulties in sorting and arranging mixed alphabet letters on an alphabet chat alone. After making and individual educational plan based on this particular activity with consistent repeated drilling, they ended up gaining the autonomy to be able to recognize various alphabet letters mixed and kept in another room to come an fit them in their respective positions on an alphabet chart kept in another room, this with little or no help from the entourage showing that mental performance had been improved upon.
B1	At first, they all faced a lot of difficulties	In the beginning, basic communication like asking	They earlier had some difficulties in sorting and

B2 & B3	moving in class like going out and coming in, having access to objects he desired because the space was chocked-up and made access in and out more complicated. They later on gained relative autonomy to do so with little to no help thanks to the fact that the class has been well structured with images and pictures of items that each could desire at any moment and is now void of obstacles that can obstruct movements as well. This showed that mental performance had been improved upon.	for desired items like water, cup, fruits like apple, orange, mangoes, pear, paw-paw and banana also including food generally was very difficult because of the absence of verbal communication. After keeping the pictures of all these items in his environment and subsequently drilling and modelling each of them on how to use these cards and gestures to ask for what they wanted, they, later on, developed the autonomy to use pictures of items around him to request for the desired items with though still with some assistance from the entourage. This showed an improvement in mental performance.	arranging mixed alphabet letters on an alphabet chat alone. After making and individual educational plan based on this particular activity with consistent repeated drilling, each of them ended up gaining relative autonomy to be able to recognize various alphabet letters mixed and kept in another room to come an fit them in their respective positions on an alphabet chart kept in another room, this with constant help from the entourage. This means that their mental performance was probably improved upon.
C1 C2 & C3	At first, these children faced a lot of difficulties moving in class like going out and coming in, having access to objects they all desired because the space was chocked-up and made access in and	In the beginning, basic communication like asking for desired items like water, cup, fruits like apple, oranges, mangoes, pears, paw-paws and bananas also including food generally very difficult because of the absence of verbal	Earlier, theyall had too many difficulties in sorting and arranging mixed alphabet letters on an alphabet chat alone. After making and individual educational plan based on this particular activity with

	out more complicated. They later on gained relative autonomy to do so with little no help thanks to the fact that the class has been well structured with images and pictures of items that he could desire at any moment and is now void of obstacles that can obstruct movements as well.	communication. After keeping the pictures of all these items in their environment and subsequently drilling and modelling them on how to use these cards and gestures to ask for what he wants, they later on developed the capacity to use pictures of items around him to request for the desired items with though still with some assistance from the entourage, showing an improvement in mental performance.	consistent repeated drilling, they ended up gaining a bit autonomy to be able to recognise some alphabet letters mixed and kept in another room to come an fit them in their respective positions on an alphabet chart kept in another room. To do this, they all needed side by side assistance and took too much time to realize the task as compared to A and B.

=A1 represents junior who have mild autism spectrum disorder

=B2 represents princess who have moderate autism spectrum disorder

=C3 represents Emmanuel who have severe autism spectrum disorder

With the Picture Exchange Communication System (PECS) we used structured instructional system that facilitates communication through the exchange of graphic picture symbols. I observed that the children A1, B2 and C3(junior, princess and Emmanuel) gradually gained relative autonomy and could struggle to ask for what they want using pictures of those items showing that all of them had an improvement in mental performance. The pictures are kept on a PECS board. Instruction begins with teaching the child to exchange a picture symbol for a desired object in the immediate vicinity, and then progresses to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next the child learns to recognize the symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, the child is taught to respond to direct questions (e.g., what do you want?) using the picture symbols. PECS is appropriate for people of all ages with a wide range of

learning difficulties. Though originally developed for pre-school children with autism, PECS can be successfully used with adults and children with a range of communication difficulties. PECS can be successfully implemented by family members or professionals. It does not require expensive or complex equipment and overcomes disadvantages found with signing and other picture-based augmentative communication systems that is why I used popular items in the immediate environment like banana, apple, cup, shoes dresses and cup.

The implementation of PECS requires that the teaching learning environment should be well structured with teaching aids which are real and concrete with visual schedules. The gain in autonomy observed as explained above shows that PECS is of great importance on the improvement of mental performance in autistic children.

It should be noted that application of the three pedagogical approaches TEACCH, ABA and PECS, we assisted the children either in front, behind or besides. Assistance from behind entails a child is given a task to perform. He does it alone and if errors are made, the teacher now comes in to correct. For example you ask a child to button up his shirt and allow him to do it alone. If he does not button the shirt well, you now come in to show him how to button his shirt. For assistance in front, the teacher or the career performs the task or activity first and the child observes. Later on, the child is asked to perform the task the way he saw the teacher doing it. Take for instance the case of buttoning a shirt. The teacher first of all buttons the shirt while the child observes, the child is then asked to do the buttoning himself following what he observed and the tutor comes in to correct where need be. As for assistance by the side, the child performs the task simultaneously with the teacher. With the example of shirt buttoning, the teacher and the child do the buttoning at the same time while the teacher corrects the child.

-Teachers' pupils' relationship

In regards to this, we gather information through the interview guide as the teacher uses different teaching methods like TEACCH, ABA and PECS. Through these teaching and implementation of the methods helps to affirm the teacher's pupil relationship through TEACCH in a class of 12pupil, about 6 pupils were able to interact during lessons and 4pupil were somehow distracted. The sub1 of theme1 which is helpful to the child's memory and procession of information through the activities carry out in subtheme2 which is visual aid. Visual aids help in communication interaction during class lessons and whatever subject in being thought being it mathematics or English lessons. Also, the pupil teacher's relationship is being strengthen in the daily routine activities like folding of hands after taking their snacks

circle time sing particular songs which these children find fun while doing so and this activity helps to calm children with autism spectrum disorder especially when they are hyperactive. Since the teacher has a good mastering of the pupil and also their area of special needs these pupils are moreorless more interesting in learning and carrying out learning activities with the teacher.

More so, as ABA is concerned, the theme of the observation guide, helps to improve behavioural problems like attention activities which is subtheme2 beats activities peaking of beans that is mixed (black and white beans). Also, individual educational plan sub3 is a chain work of teacher parent therapist and psychologist. The child's improvement can be tasted through evaluation. PECS is also one of the teaching methods used by the teacher to build and improve on the pupil's mental performance theme3. The sub1 of theme 3 explains how the teacher uses pictures to teach the pupil and easy adaptations through the classroom settling and also help the pupil to gain focus. By so doing most of the pupils are more adapted to their teacher and more obedient when an instruction is given and this helps to strengthen the teacher-pupil relationship as the more these pupils carry out particular learning activities, the more adapted they become more adapted and correlated to each other.

Here, we interpret the study results according to the interview guide.

5.2.2 -Teachers

-Data analysis of theme1 TEACCH

The interview guide states that the TEACCH teaching approach determines the acquisition of autonomy by autistic children. This method is supported by the social constructivist theory of Vygotsky which stipulates that learning does not only take place naturally, but also through the intermediary of environmental factors. According to this theory, social interaction, the Zone of Proximal Development (ZEP) and More Knowledge Order (MKO) facilitate knowledge acquisition. The children gradually gained relative autonomy to eat, go to the toilet and wear their shirts and button it. We can therefore confirm that TEACCH teaching approach determines the acquisition of autonomy in autistic children. This is also seen in the works of Ozonoff (1998) on the importance of the TEACCH teaching approach.This structured teaching method. Viewing it as effective educational interventions for young children with autism disorders, I think that the age of the learners should play a role in how the environment is set up because children need an environment that has play and snack areas, spaces for individual work, as well as, an area to develop their self-help skills older children need an environment

that encourages social interaction with peers, individual and whole group instruction, and areas to develop vocational skills, and places where they can pursue their specific interests.
A one-on-one instruction and independent work areas located in parts of the room that are visually secluded from the rest of the room; especially when working with kids who are easily distracted is also good. I also found that the nearness children's work area to the required materials makes the materials easily accessible. Because visual skills tend to be more advanced than verbal skills among children with autism, instructions should often be presented in pictures rather than spoken words. The labeling of certain items in the classroom such as the computer, desk, independent work stations, bathrooms, play areas, and where to sit at lunch also helps.

I did more of a modified TEACCH model and also contextualized it. TEACCH model is really beneficial to any child, not just to an autistic child. Because it's highly structured, and it's very visual, the room is set up in a certain way. It's set up into areas, like a work area and a play area and an eating area. And the children are not allowed to just freely roam about the room going wherever they please. They are directed to certain areas at certain times, everyone even at the end has their own independent work station. And it is very visual, and the whole concept is that as quickly as possible they need to work independently so as to encourage autonomy. This makes them work from left to right or top to bottom, and the teacher do not do a lot of talking. You do more pointing and tapping, but you do not say a lot because they don't respond to the language. This shows the TEACCH teaching approach play an important role in the acquisition of autonomy in autistic children therefore confirming the first hypothesis.

TEACCH is dedicated to improving the understanding and services available for all children and adults with autism and related communication disorders. TEACCH provides diagnostic evaluations, individualized curriculum, social skills training, vocational training, and parent counselling and training. The structured classroom teaching approach is one frequently replicated component of TEACCH. This structured teaching approach involves setting up the classroom so that students know where to be, what to do, and how to do it-all as independently as possible.

Also**,** this interview guide states that the ABA teaching approach facilitates the acquisition of autonomy by autistic children. This hypothesis is explained by the behaviourist theory. According to this theory, an individual's behaviour is modified by its antecedents and consequences. According to this theory, learning occurs through rewards and punishment for behaviour. Mechanisms of instrumental conditioning suggest that the behaviour may change

in form, frequency, or strength. Operant behaviour operates on the environment and is maintained by conditioning of reflexive (reflex) behaviours which are also elicited by antecedent conditions, while classical conditioning is maintained by its antecedents and consequences. The results obtained from the use of ABA on table 11 show a gradual gain of autonomy by the three categories of participants. We can then confirm the second Hypothesis which states that the ABA teaching approach facilitates mental performance in autistic children.

One of the major intervention approach used in intervention for children with autism disorders to gain autonomy is Applied Behaviour Analysis. All Study participants showed gradually gained some autonomy like eating alone, going to the toilette alone and many others from the application of ABA with DTT. For these children ABA with DTT was used in one-to-one instruction with reinforces to develop beginning imitation skills and engagement as prerequisites for other learning activities. I did try to work one-on-one. It is not every child every day. This was done with a lot of reinforcers. With ABA if they do a skill they get a reinforcer. Some of them were working on sorting and matching fruits, eating with a fork, taking a bottle of water and opening it alone, using the toilette and wearing of shoes alone. With the ones who are more autistic (deep MR), we were just working on attending and interacting in some way. If it is tickling, if it is just babbling and I babble back to them. This was done typically with those who were very, very severely autistic. I perceived ABA with DTT to be helpful with such children in developing joint attention and simple imitation skills as a foundation for mastering more complex skills. This shows that ABA contributes greatly in the acquisition of autonomy in autistic children thereby confirming the second hypothesis.

Theme2

More so, as ABA is concerned, the theme of the observation guide, helps to improve behavioural problems like attention activities which is subtheme2 beats activities peaking of beans that is mixed (black and white beans). Also, individual educational plan sub3 is a chain work of teacher parent therapist and psychologist. The child's improvement can be tasted through evaluation. PECS is also one of the teaching methods used by the teacher to build and improve on the pupil's mental performance theme3. The sub1 of theme 3 explains how the teacher uses pictures to teach the pupil and easy adaptations through the classroom settling and also help the pupil to gain focus. By so doing most of the pupils are more adapted to their teacher and more obedient when an instruction is given and this helps to strengthen the teacher-

pupil relationship as the more these pupils carry out particular learning activities, the more adapted they become more adapted and correlated to each other.

Theme3

More so, this observation guide states that the PECS teaching approach enhances the acquisition of knowledge and improve on the learning skills of these children. This methodis supported by the Constructivist Theory which views the mind as a dynamic set of cognitive structures (schemas) that are used to help humans make sense of what they perceive. The theory states that people acquire knowledge by experiencing things and in conjunction with knowledge that they already possess, *construct*his own understanding of these things. The theory is based on the belief that the child, at first directly assimilating the external environment to his own activity, later, to extend this assimilation, forms an increasing number of schemata which are both more mobile and better able to Interco ordinate. It suggests that we never learn anything from scratch, but rather that new information that we acquire builds on knowledge that we already have, and this constructs a new, broader understanding of the world around us. This constructivist view of learning considers the mentally retarded learner as an active agent in the process of knowledge acquisition. Study results on table 12on the usage of the PECS teaching approaching shows that all the children gradually gained relative autonomy to exchange pictures for the items that they want and also express their desires. We can therefore confirm the third Hypothesis which states that the PECS teaching approach enhances the acquisition of autonomy by autistic children. With the Picture Exchange Communication System (PECS) I used structured instructional system that facilitates communication through the exchange of graphic picture symbols. I observed that the children (A, B and C) gradually gained relative autonomy leading to increase mental performance

The pictures are kept on a PECS board. Instruction begins with teaching the child to exchange a picture symbol for a desired object in the immediate vicinity, and then progresses to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next the child learns to recognize the *I want* symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, the child is taught to respond to direct questions (e.g., *what do you want?)* using the picture symbols. PECS is appropriate for people of all ages with a wide range of learning difficulties. PECS can be successfully used with adults and children with a range of communication difficulties. PECS can be successfully implemented

by family members or professionals. It does not require expensive or complex equipment and overcomes disadvantages found with signing and other picture-based augmentative communication systems that is why I used popular items in the immediate environment like banana, apple, cup, shoes dresses and cup. The implementation of PECS requires that the teaching learning environment should be well structured with teaching aids which are real and concrete with visual schedules. The gain in autonomy observed as explained above shows that PECS is of great importance on the acquisition of autonomy in autistic children therefore confirming the third research hypothesis.

-A visual schedule helps provides predictability for a mentally retarded child with Autism and also helps in transition effectively throughout the day. Visual schedules are used in many ways both in the special classroom and within the home. Visual schedules promote independence in the classroom for a child with Autism. This is a crucial skill for a child to learn, especially if they are to be integrated into a mainstream classroom. Visual aids are a promising educational strategy to support and foster the cognitive development of mentally retarded children with autism. Visual schedules improve the likelihood that a child with Autism will stay on track with a specific task leading to increase mental performance.

Emphasis is placed on developing individual plans to help people with autism and their families to live together more effectively by reducing or replacing autism related behaviours that interfere with independence and quality of life. The physical layout of the classroom is arranged in a way that avoids distractions. Materials are clearly marked and arranged. Individual needs of learners are considered when planning the physical structure on the classroom as well as the instructional lessons. Schedules are a must! Individuals with mental retardation and autism typically have difficulties with sequential memory and organization of time. Class and individual schedules help to overcome such difficulties. Prompts and reinforcements are used in an organized, systematic matter to build success Directions are given both verbally and with alternative forms such as written, PECS, or gestures. The focus of teaching is on strengths while remediating difficulties Individuals with mental retardation are prepared to live and work more effectively at home, at school, and in the community.

The notion of this method is supported by the Behaviourist and the Social Learning Theory which states that people can learn new information and behaviours by watching other people. This theory is based on the idea that we learn from our interactions with others in a social context. Separately, by observing the behaviours of others, people develop similar behaviours.

After observing the behaviour of others, people assimilate and imitate that behaviour, especially if their observational experiences are positive ones or include rewards related to the observed behaviour. Insofar as exposure to new influential, powerful models that control resources may occur at life stage, new learning through the modeling process is always possible. It poises that people learn from one another, via; Observation, Imitation, and Modelling. People who are being observed are called *models* hence teachers of mentally retarded children ought to be role models and the process of learning is called modelling. The results obtained from the use of modelling on table 13 shows a gradual gain of autonomy by the three categories of participants. We can then confirm our forth research hypothesis states that modelling promotes the acquisition of autonomy by autistic children.

The three children (Princess Emmanuel and junior) studied were seen to have gradually acquired some autonomy probably thanks to modelling, priming and role play. Priming involves providing a child with prompts, cues, and opportunities to practice target behaviour immediately before it must be performed. During priming a teacher models behaviour for the child and gives verbal cues or prompts about how to perform that behaviour. Modelling and prompting may be followed by opportunities to role play or act out expected behaviour for various social situations. Adult modelling and priming were also combined with reinforcement of appropriate responses. The use of priming with adult modelling and role play proved to be effective in facilitating communication and social skills in autistic children at all ages. We also found adult-mediated interventions easy to implement in the child's everyday classroom environment in combination with naturalistic, incidental teaching methods. The use of incidental teaching around a play table to facilitate social interaction with peers as it prompts children to share is strictly implemented thereby helping them learn to share independently.

Imitation and behaviour modelling will occur if a person observes positive desired outcomes in the first stage. If, for example, specialized instructors via their training programs understand the behaviour and general characteristics of mentally retarded children, via the appropriate behaviour they can change the behaviour of these children through modelling. Children can watch parents eat, pupils can watch the demonstrations of buttoning up a shirt, or seen someone acting or drinking water and imitate doing the action. From this view, moral thinking and moral behaviour are influenced by observation and modelling. In consequence, learning includes moral judgments regarding right and wrong which can in part develop through modelling. This simply means that in a well-structured teaching environment taking care of mentally retarded

children, the presence of models will greatly influence the socio-cognitive development of mentally retarded children and enhance mental performance.

The elements of effective observational learning are attention, retention, reciprocation and motivation. The three basic models of observational learning:

- A live model, which involves an actual individual demonstrating or acting out a behavior.
- A verbal instructional model, which involves descriptions and explanations of a behavior.
- A symbolic model, which involves real or fictional characters displaying behaviors in books, films, television programs, or online media.

Madam Sammy with visual aid. Her Interaction and communication is made easier through visual aid, It helps the children to be more active and facilitates communication Leaner learn faster when I use pictures. Daily routines folding of arms in the morning and after taking their snacks Methods Differential that is based on the need of the child Physical environment Awareness on mobility and activities in different settings. Attention Uses calming strategies like finger writing and offers them their best toys Method Helps to work out the child's behavior and improve their learning aspects Individual learning plan Getting an objective and making sure it is achieved Getting an objective and making sure it is achieved Motivation It encourages hard work which makes learning more flexible. For classroom setting, of PECS? It is set according to their level of understanding response to class lessons Get an objective and make sure it is attained and helps to attain day-to-day activities as planned

Mr. John daily routine Interaction and communication is made easier through visual aid. leaner learn faster when I use pictures Daily routines Greetings Storytelling Methods Differential that is based on the need of the child Physical environment The cinema room helps to calm the children and also helps them to focus. Through flattering words like “good boy” and “good girl” Improves behavior problems like hyperactive problem. Works together with teacher parent and therapist Helps pupils to be very active during class lessons more focus to earn a gift

Concerning this research which was done at PROMHANDICAM as seen above the various activities were carried out with different learning methods. It should be noted that application of the three pedagogical approaches TEACCH, ABA and PECS, Assistance from behind entails a child being given a task to perform. He does it alone and if errors are made, the teacher

now comes in to correct them. For example, you ask a child to button up his shirt and allow him to do it alone. If he does not button the shirt well, you now come in to show him how to button his shirt. For assistance in front, the teacher or the career performs the task or activity first and the child observes. Later on, the child is asked to perform the task the way he saw the teacher doing it. Take for instance the case of buttoning a shirt. The teacher first buttons the shirt while the child observes, the child is then asked to do the buttoning himself following what he observed and the tutor comes in to correct where need be. As for assistance from the side, the child performs the task simultaneously with the teacher. With the example of shirt buttoning, the teacher and the child do the buttoning at the same time while the teacher corrects the child.

5.3 analysis of teachers according to interview guide

5.3.1 Analysis of Madam Sammy

Theme1: TEACCH

As far as this method is concern, the teacher uses the different indicators like visual aids, daily routine and the physical environment. Visual aids they in the beginning could not easily understand and perform tasks because illustrations were abstract. With the usage of real teaching materials like alphabet chart apple, plates cups and others, they now understood and executed tasks easily with little or no difficulties portraying an improve mental performance. At the beginning, they had too much difficulty in understanding and performing almost all tasks because illustrations were abstract. With the usage of real teaching materials like alphabet chart apple, plates cups and others, they now understood and executed tasks though still with difficulties and was therefore aided to perform the task.

-Physical environment

All the children could not easily move in class like going out and coming in at first, but later on started to do so with little or no help thanks to the fact that the class has been well structured and is now void of obstacles that can obstruct movements In the beginning, each of them had too much difficulties to move in class like going out and coming in. They later on gained a bit of autonomy to do so with help from the teacher thanks to the fact that the class has been well structured and is now void of obstacles that can obstruct movements. This showed an improvement in mental performance.

-Daily routine

When the children arrived school in the morning, had challenges in greeting friends and the teacher, going to their respective seats, performing tasks, eating and playing. With repetition and guide from the entourage, they could do these things with fewer difficulties showing that the mental performance had improved. With these challenges in greeting friends and the teacher, going to their respective seats, performing tasks, eating and playing. But when these activities are carried out daily that is performing task like greeting their teachers and peers, putting their bags where it ought to be, folding of arms after launch, going to the toilet at 11:00 am daily. With the frequent repetition of these activities have helped many children in the center have create that awareness that even the teacher forgets they will remind the teacher of their activities.

Theme2: ABA

Applied Behaviour Analysis (ABA) With Discrete Trial Training (DTT) is one of the major pedagogic approach used in intervention for children with autism disorders to improve their mental performance. The indicators here are: attention, communication skills and individual education plan. This method ABA is used helps to reduce appropriate behavior and in increasing communication, learning, and appropriate behavior. For according to Lovaas and his colleagues at the university of California, calls for intensive concern for the one-on-one child-teacher interaction. By so doing, when this method is applied this way, its lays the foundation for effective early interventions to help those with ASD and other special needs to attain their potentials and to reinforce desirable behavior and reduce the undesirable ones.

-Communication skills.

Improves verbal and nonverbal communication, including speech production and understanding.

-Social skills. Enhances social interactions amongst peers and child-teacher interaction. Joint attention amongst children-teacher, and appropriate social behavior.

-Academic performance. Increases academic skills such as; reading, writing, memorization of given classroom slogans and effective solving of mathematical solutions.

-Adaptive skills. Improves day to day living skills such as self-care, daily living activities and involvement into school activities like manual labor and other extra sportive activities like volleyball basketball football, handball and gymnastic

-changing behavior. Reduction of maladaptive behavior such as tantrums (violent demonstration of rage), aggression, self-injury (like you can find some children with special needs with wounds especially on the hands and finger which this can come as a result of when some of these children with special needs are angered and the bite themselves when some are in a situation where they can react they will bite themselves and when some of them.

-Attention

Gaining the attention of children with special needs require different strategies like; Engage the children into their preferred activities they enjoy, such as playing tools and listening to their preferred music, be patient and persistent it may take multiple attempts to gain the child with special needs attention by trying many other strategies like calling them with sweet names, offer them, gift, take them to the pool and make fulfilling promises and make sure to meet up with your promises. By so doing remember that every child is not the same for what works for a child may not work for another child for they are unique. By so doing making them involve into different their individual activities which can help gain effective attention and make communication and learning easy for these children. Also, activities that takes their attentions and motivate focus such as beats arrangements, peaking of beans that is mixed with other beans with different colors.

Individual educational plan

IEP is a program designed for children with special needs to help them get the most out of their education. For this tool is an educational teams can improve the learning of each child in partnership with the parents and/or caregiver The individual educational plan provide information to the teacher and those who work with the child(including parents) about the child's specific learning goals and how these will be achieve.

Also, the IEP allows teachers to develop a plan of action for the child and to identify the people who needs to be involved in making it happen. Thereby making it a progressive tool for effectiveness. The objective is put in place and observation and evaluation is done every after a month to make sure the objective is attained at the end. From the beginning, when the child just arrives the center, the child is given simple task to carryout and as time goes on the task keep progressing and objective is being attain gradually and it is done without pressure. Hence, the goal and task should not be too difficult to child like the child will be discouraged. The goal

and task should not be too easy either like the child may not be motivated enough. If the child quickly achieves the goals you have set, you can break them down into smaller steps.

We always have a new goal and task after each quarter. This helps us to review the previous quarter goal and task while setting another. The child's goals and achieved task are kept in a folder and a copy is given to the parents and school administrative office in a folder as the child's school carrier achieves with the child's name. By so doing these folders helps to determine the improvements of the child's academics and also to know the effectiveness of the teaching method used on the child.

The IEP is a working document that should be reviewed on a regular basis (once or twice in a quarter) but I prefer to review twice in a quarter for the children since it as a tool of motivation to the teacher as she observes it's in progress to the children. When observing the individual educational plan the teachers focal point should be consider like; the child's progress towards agreed-upon goal, see if there's progress that is positive or negative. After reviewing the child's current progress, new goals to be achieved by the next IEP review should be agreed upon with the classroom teacher.

Theme3: PECS

Picture exchange communication system is a form of argumentative and alternative communication (ACC) that uses picture to represent words and concepts. PECS is a six-phase system that teaches children to; initiate communication that is the child learns to approach a communication partner and present a picture of what they want.as the teacher uses the pictures to teach the children simple pictures like banana, pineapples apples, oranges dress shoes and many other easily identified images that are either alphabetically organized to make learning effective and more easy.

-Communication boards that is boards with pictures or symbols arranged on a grid allowing children to select and combine pictures to form a message. Communication book that's books with pictures filled with pictures or symbols organized with different pictures. Picture cards that is single pictures representing specific objects, actions or concept. Audio books that sings alphabet and name of picture when touched. Toy computers as well. Sentence starter and cards with first few words of common phrases or sentence helping children initiate communication an also a box filled with different toys in different colors where these children are asked to pick out different toys depending on the toy requested.

5.3.2 Teacher Mr. John

Theme1: TEACCH

Treatment and education of autistic and related handicapped children is a method that is used to meet the needs of children with special needs which by so doing they can be improved and become independent. This method is mostly used on children with autism spectrum disorder and other disabilities. The early intervention of this method on a child with special needs will help to in re-adaptation especially to their environment and wherever they find themselves. in the educational milieu, with the use of this method its helps the children to easily adapt in their learning environment and in the different settings as for example classroom settings is different from the pool setting as well as the football field setting. This makes these children to be aware of the different activities that are being carried out at these different milieus at given time.

The different ways in which these children with special needs are responsive to this method is that, during lessons, like the classroom lessons they are more active and their level of activeness in class keeps developing and those that are left behind through the active natures of others the less active children put in effort to participate in classroom activities. During interrogations and respond lessons some of these children will raise up their hands even when they don`t know the right answer and they are mostly find fun doing all these activities.

also these children are responsive to this method during understanding and respond lessons like when they are taken to the learning environment of the cinema room after watching a clip of a story-line and they are interrogated and each persons that give an accurate respond is permitted to go back to the classroom by so doing it will push some of these children to be able to be focus so that they can learn some from the story-line so that they should not be left out during interrogations.

-Visual aids

Visual aids can be used in different settling and context to help children with special needs learn effectively. Visual aids helps to draw attention during classroom instruction as well as reinforce learning out of classroom. visual aids also works for all age and learning levels that is visual aids can be adaptable for age age group because they can be presented in many different ways depending on the child`s ability level and needs at that moment in time. Using visual aids such as flashcards or posters, gives children with special needs the opportunity to be independent learner by helping them practice new skills independently? This build their

self-confidence and encourage further independence in other areas of life as well so by visual aids is used every day for adaptation purpose

- Physical environment

Physical environment is the overall design and layout of given different learning centers. The different learning settings here are the classroom where lessons are being carried out. Playground is main for playing, socialization and interactions with their peers. The swimming pool is meant for swimming and calming of children especially those with autism spectrum disorder who are hyper reactive. The cinema class is meant for stories telling interrogations and interpretations of the story-lines. The setting of these physical environment helps these children with special needs create the awareness of the different activities carried out in these different physical environments.

The different elements found in these physical environments are the pool-site which contain the swimming pool side-chairs and cleansing shower. Cinema room contain a television, chairs, tables' speakers and a decoder. Classroom which contains a blackboard, benches, tables, cupboards, lockers, chairs and chalk. The playground contain skip ropes, slide pooling, slide playing rope, balls, bill roles, stair cases, swig, the setting of the physical environment helps them to be aware of the different activities carried out in the different settings and also made them to be aware of the different activities based on the different instruments available in these settings.The playground is inclusive in that, it contain playing tolls and other equipment that are both for children with special needs and others ad this playground is for socialization and interaction for all the children as well as interaction with peers.

-The swimming pool is for swimming its inclusiveness is that while every child swims in it for pleasure and leisure, its use as a medium to calm children with autism spectrum disorders that are hyper reactive and to attain a level of calmness

-The classroom inclusiveness is that it contain chairs of different forms chairs meant for children with weak bones that are well confined at their convenience also the classroom contain tolls for different functions molding clay which is use for focus for children with autism spectrum disorder even weak bones. The classroom also contain braille tablet, which is used children with visual impairment.

Theme2: ABA

This method ABA is used helps to reduce appropriate behavior and in increasing communication, learning, and appropriate behavior. For according to Lovaas and his colleagues at the university of California, calls for intensive concern for the one-on-one child-teacher interaction. By so doing, when this method is applied this way, its lays the foundation for effective early interventions to help those with ASD and other special needs to attain their potentials and to reinforce desirable behavior and reduce the undesirable ones.

Also, looking at the consequence of a child`s behavior, we uses ABA to develop strategies that helps Children to build behavioral skills and other behavioral principles like those of Watson that is help children with special needs and other developmental disorders to learn behavior that will help them live more fulfilling life independently. The use of ABA is based on behavioral intervention and it contribute to steady intelligence and communication in children with special needs. Applied Behavioral Approach is also use to manage and treat the symptoms of autism in children with autism spectrum disorder and their cognitive developmental conditions including obsessive compulsive disorder by so doing its helps to improve learning abilities increase the child`s abilities to focus and also enhance communication skills.

Applied behavioral approach focuses on breaking down complex behavior into smaller, more manageable steps. By using a system of rewards and consequences, therapists guide children through steps, shaping their behavior through desired outcomes through positive reinforcement (that is, rewarding desired behaviors with tangible items, praise) and negative punishment (that is removal of reinforcing stimuli or introduction of mild consequence for inappropriate behaviors).

More so, to make sure this approach is effectively applied on these children with special needs so that the effectiveness of this method can be seen in them when there is that chain work between the different settings where these children finds themselves like at home (parents and caregivers are trained to implement ABA technique in their daily interactions), school (teachers and special education professionals may use ABA principles within the classroom) and therapy centers (ABA therapist work directly with the children in a structured and controlled environment).

Furthermore, the effectiveness of ABA in children with special needs can be seen through the improvement in their various aspects of behavior and functioning like;

-Social skills.

Enhances social interactions amongst peers and child-teacher interaction. Joint attention amongst children-teacher, and appropriate social behavior.

-Academic performance. Increases academic skills such as; reading, writing, memorization of given classroom slogans and effective solving of mathematical solutions.

-Adaptive skills. Improves day to day living skills such as self-care, daily living activities and involvement into school activities like manual labor and other extra sportive activities like volleyball basketball football, handball and gymnastic

-changing behavior. Reduction of maladaptive behavior such as tantrums (violent demonstration of rage), aggression, self-injury (like you can find some children with special needs with wounds especially on the hands and finger which this can come as a result of when some of these children with special needs are angered and the bite themselves when some are in a situation where they can react they will bite themselves and when some of them.

Sub2: Attention

Gaining the attention of children with special needs require different strategies like; Engage the children into their preferred activities they enjoy, such as playing tools and listening to their preferred music, be patient and persistent it may take multiple attempts to gain the child with special needs attention by trying many other strategies like calling them with sweet names, offer them, gift, take them to the pool and make fulfilling promises and make sure to meet up with your promises. By so doing remember that every child is not the same for what works for a child may not work for another child for they are unique. By so doing making them involve into different their individual activities which can help gain effective attention and make communication and learning easy for these children. Also, activities that takes their attentions and motivate focus such as beats arrangements, peaking of beans that is mixed with other beans with different colors.

Sub3 individual educational plan

IEP allows teachers to develop a plan of action for the child and to identify the people who needs to be involved in making it happen. Thereby making it a progressive tool for effectiveness. The objective is put in place and observation and evaluation is done every after a month to make sure the objective is attained at the end. From the beginning, when the child just arrives the center, the child is given simple task to carryout and as time goes on the task

keep progressing and objective is being attain gradually and it is done without pressure. Hence, the goal and task should not be too difficult to child like the child will be discouraged. The goal and task should not be too easy either like the child may not be motivated enough. If the child quickly achieves the goals you have set, you can break them down into smaller steps.

We always have a new goal and task after each quarter. This helps us to review the previous quarter goal and task while setting another. The child's goals and achieved task are kept in a folder and a copy is given to the parents and school administrative office in a folder as the child's school carrier achieves with the child's name. By so doing these folders helps to determine the improvements of the child's academics and also to know the effectiveness of the teaching method used on the child.

The IEP is a working document that should be reviewed on a regular basis (once or twice in a quarter) but I prefer to review twice in a quarter for the children since it as a tool of motivation to the teacher as she observes it's in progress to the children. When observing the individual educational plan the teachers focal point should be consider like; the child's progress towards agreed-upon goal, see if there's progress that is positive or negative. After reviewing the child's current progress, new goals to be achieved by the next IEP review should be agreed upon with the classroom teacher.

CHAPTER SIX:

INTERPRETATION OF RESULTS, DISCUSSION AND SUGGESTIONS

This study investigated pedagogical approaches and the improvement of mental performance in autistic children. The problem of this research is that of challenges faced by autistic children in improving mental performance. The principal research question was: How do pedagogical approaches enhance the improvement of mental performance in autistic children? The following secondary or specific research questions guided the study: Does the ABA pedagogical approach facilitate the improvement of mental performance in autistic children? Does the TEACCH pedagogical approach facilitate the improvement of mental performance in autistic children? Does the PECS pedagogical approach facilitate the improvement of mental performance in autistic children?

The main hypothesis that guided this study was: Pedagogical approaches facilitate the improvement of mental performance in autistic children via TEACCH, ABA, PECS. The following specific hypothesis guided the study: The ABA pedagogical approach facilitates the improvement of mental performance in autistic children. The TEACCH pedagogical approach facilitates the improvement of mental performance in autistic children. The PECS pedagogical

6.1-Intepretaton of results according to theme of study

Here, we interpret the study results according to the various study hypothesis as below.

6.1.2 Interpretation of results theme 1

The first research hypothesis states that the ABA teaching approach facilitates the acquisition of autonomy by autistic children. This hypothesis is explained by the behaviourist theory. According to this theory, an individual's behaviour is modified by its antecedents and consequences. According to this theory, learning occurs through rewards and punishment for behaviour. Mechanisms of instrumental conditioning suggest that the behaviour may change in form, frequency, or strength. Operant behaviour operates on the environment and is maintained by conditioning of reflexive (reflex) behaviours which are also elicited by antecedent conditions, while classical conditioning is maintained by its antecedents and consequences. The results obtained from the use of ABA on table 11 show a gradual gain of autonomy by the three categories of participants. We can then confirm the second Hypothesis which states that the ABA teaching approach facilitates mental performance in autistic children.

One of the major intervention approach used in intervention for children with autism disorders to gain autonomy is Applied Behaviour Analysis. All Study participants (A, B and C) showed gradually gained some autonomy like eating alone, going to the toilette alone and many others

from the application of ABA with DTT. For these children ABA with DTT was used in one-to-one instruction with reinforcers to develop beginning imitation skills and engagement as prerequisites for other learning activities. I did try to work one-on-one. It is not every child every day. This was done with a lot of reinforcers. With ABA if they do a skill they get a reinforcer. Some of them were working on sorting and matching fruits, eating with a fork, taking a bottle of water and opening it alone, using the toilette and wearing of shoes alone. With the ones who are more autistic (deep MR), we were just working on attending and interacting in some way. If it is tickling, if it is just babbling and I babble back to them. This was done typically with those who were very, very severely autistic. I perceived ABA with DTT to be helpful with such children in developing joint attention and simple imitation skills as a foundation for mastering more complex skills. This shows that ABA contributes greatly in the acquisition of autonomy in autistic children thereby confirming the second hypothesis.

6.1.2-Interpretation of results according theme2

Our third research hypothesis states that the PECS teaching approach enhances the acquisition of autonomy by autistic children. This hypothesis is supported by the Constructivist Theory which views the mind as a dynamic set of cognitive structures (schemas) that are used to help humans make sense of what they perceive. The theory states that people acquire knowledge by experiencing things and in conjunction with knowledge that they already possess, *construct*his own understanding of these things. The theory is based on the belief that the child, at first directly assimilating the external environment to his own activity, later, to extend this assimilation, forms an increasing number of schemata which are both more mobile and better able to Interco ordinate. It suggests that we never learn anything from scratch, but rather that new information that we acquire builds on knowledge that we already have, and this constructs a new, broader understanding of the world around us. This constructivist view of learning considers the mentally retarded learner as an active agent in the process of knowledge acquisition.Study results on table 12on the usage of the PECS teaching approaching shows that both A, B and C gradually gained relative autonomy to exchange pictures for the items that they want and also express their desires. We can therefore confirm the third Hypothesis which states that the PECS teaching approach enhances the acquisition of autonomy by autistic children. With the Picture Exchange Communication System (PECS) I used structured instructional system that facilitates communication through the exchange of graphic picture symbols. I observed that the children (A, B and C) gradually gained relative autonomy leading to increase mental performance

The pictures are kept on a PECS board. Instruction begins with teaching the child to exchange a picture symbol for a desired object in the immediate vicinity, and then progresses to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next the child learns to recognize the *I want* symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, the child is taught to respond to direct questions (e.g., *what do you want?)* using the picture symbols. PECS is appropriate for people of all ages with a wide range of learning difficulties. PECS can be successfully used with adults and children with a range of communication difficulties. PECS can be successfully implemented by family members or professionals. It does not require expensive or complex equipment and overcomes disadvantages found with signing and other picture-based augmentative communication systems that is why I used popular items in the immediate environment like banana, apple, cup, shoes dresses and cup. The implementation of PECS requires that the teaching learning environment should be well structured with teaching aids which are real and concrete with visual schedules. The gain in autonomy observed as explained above shows that PECS is of great importance on the acquisition of autonomy in autistic children therefore confirming the third research hypothesis.

A visual schedule helps provides predictability for a mentally retarded child with Autism and also helps in transition effectively throughout the day. Visual schedules are used in many ways both in the special classroom and within the home. Visual schedules promote independence in the classroom for a child with Autism. This is a crucial skill for a child to learn, especially if they are to be integrated into a mainstream classroom. Visual aids are a promising educational strategy to support and foster the cognitive development of mentally retarded children with autism. Visual schedules improve the likelihood that a child with Autism will stay on track with a specific task leading to increase mental performance.

6.1.3-Interpretation of results according to theme3

The third research hypothesis states that the TEACCH teaching approach determines the acquisition of autonomy by autistic children. This hypothesis is supported by the social constructivist theory of Vygotsky which stipulates that learning does not only take place naturally, but also through the intermediary of environmental factors. According to this theory, social interaction, the Zone of Proximal Development (ZEP) and More Knowledge Order (MKO) facilitate knowledge acquisition. Study results on table 10 shows that both A, B and C

gradually gained relative autonomy to eat, go to the toilet and wear their shirts and button it. We can therefore confirm the second Hypothesis which states that the TEACCH teaching approach determines the acquisition of autonomy in autistic children. This is also seen in the works of Yang (2000), Panerai (2000), Ozonoff (1998) and that of Schopler (1994) on the importance of the TEACCH teaching approach.

From the above table it can be seen that Study participants A, B and C generally showed positive response towards to the application of TEACCH and structured teaching method. Viewing it as effective educational interventions for young children with autism disorders, I think that the age of the learners should play a role in how the environment is set up because children need an environment that has play and snack areas, spaces for individual work, as well as, an area to develop their self-help skills older children need an environment that encourages social interaction with peers, individual and whole group instruction, and areas to develop vocational skills, and places where they can pursue their specific interests.

A one-on-one instruction and independent work areas located in parts of the room that are visually secluded from the rest of the room; especially when working with kids who are easily distracted is also good. I also found that the nearness children's work area to the required materials makes the materials easily accessible. Because visual skills tend to be more advanced than verbal skills among children with autism, instructions should often be presented in pictures rather than spoken words. The labeling of certain items in the classroom such as the computer, desk, independent work stations, bathrooms, play areas, and where to sit at lunch also helps.

I did more of a modified TEACCH model and also contextualized it. TEACCH model is really beneficial to any child, not just to an autistic child. Because it's highly structured, and it's very visual, the room is set up in a certain way. It's set up into areas, like a work area and a play area and an eating area. And the children are not allowed to just freely roam about the room going wherever they please. They are directed to certain areas at certain times, everyone even at the end has their own independent work station. And it is very visual, and the whole concept is that as quickly as possible they need to work independently so as to encourage autonomy. This makes them work from left to right or top to bottom, and the teacher do not do a lot of talking. You do more pointing and tapping, but you do not say a lot because they don't respond to the language. This shows the TEACCH teaching approach play an important role in the acquisition of autonomy in autistic children therefore confirming the first hypothesis.

TEACCH is dedicated to improving the understanding and services available for all children and adults with autism and related communication disorders. TEACCH provides diagnostic evaluations, individualized curriculum, social skills training, vocational training, and parent counselling and training. The structured classroom teaching approach is one frequently replicated component of TEACCH. This structured teaching approach involves setting up the classroom so that students know where to be, what to do, and how to do it-all as independently as possible.

Emphasis is placed on developing individual plans to help people with autism and their families to live together more effectively by reducing or replacing autism related behaviours that interfere with independence and quality of life.The physical layout of the classroom is arranged in a way that avoids distractions.Materials are clearly marked and arranged.Individual needs of learners are considered when planning the physical structure on the classroom as well as the instructional lessons. Schedules are a must! Individuals with mental retardation and autism typically have difficulties with sequential memory and organization of time. Class and individual schedules help to overcome such difficulties. Prompts and reinforcements are used in an organized, systematic matter to build success Directions are given both verbally and with alternative forms such as written, PECS, or gestures. The focus of teaching is on strengths while remediating difficulties Individuals with mental retardation are prepared to live and work more effectively at home, at school, and in the community.

The notion of modelling is supported by the Behaviourist and the Social Learning Theory which states that people can learn new information and behaviours by watching other people. This theory is based on the idea that we learn from our interactions with others in a social context. Separately, by observing the behaviours of others, people develop similar behaviours. After observing the behaviour of others, people assimilate and imitate that behaviour, especially if their observational experiences are positive ones or include rewards related to the observed behaviour. Insofar as exposure to new influential, powerful models that control resources may occur at life stage, new learning through the modeling process is always possible. It poises that people learn from one another, via; Observation, Imitation, and Modelling. People who are being observed are called models hence teachers of mentally retarded children ought to be role models and the process of learning is called modelling. The results obtained from the use of modelling on table 13 shows a gradual gain of autonomy by the three categories of participants. We can then confirm our forth research hypothesis states that modelling promotes the acquisition of autonomy by autistic children.

The three groups of children (A, B and C) studied were seen to have gradually acquired some autonomy probably thanks to modelling, priming and role play. Priming involves providing a child with prompts, cues, and opportunities to practice target behaviour immediately before it must be performed. During priming a teacher models behaviour for the child and gives verbal cues or prompts about how to perform that behaviour. Modelling and prompting may be followed by opportunities to role play or act out expected behaviour for various social situations. Adult modelling and priming were also combined with reinforcement of appropriate responses. The use of priming with adult modelling and role play proved to be effective in facilitating communication and social skills in autistic children at all ages. We also found adult-mediated interventions easy to implement in the child's everyday classroom environment in combination with naturalistic, incidental teaching methods. The use of incidental teaching around a play table to facilitate social interaction with peers as it prompts children to share is strictly implemented thereby helping them learn to share independently.

Imitation and behaviour modelling will occur if a person observes positive desired outcomes in the first stage. If, for example, specialized instructors via their training programs understand the behaviour and general characteristics of mentally retarded children, via the appropriate behaviour they can change the behaviour of these children through modelling. Children can watch parents eat, pupils can watch the demonstrations of buttoning up a shirt, or seen someone acting or drinking water and imitate doing the action. From this view, moral thinking and moral behaviour are influenced by observation and modelling. In consequence, learning includes moral judgments regarding right and wrong which can in part develop through modelling. This simply means that in a well-structured teaching environment taking care of mentally retarded children, the presence of models will greatly influence the socio-cognitive development of mentally retarded children and enhance mental performance.

The elements of effective observational learning are attention, retention, reciprocation and motivation. The three basic models of observational learning:

- A live model, which involves an actual individual demonstrating or acting out a behavior.
- A verbal instructional model, which involves descriptions and explanations of a behavior.
- A symbolic model, which involves real or fictional characters displaying behaviors in books, films, television programs, or online media.

6.2 Discussion of result

The results obtained from this study generally show that autistic children gradually gain relative autonomy when the TEACCH ABA and PECS teaching approaches were used. It can therefore be retained from this study that the correct and contextual usage of the TEACCH ABA and PECS by special education teachers can facilitate independence in autistic children in the area of feeding, going to the toilet, asking for what they want, wearing their shoes and buttoning up their shirts, and moving around with little or no assistance. It can also be retained that if the usage of these teaching approaches is contextualized according to the environmental conditions, it will foster the acquisition of basic autonomy by autistic children. I therefore see that these results are complementing because they are in accordance with the four main theories that were used in this study to explore the impact of teaching approaches on the acquisition of basic Daily Living Skills by autistic children. These theories include Watson, Skinner, and Pavlov behaviourist theory, Piaget's Theory of Constructivism, Social Constructivism of Vygotsky's and Bandura's Social and Cognitive Learning Theories (SLT/SCLT). All these theories are detailed in chapter three. The results are also compatible with the works of other authors who have carried out similar studies already explained under related literature in chapter two.

- One of the strongest issues that emerged during this study with all four approaches was the need for a structured learning environment as an essential feature of effective educational programs for children with autism spectrum disorders. In fact the used the word structure when describing essential components of effective educational programs for children with autism disorders is primordial due to the fact that the environment plays a very important role in development and autonomy acquisition. I think that autistic children thrive on structure. If you do not give them structure…it is hard for them to get a task accomplished. The manner in which special education teachers use structured teaching and TEACCH methods to structure the learning environment in early intervention programs for ASD is very helpful to structure the learning environment with clear, visual information and boundaries, activity schedules and picture prompts, and if-then or work-work-play contingencies for learning. Study participants representing children with ASD at all ages and perceived the following strategies to be very effective in creating a structured learning environment for students with ASD: providing schedules, routines, and visuals to organize learning, prompt

desired behaviour, and facilitate transitions; and providing highly engaging, hands-on, active learning activities.

- Objectively speaking, single teaching approach (TEACCH, ABA, PECS and Modeling) can be used in isolation in the early in teaching autistic children to acquire basic autonomy. Instead teachers use a variety of teaching methods and interventions including; structured teaching and the TEACCH model, naturalistic or incidental teaching methods, Picture Exchange Communication System, and Applied Behaviour Analysis (ABA) with discrete trial training (DTT). Structured teaching, also referred to as TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children), focuses on modifying and organizing the learning environment with clear, concrete visual information, the use of schedules for work and plays activities, and visually clear organization of tasks. Because visual skills tend to be more advanced than verbal skills among children with autism, instructions are often presented in pictures rather than spoken words. The program involves use of visual cues, prompts, and reinforcement. Because transitions are often difficult for children with autism, highly structured schedules are displayed to help the child visualize the order of events and what comes next.
- Adult-mediated interventions to facilitate the development of social and communication skills and are most helpful in developing social and communication skills in children with autism disorders. Adult or teachers can mediate through modelling, prompting, and use of social stories to facilitate social and communication skills and the acquisition of autonomy in autistic children. In fact this study saw many situations in which adult-modelling, priming, and role play were combined with peer-modelling as teachers guided peers during interaction with ASD children. Adult-mediated and peer-mediated interventions were overlapping in this study because an effective combination of both is the most common scenario in classroom settings.
- Priming involves providing a child with prompts, cues, and opportunities to practice a target behaviour immediately before it must be performed .During priming a teacher models a behaviour for the child and gives verbal cues or prompts about how to perform that behaviour. Modelling and prompting may be followed by opportunities to role play or act out expected behaviour for various social situations. Adult modelling and priming can also be combined with reinforcement of appropriate responses. Our observations perceived priming with adult modelling and role play to be effective in facilitating communication and social skills in students with ASD at all ages. We also

found adult-mediated interventions easy to implement in the child's everyday classroom environment in combination with naturalistic, incidental teaching methods.

6.3 implication and perspective

This study used four main theories to explain how pedagogical approaches fascilitate the improvement of mental performance in autistic children. These theories are: Bandura's Social Learning Theory &Social Cognitive Learning Theory (Slt & Sclt), Jean Piaget's Constructivism Learning Theory, the Behaviourist Learning Theory, and Vygotsky's Social Constructivists Theory of Learning. All these theories helped to explain how teaching approaches influence mental performance in autistic children.

6.3.1 Implication

Behaviourism focuses on one particular view of learning: a change in external behaviour achieved through a large amount of repetition of desired actions, the reward of good habits and the discouragement of bad habits. In the classroom this view of learning leads to a great deal of repetitive actions, praise for correct outcomes and immediate correction of mistakes in the field of language learning as seen in the use of ABA. According to the Social and Cognitive Learning theory by Bandura, individuals learn both behaviours and cognitive strategies by observing the behaviour of others, and these acquisitions can be learned without being directly reinforced. The constructivist theory suggests that we never learn anything from scratch, but rather that new information that we acquire builds on the knowledge that we already have, and this constructs a new, broader understanding of the world around us. The theory postulates that learners including mentally retarded learners need to be proactive in how they learn, taking new information, and shaping it to their understanding, rather than just sitting still and passively absorbing information like a sponge. According to the constructivist, no person is empty, the reason why it says that that learning is built on what the child already has. The social constructivist theory argues that higher psychic functions do not only develop naturally and that the environment plays a vital role in development hence learning.

Teachers are the focal point of enhancing mental performance and improvement of children with autism. it but rational for these individuals to gain valuable skills that enable them to teach these children with these learning difficulties. Implementing these different learning techniques

requires an in-depth knowledge of how these methods can be implemented. A critical appraisal through interviews reviewed that teachers in special needs schools lack the skills to drill the ABA, TEACCH and PIEC. The pedagogic approaches are well-defined strategies to enhance the learning of these children but the implementation is very problematic that why we rely on the and social constructivism theory that emphasizes the fact learning is an interactive process that build and reconstructs the human being

Firstly, it was also noticed that the ABA teaching approach plays a great role in the acquisition of autonomy by autistic children. Behaviour analysis is a scientific approach to understanding behaviour based upon the principles of respondent and operant conditioning. Antecedent conditions and consequences of behaviour were analyzed and manipulated, and principles of positive and negative reinforcement, shaping, and fading used to increase or reduce target behaviors. Positive reinforcement was used to strengthen behaviour by following that particular behaviour with something that is desired or valued (giving a biscuit or saying BRAVO and smiling). Skills were broken down into small steps, and the child was given repeated opportunities to learn new skills with reinforcement. The goals of intervention and types of reinforcers used were tailored to meet the needs of the individual child whose performance was measured by direct observation. All these led to autonomy acquisition.

Secondly, it was observed that the application of the PECS teaching approach to take care of autistic children can greatly boast their capacity to communicate with adults or friends basically through the exchange of pictures of the photos of the items that they desire in their environment with the real objects that they need. For example a child giving a picture of a banana to the adult to indicate that he needs a banana or giving a cup to indicate that he wants to drink water. This makes the child to develop the habit of always asking for what he wants by himself.

Thirdly, it was observed that the TEACCH teaching approach via its four major components; physical organization, task organization, visual schedules and work systems plays a very big role in the acquisition of autonomy by autistic children. A structured teaching environment enable free movement and the visual schedules decreased the number of prompts needed by kids. Daily schedules further involves; Visual representation, planned activities in the order that they will occur, uses symbols, words, pictures, objects, promotes independence, aid in transitions, provides flexibility and predictability, teaches concept of discrete events, accommodates receptive language difficulties. Visual Schedules made abstract events more concrete provided room for flexibility, helped with transitions, made the day predictable,

helped with language difficulties and showed the beginning and end of each activity leading to an improvement in mental performance.

It was also observed that via effective modeling and scaffolding by adults, autistic individuals gain relative autonomy for themselves as stipulated by the social and cognitive learning theory. Modeling enabled the children to be, attentive, retentive and reproductive with motivation. For attention, the children must first pay attention to the model (teacher or adult). The more striking or different something is, the more likely it is to gain our attention. Likewise, if we regard something as prestigious, attractive or like ourselves, we will take more notice. (E.g. Colour). For retention, autistic kids were able to remember the behaviour that has been observed. One way of increasing this is using the technique of rehearsal which principally entails continuous repetition of that activity. The third condition is the ability to replicate or reproduce the behaviour that the model has just demonstrated. This means that the observer has to be able to replicate the action, which could be a problem with a learner who is not ready developmentally to replicate the action. The final necessary ingredient for modelling to occur is motivation which can either be gestural, verbal or material. Learners must want to demonstrate what they have learned. Remember that since these four conditions vary among individuals, different people will reproduce the same behaviour differently.

6.3.2 Perspective

Quantitative research studies often focus on specific educational interventions for children with ASD one at a time or compare the relative effectiveness of two interventions. Yet in "real world" settings in this study teachers reported using as many as five or more specific interventions that have empirical support in the literature indicating their effectiveness. Further research needs to be done investigating possible cumulative effects of combining research-based interventions for children with autistic children**.**

- The limited scope of this study and the lack of similar qualitative studies in the research literature especially in Cameroon suggest a need to conduct other qualitative studies on this topic in other settings in the country.
- The researcher equally proposes that a study should be carried out on the role of teacher training in special education and its effects on the participation of MR children in school

6.4: Suggestions

From the above, it is seen that this project is focus on enhancing mental performance in children with autism spectrum disorder through different pedagogical interventions of TEACCH, ABA and PECS. Though with the use of these instruments the improvement of mental performance of children with autism spectrum disorder have been a problem since there have been an increase with the number of children living with this spectrum. Hence the following suggestion are put in place for the effective improvement of the mental performance of children living with this spectrum

6.4.1: key considerations

-Collaboration with experts that is partner with educators, therapists, researchers and families to ensure this project is informed by current best practices and addresses the real world needs. To do so, there should be the need of that chain work between the teacher-parents-therapist. By so doing it will help to improve on the child with ASD with little or no effort.

6.4.2 Learning environment

-specific learning areas have to be improve on such that these children shouldn't be distracted and also reorganized the learning environment and put in those instrument that will facilitate learning and help improve their learning making knowledge acquisition feasible.

- development of evaluation strategies at the end of each lesson to ensure the method use for each lesson is more or less the best method for the children and ensuring the application of this method is being done adequately.

6.4.3 Governmental intervention

-The law makers are responsible in the implementation of the educational rights that favors these children have to ensure adequate implementation of the laws that governs these children. And there is the need for the government to re-enforce the pedagogical bodies that will help to assured that the pedagogical method used in each school suits the learning environment.

- The government should open more well equiped inclusive educational centers in all the regions of the country and not only be limited divisionally but also in sub-divisions and districts.

- The government should also open more inclusive training centers for vocational training for these children so that they can be more of professional than elementary. That is where these children can be molded to become more skillful which will intern

ease their integration into the society which will be a plus into the country's economy and a minus of dependency.

CONCLUSION

Our conclusions were made in line with the objectives and the findings of the study. The first objective sought to demonstrate the influence of the TEACCH pedagogical approach on the improvement of the mental performance of autistic children. It was observed that the TEACCH pedagogical approach via its four major components; physical organization, task organization, visual schedules and work systems plays a very big role in the improvement of mental performance in autistic children. A structured teaching environment enable free movement and the visual schedules according to decreased the number of prompts needed by kids. Daily schedules further involves; Visual representation, planned activities in the order that they will occur, uses symbols, words, pictures, objects, promotes independence, aid in transitions, provides flexibility and predictability, teaches concept of discrete events, accommodates receptive language difficulties. This implied that learners gain basic mental improvement for independent living when taught following the TEACCH pedagogical approach.

Objective two was to show how the ABA pedagogical approach influences the improvement of mental performance in autistic children. Positive reinforcement was used to strengthen Behaviour by following that particular Behaviour with something that is desired or valued (giving a biscuit or saying BRAVO and smiling). Skills were broken down into small steps, and the child was given repeated opportunities to learn new skills with reinforcement. The goals of intervention and types of reinforcers used were tailored to meet the needs of the individual child whose performance was measured by direct observation and data tracking. All these led to improve mental performance, implying that the ABA pedagogical approach when well applied leads to improvement of mental performance in autistic children.

The third objective was to examine the influence of the PECS pedagogical approach on the improvement of mental performance in autistic children. It was observed that the application of the PECS pedagogical approach to take care of autistic children can greatly boast their capacity to communicate with adults or friends basically through the exchange of pictures of the photos of the items that they desire in their environment with the real objects that they need. For example a child giving a picture of a banana to the adult to indicate that he needs a banana or giving a cup to indicate that he wants to drink water. This makes the child to develop the habit of always asking for what he wants by himself.

Furthermore, it was also observed that via effective modelling and scaffolding by adults, autistic individuals gain relative autonomy for themselves. Modelling enables the children to be, attentive, retentive and reproductive with motivation. For attention, the children must first

pay attention to the model (teacher or adult). The more striking or different something is, the more likely it is to gain our attention. Likewise, if we regard something as prestigious, attractive or like ourselves, we will take more notice. For retention, the observer (autistic kids) must be able to remember the behaviour that has been observed. This implies that modelling plays a major role on the improvement of mental performance in autistic children.

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