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THEME:

**LEARNIENG METHODS AND THE DEVELOPMENT OF SELF-
REGULATORY STRATEGIES IN CHILDREN
WITH DOWN SYNDROME**

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GENERAL INTRODUCTION

The problem of Down syndrome children has become a study problem at the national and international levels. It is common in our society and affects all categories of people, the poor, the rich, young and the old. The number of children with Down syndrome keeps increasing in Africa as a whole, and in Cameroon in particular. It is in this light that global fund and COP-2020, emphasise on the fact Cameroon is one of the 13 countries in Africa with high prevalence children with down syndrome. Some children with Down syndrome continue to live abject mental problems, isolation, abandonment, stigmatization, etc all these causing low self-esteem, lack of ability to get knowledge, lack ability to learn even when reinforced, encouraged, and lack ability to cooperate with others. Social exclusion, low self- confidence, discouragement as they go about with life's situation. This makes them low in mental ability and not to be resilient enough even when taught in particular domain to be integrated in the society.

Globally, the Down syndrome crisis caused by trisomy 21 remains a serious issue with long term mental consequences. At the end of 2001, an estimated 14 million children worldwide have Down syndrome. Sub –Sahara Africa is the most severely affected accounting for more than 80% of the children with Down syndrome. Without the proper teaching of children with Down syndrome children are likely to face extraordinary risk of malnutrition, poor health, inadequate schooling, loneliness, and shame. Strengthening existing family, community and school capacity to assist children with Down syndrome in Africa should be the first priority. Community and school support must be coupled with support and accompaniment for education for children with Down syndrome.

Combining local and international responses to deliver protection and services to all children with Down syndrome and vulnerable children is critical. Also, serving the lives of parents through medical care in resource-poor countries on conjunction with support from alleviation of poverty and education must be an integral part of the global response to children with Down syndrome in the Sub-Sahara. Generally, poverty, gender inequalities, social and economic exclusion continue to pose major challenges to victims of Down syndrome, making it difficult for them to cope in certain situations in life. Several years since Down syndrome was discovered, Down syndrome has become one of the most devastating health conditions some human beings

are facing. By the end of 2012, an estimated 35.3 million people globally were living with down syndrome, with 1.8 million down syndrome related deaths, and 2.3 million people down syndrome cases in Sub-Saharan Africa, and Cameroon in particular is still affected by down syndrome.

In Sahara Africa and across the world women between the age of 35 and above are most likely to give birth to children with Down syndrome and children 1-5 years are more likely to have Down syndrome more than children of the later age. This has highlighted the importance of relational dynamics such as learning and self-regulatory strategies imbalances, which in turn influence the vulnerability of the children mental handicap. It is important to note that children with mental disabilities/learning difficulties are often denied education rights and other primary rights, which further makes their situation worst as they grow. This is the reason for our topic “ Learning methods and the development of self-regulatory strategies in children with Down Syndrome”. This was deduced after noticing that children with Down syndrome still find difficulties in learning due to poor methods of reinforcement, motivation, accompaniment, modeling, encouragement, etc, thus a major problem to be solved to reduce the level of learning difficulty in children with Down syndrome and improve their learning standards. It is inscribed in the field of Special Education particularly in the domain of Mental Handicap.

As a problem of the study, it highlighted on the fact that, despite the efforts being put in place the Government, NGOs, capacity building centres, synergies and other education centres, to make children with Down syndrome to learn and gain autonomy through the acquisition of knowledge and skills, (fostering mental integration of children with Down syndrome, they still find it difficult to learn. Thus questioning their self-regulatory strategies through learning methods, and finding appropriate methods learning at the various capacity building centres.

The main objective of our study is to show how conditioning can help or facilitate accompaniment of children with down syndrome and help them better cope in the teaching/learning process, which will enable them be resilient at life's situations, as they integrate the society after acquiring skills in the capacity building centres. Better still, our study turns to examine how accompaniment to learning among children with down syndrome can be

efficient through learning methods, accompaniment, conditioning, modeling, reinforcement, encouragement, explanation, visualization, peer mentoring, cooperative learning despite their terrifying experiences as victims of down syndrome. To apprehend this problem, we divided our work into two parts; the first part is made up of three chapters, and the second is made up of three chapters. Part one of our work is termed the theoretical framework, which is made up of the following chapters; chapter titled the problematic of the study, chapter two, accompaniment through conditioning, modeling, reinforcement, encouragement and finally chapter three titled accompaniment through modeling, explanation, visualization, peer tutoring and cooperative learning. Part two on the other hand equally term the methodological part, is made up of the following chapters; chapter four titled methodology of study, chapter five is made up of presentation and data analysis and finally chapter six, data interpretation, discussion, of results and suggestions.

**CHAPTER ONE:
PROBLEMATIC**

Introduction

In this part of our work, we will focus on context and justification of our study, observations and problem of study, empirical context, theoretical context, thematic analysis, factor analysis, research questions, hypotheses, objectives, and finally, limitation and delimitation of the study.

1.1 CONTEXT AND JUSTIFICATION

Globally, the Down syndrome disability caused by an error in cell division called “nondisjunction” which results in an embryo with three copies of chromosome 21 instead of the usual two remains a serious issue with long term mental consequences. According to www.un.org “**World Down Syndrome Day/United Nations**” <https://www.un.org/en/observances/down-syndrome>. Each year, approximately 3,000 to 5,000 children are born with this chromosome disorder. The estimated incidence of Down syndrome is between 1 in 1,000 to 1 in 1,100 live births (Grimm et al., 2021) worldwide. In babies, Down syndrome continues to be the most common chromosomal disorder. Each year, about 6,000 babies are born with Down syndrome, which is about 1 in every 700 babies born. Between 1979 and 2003, the number of babies born with Down syndrome increased by about 30%. Children and Adults: In 2002, about 1 out of every 1,000 children and teenagers (0 to 19 years old) living in the United States had Down syndrome. This means that in 2002 about 83,000 children and teenagers were living with Down syndrome. Researchers estimated that in 2008 about 1 out of every 1,200 people (children, teens, and adults) living in the United States had Down syndrome. This means that in 2008 about 250,700 children, teens, and adults were living with Down syndrome in the United States. Down syndrome remains the most common chromosomal condition diagnosed in the United States. Each year, about 6,000 babies born in the United States have Down syndrome.

During 2014-2018 (average) in New York, (www.marchofdimes.org “**Trisomy 21(Down Syndrome) by race/ethnicity: New York, 2014-2018, Average PeriStats/March of Dimes**”, was highest for Hispanic infants (16.0 in 10,000 live births), followed by blacks (15.9 in 10,000 live births), Whites (11.6 in 10,000 live births), Asians (7.2 in 10,000 live births) and American Indians (5.3 in 10,000 live births). The life expectancy of people with Down syndrome increased dramatically between 1960 and 2007. In 1960, on average, persons with Down syndrome lived to

be about 10 years old. In 2007, on average, persons with Down syndrome lived to be about 47 years old. Between 1983 and 2003, about 93% of babies born with Down syndrome survived to one year of age. In the same time period, about 88% of babies born with Down syndrome survived to 20 years of age. The number of infants with Down syndrome that die before one year of age has declined over time. For example, between 1979 - 2003, among babies with Down syndrome, the rate of death during the first year of life declined from 8.5% to 5.0%, a decrease of about 41%. For comparison, the rate of death during the first year of life among all babies in the general population declined from 1.5% during 1979-1983 to 0.9% during 1999-2003, a decrease of about 40%.

Generally, poverty, gender inequalities, social exclusion continue to pose major challenges to children with Down syndrome. Over 60 years since Down syndrome was discovered, it still remains one of the major genetic problems faced by mankind. The average life expectancy for person with Down syndrome is on the rise from 25 years in 1983 to 60 years in 2020 (Tsou et al., 2020). Across the continents, much disparity can be seen in the prevalence of children with Down syndrome. In Australia in the Oceania, out of every 1150 births, one has Down syndrome, giving a percentage prevalence of 0.08%. In Europe, in the United Kingdom one child in every thousand births has Down syndrome giving a percentage prevalence of 0.11%. Still in Europe in the Netherlands, 16 out of every 10,000 births children have Down syndrome giving a percentage of 0.16%. In Sweden, 1 out of every 800 children has Down syndrome amounting to 0.12%. In France/Paris in every 25.9 births, 28% of them are children with Down syndrome. In Germany, in a study carried by Engel et al, 1970, study period 1963 to 1968, out of 365 patients tested, 6 had down syndrome giving a prevalent rate of 15%.

In Hungary a study by Szollaret et al, 1983, between 1970 – 1979, 214 children under one year were tested and 16 were Down syndrome cases giving a percentage of 7.5%. Still in Hungary in the same year by the same researchers, 85 children, one year and older were tested and 3 were having Down syndrome, giving a rate of 3.5%. In Italy, Baccichetti et al, 1990, carried out a study during 1988, on teenagers and adults, 116 were tested and 14 had Down syndrome giving a percentage of 5%. In Spain, Ballesta et al, 1997, carried out a study on 71 cases, 11 had Down syndrome giving a percentage of 12%. Some statistics show that since Down syndrome was discovered in 1862, between 2014 and 2016, there were 762 and 3,871,196 deaths among

patients with Down syndrome. At a global level, over the last 30 years, deaths have decreased from 1990 to 2019. Annually, an estimated 7.9 million children are born with severe birth defects due to genetic or partially genetic origin (Christianson et al., 2006). Every year, an estimated number of a minimum of 3.3 million children under 5 years die from birth defects, and 3.2 million survivors maybe disabled for life (Christianson et al., 2006). The most common severe condition at the time of birth is Down syndrome (Arbuzova et al., 2002).

In Asian continent, in Pakistan, Ahmed et al. 2005, carried out research between 1998 – 2001, on various ages, 325 patients were tested and 30 had Down syndrome giving a percentage of 9%. In Saudi Arabia, 1 out of 554 children has Down syndrome giving a percentage of 0.18%. In Dubai, 2.32 children per thousand have Down syndrome amounting to 2.23%. In Isreal, 1 out of every 1000children has Down syndrome, a rate of 0.1%. Down Syndrome (DS) is the most recognized genetic cause of mental retardation, which occurs in 3.05 per 10,000 live births in China giving a percentage of 0.03%. Again, Down syndrome has been a major public health in Africa. In Nigeria, 1 out of 865 births has Down syndrome. This gives a percentage of 0.11%. In South Affrica, 1.33-1.8 children out of 1000 births have Down syndrome, making a percentage of 0.13%. The earliest reported study on the incidence of Down syndrome by Adeyokunnu, in Ibadan, South Western Nigeria, reported an incidence of 1 in 865 live births (Adeyokunu, 1982). Prior to this time, it was believed that Down syndrome is rare or non - existent among Africans (Tompkins, 1964). This is collaborated by the reports of other clinicians that found no case of Down syndrome in their clinical practice over several years in Nigeria (Jelliffe, 1954a, Tooth, 1950). Rather, few cases reported were among Jamaicans and were postulated to be derived genetically from non African sources (Jelliffe, 1954b). While there may be other reports from Nigeria, the case report by Tompkins in 1964 was the first to draw attention to the occurrence of the condition among Nigerian children (Tompkins, 1964).

However, in South Africa, the Down Syndrome South Africa gave an incidence of about 1 in 500 live births in the country (DSSA)(www.intecopen.com.”**Down Syndrome in Nigeria Sub Saharan Africa/IntecOpen**”/chapter/17996. In same country, a study between January, 1974 and December, 1993, reported an overall prevalence rate of 1.49 per 1000, with a gradual decline to 1.3 per 1000 in the last 5 years of the study period, among the 3 study populations. The higher prevalence (1.88) among the white population compared with the prevalence in coloured (1.54)

and blacks (1.29) could be attributed to the possibility that fewer blacks than whites undergo prenatal screened and diagnosis of the condition. This conclusion arose from the relative distribution of the number of terminations following prenatal diagnosis, being higher among whites (18.3%), intermediate in coloured (5.8%) and lowest in blacks (1.4%). The same study also confirms that the decline in the overall prevalence occur among the white population, while the blacks maintain their prevalence rate (Molteno, et, al., 1997).

In Cameroon, the challenges of children with Down syndrome and other vulnerable children are threat to child survivor. Within the current literature, there is limited research focusing specifically on the statistics of Down syndrome/people in Cameroon. This is why the UN 1948, Universal Declaration of Human Rights, the 1994 Salamanca statement and the Cameroon 1998 law on the Orientation of Education were all aiming at providing educational opportunities to all, both normal and those individuals living with disabilities. This is the most effective way to fight exclusion. Unfortunately, the vulnerable (disabled, impaired, socio-economic and culturally disadvantaged) are particularly excluded in Cameroon educational system as can be seen from the following statistics. The Ministry of Education (MINEDUC) in 2008, confirms that there were 435 street children in Yaounde and Douala who do not go to school. The International Bureau of Education (IBE) 2008 report reveals that only 10% of children living with disabilities do go to school in Cameroon and most of those who go to school do so in specialized centres that are far away from their homes.

The most recent report by the Minister of Basic Education in Cameroon also proves that the number of children living with disabilities is increasing from 363,854 in 2005, to 420, 000 in 2010 and this number is significantly not represented in regular and specialized schools. These evidence is thus undermining, the 1990 education Degree N° 90/1516, aimed at caring and integrating the disabled in regular schools and violating their rights to education, especially children with down syndrome. It states that special teachers and didactic materials be provided to facilitate their learning abilities and make them functional. It is in this regard that Tremblay (2008:43), explains that inclusive education has a holistic vision and puts it that “ it is based on the right of the learners to have quality education that meet basic learning needs”. These rights that are based on Philosophy are found in international conventions, declarations and reports that are important to inclusive education.

In order to realize these rights, the International Education for All (EFA) movement has worked to make quality basic education available to all learners. Inclusive education in relation to learning methods takes the EFA's agenda forward by finding ways of enabling schools and other centers of learning to serve all learners in their communities. It focuses particularly on those who have been traditionally excluded from educational opportunities like children with disabilities, especially mental disability like children with Down syndrome. Inclusive challenges are all those policies and those practices that seek to exclude some children from their right to education. These challenges have made possible the inclusive educational strategy that has called for critical consideration of the specificity and uniqueness of each child so as to provide them with effective educational opportunities. The issues of training, infrastructures, and content of what to be taught, these have not been attended to up till present in Teacher's Training Programs. This leaves a gap.

1.1.2 JUSTIFICATION

This is divided into three sections; scientific justification, social justification, and personal justification.

Scientific Justification

According to Int J Mol Cell Med. 2016 Summer; 5(3): 125-133. Publish online 2016 Aug 10; Down syndrome: Current Status, Challenges and Future Perspectives, Down syndrome (DS) is a birth defect with huge medical and social costs, caused by trisomy of whole or part of chromosome 21. It is the most prevalent genetic disease worldwide and the common genetic cause of intellectual disabilities appearing in about 1 in 400-1500 newborns. Although the syndrome had been described thousands of years before, it was named after John Langdon Down who described its clinical description in 1866. Scientists have identified candidate genes that are involved in the formation of specific DS features. These advances in turn may help to develop targeted therapy for persons with trisomy 21. Screening for DS is an important part of routine prenatal care. Until recently, noninvasive screening for aneuploidy depends on the measurement of maternal serum analyses and ultrasonography. More recent progress has resulted in the development of noninvasive prenatal screening (NIPS) test using cell-free fetal DNA sequences

isolated from a maternal blood sample. It is the common genetic cause of intellectual disabilities worldwide and large numbers of patients throughout the world encounter various additional health issues, including heart defects, hematopoietic disorders and early onset of Alzheimer disease.

According to Global, Regional, and National Burden and Trends of Down Syndrome from 1990 to 2019, Down syndrome is the leading cause of genetically defined intellectual disability and congenital birth defects worldwide. A large population of people diagnosed with Down syndrome globally is posing an enormous socioeconomic burden. In the past 30 years, the incident cases, age-standardised incident rate, and age-standardised prevalent rate of Down syndrome first decreased slightly and subsequently increased globally. The number of prevalent cases increased steadily, while the number of age-standardised rate of deaths decreased gradually from 1990 to 2019.

In the past 30 years, the burden and trends of Down syndrome were heterogeneous across different regions and countries with different sociodemographic characteristics. As one of the public health issues worldwide, Down syndrome imposes a heavy burden on the family and society. According to Boston Hospital Down Syndrome Program, Down syndrome children often have mild to moderate intellectual disability and may have specific challenges with attention, verbal memory, and expressive communication. People with mild intellectual disability are usually able to learn how to do everyday things like read, hold a job, and take public transportation on their own. People with moderate intellectual disability usually need support. Many children with Down syndrome can participate in regular classrooms, though they need extra help or modifications. Thanks to widespread special education and community programs, more and more people with Down syndrome graduate from high school, and attend college, and work in their communities. Most children with Down syndrome meet developmental milestones later than other children, including the ability to walk and talk. On the other hand, many of them have strong social skills. Many use non-verbal communication to connect with others. They are often strong visual learners, understanding information when they see it, either through pictures, objects, or demonstration. It is due to these many works that talk about Down syndrome that, we want to develop the continuity of this work.

1.1.3 Social Justification

Many people with Down syndrome in Africa face low life expectancy, abuse, stigma, segregation and limited life opportunities, both as children and adults. Society's negative attitudes prevent them from reaching their potential, living valued lives and contributing to society. This project will provide strategic learning and developmental strategies to children with Down syndrome in Africa, putting them on a sound footing with tools to improve knowledge, attitudes and empower people with Down syndrome. Many children/people with Down syndrome have behavioural problems such as stubbornness, impulsivity, and temper tantrums maybe more common in children with Down syndrome. Many children talk out loud to themselves as a way of understanding and processing information. In an article posted on August 2nd, 2022 by Research Square done Jyothi et al., Manipal Academy of Higher Education, economic burden on caregivers of children with Down syndrome proves that, a family with a person with Down syndrome will have a profound demand on their available funds for the rest of their life. Studies have shown that families of children with intellectual disabilities face a great amount of out-of-pocket costs. Caregivers of Down syndrome children encounter difficult challenges as they grow older including the development of dementia, depression. The amount of stress taken by caregivers in the upbringing of the children can adversely affect the family's quality of life.

From www.medanta.org, children with Down syndrome face social stigma, and discrimination, which can affect their self-esteem and social development. Their most mental concerns include anxiety, obsessive-compulsive behaviours, oppositional behaviors, depression, and tic disorder. According to Erving Goffman an American Sociologist, states there are three social stigmas. Social stigma is severe social disapproval of a person because of a particular trait that includes their deviance from social norms. Down syndrome has a lot of sociocultural colouration. Many local communities in Nigeria believed that all observable defects or early deaths which may occur in children with Down syndrome is traceable to parental misdeeds or links between the child and the evil world.

In Ghana, it is believed that the Down child is given by the river gods and hence is called 'Nsuoba', meaning water children (Avoke, 1997). The pattern of response is similar in many other developing countries including Nigeria. Children that are affected by this syndrome are often times stigmatized by the society, treated with neglect and patronized. Lack of understanding and appreciation of the condition, makes the management of the individual with the condition difficult. Supports should be offered to all people living Down syndrome to optimize their chances of survival and quality of life. Goffman interprets stigma as a means of spoiling identity. By this, he referred to the stigmatized trait's ability to "spoil" recognition of an individual's adherence to social norms in other facets of self. Without society, one cannot have stigma. To have a stigma, one must have a stigmatizer and someone who is stigmatized. As such, this is dynamic and social relationship. People/children with Down syndrome suffer stigmatization associated with mental illness, stigmatization associated with physical deformation and stigmatization associated with identification/association with their mates. According to the American with Disability Act (ADA) of 1990, it provides a wide range of civil right protection for individuals with disabilities. Titles 1 and V prohibits employment discrimination against qualified individuals with disabilities in private businesses and in state and local governments (covering mental and physical impairments that limit major life activities), but who are otherwise qualified for employment. It is on these bases that these people suffering not inserted in the society, who has problems of learning, poor performance, that our work will address this knowledge gap that will help them accommodate in the society.

1.1.4 Personal interest

Coming from a society with misconceptions that people have down syndrome cannot live full lives, cannot be independent and live on their own, cannot learn, own companies. People with down syndrome in community have been pigeonholed by the outside world. They think people with Down syndrome cannot have nice life, and that they cannot have future dreams. The biggest misconceptions they have is that people with Down syndrome have to cuddled, helped, and that they do not follow rules. Our community thinks down syndrome's voice cannot be included in the society, the society does not accept them for they are. Families from our community worry that having a disabled child will affect the marriage prospects of other family members, especially daughters. Traditional beliefs see the birth of a child with a developmental disability,

especially mental disability as a punishment for parental violations of traditional teachings, such as dishonesty or misconduct. The child's disability may also be seen as punishment for ancestral wrongdoing. The wider community may feel that the parents are responsible and be less likely to provide the family with sympathy or support. They have been ridiculed, used, abused, and exterminated without much thought. We all have something that makes us different, but those differences should be celebrated and not looked down on. It is for these reasons that we want to understand their ways of learning, to make them satisfy about their way of life.

1.2 OBSERVATION AND PROBLEM OF STUDY

1.2.1. OBSERVATIONS

The children with Down syndrome at Einstein Psychopedagogic Institute Yaounde, are our area of concern. In this Institute, it is observed that during the learning process, children hitting each other, they do not focus, they do not pay attention. Some of them feel sleepy when lessons are going on, some are lazy do not take their learning seriously. During lessons, they hit benches, some attempt to go out during lessons. Besides, it was also observed that, they can not reproduce what was taught, they cannot properly perform activities that were demonstrated to them. Some of them go as far as twisting teachers' findings during the learning process.

Also, we noticed that much encouragement was lacking, children were not well reinforced. We observed that no primary reinforcers like innately reinforcers such as edible pieces of drinks. There were no sensory experiences like light toys, fans used during the teaching/learning process. Mostly secondary reinforcers were used like tangible items and social reinforcers like praises, clapping and attention. Reinforcement was hardly used, as hitting of children when they commit an error was mostly a way of correction when the children go wrong.

It was realized that there fear of failure, low self-esteem, feeling that the content has no personal meaning to them. We also noticed that the children were not intrinsically motivated. Learning was not play-like. There was no bearing on the child's experiences and the topic being covered, which made learning abstract and distance from the child's own reality, which in turn will lead to low motivation. Due to language barrier, there was no environment in which the children can express themselves. The teachers nor the pupils never knew sign language which have facilitated

the communication process in the learning process. Very little encouragement was given to the children, which could have gone a long way to motivate them to tackle their learning. They children were not trained to be self-motivated by letting the children learn how to enjoy their own strengths and also to enjoy doing what they do best. During our study, we observed that children disengage from learning, which affected the environment of an entire learning group. Children were not self-motivated when their natural curiosity was exhibited, it was not supported, and they were not allowed to do things simply because they enjoyed doing them. With loving environment at home and a nurturing school environment, we know that learners will become children who will pursue being the best they can be.

1.2.2 Formulation and Problem statement

According to B.F Skinner, reinforcement theory is a psychological principle suggesting that behaviors are shaped by their consequences, and that individual behaviors can be changed through reinforcement, punishment and extinction. According to Skinner, a person's internal needs and drives are not important areas of concern because their current behaviors follow the law of effect and are based on the consequences of former behaviors. This means that behaviors can be altered or manipulated over time. For Abraham Maslow, human beings have needs that are hierarchically ranked (Maslow, 1943; Maslow, 1954). There are some needs that are basic to all human beings, and in their absence, nothing else matters. As we satisfy these basic needs, we start looking to satisfy higher-order needs. Once a lower-level need is satisfied, it no longer serves as a motivator.

The most basic of Maslow's needs are physiological needs. Physiological needs refer to the need for air, food, and water. Imagine being very hungry. At that point, all your behavior may be directed at finding food. Once you eat, though, the search for food ceases and the promise of food no longer serves as a motivator. Once physiological needs are satisfied, people tend to become concerned about safety. Are they safe from danger, pain, or an uncertain future? One level up, social needs refer to the need to bond with other human beings, to be loved, and to form lasting attachments. In fact, having no attachments can negatively affect health and well-being (Baumeister & Leary, 1995). The satisfaction of social needs makes esteem needs more salient. Esteem needs refer to the desire to be respected by one's peers, feeling important, and being

appreciated. Finally, at the highest level of the hierarchy, the need for self-actualization refers to “becoming all you are capable of becoming.” This need manifests itself by acquiring new skills, taking on new challenges, and behaving in a way that will lead to the satisfaction of one’s life goals.

Maslow’s hierarchy of needs is a systematic way of thinking about the different needs of learners may have at any given point and explains different reactions they may have to similar treatment. A learner who is trying to satisfy her esteem needs may feel gratified when her teacher praises her. However, another learner who is trying to satisfy his social needs may resent being praised by the teacher in front of peers if the praise sets him apart from the rest of the group.

ERG theory’s explicitly recognizes that more than one need may operate at a given time. Moreover, the theory has a “frustration-regression” hypothesis, suggesting that individuals who are frustrated in their attempts to satisfy one need may regress to another one. For example, someone who is frustrated by the lack of ability to learn and slow progress toward understanding may regress to relatedness needs and start spending more time socializing with one’s classmates. The implication of this theory is that we need to recognize the multiple needs that may be driving an individual at a given point to understand his behavior and to motivate him.

The two factor theory by Frederick Herzberg approached the question of motivation in a different way. By asking individuals what satisfies them during the learning process and what dissatisfies them, Herzberg came to the conclusion that aspects of the learning environment that satisfy learners are very different from aspects that dissatisfy them (Herzberg, et. al., 1959; Herzberg, 1965). Globally, looking at the above theories on reinforcement and motivation, children with disabilities and their families constantly experience barriers to the enjoyment of their basic human rights and to their inclusion in society. Their abilities are overlooked, their capacities are underestimated and their needs are given low priority. Yet, the barriers they face are more frequently as a result of the environment in which they live/learn than as a result of their impairment.

While the situation for these children is changing for the better, there are still severe gaps. On the positive side, there has been a gathering global momentum over the past two decades,

originating with persons with disabilities and increasingly supported by civil society and governments. In many countries, small, local groups have joined forces to create regional or national organizations that have lobbied for reform and changes to legislation. As a result, one by one the barriers to the participation of persons with disabilities as full members of their communities are starting to fall. Progress has varied, however, both between and within countries. Many countries have not enacted protective legislation at all, resulting in a continued violation of the rights of persons with disabilities.

Cameroon government is ratifying many laws and conventions for example, the inclusive education law of 1990, the 1994 Salamanca law, the EFA decree of 1998 and yet nothing is changing as regards inclusive education. Education enables students with disabilities to get better chances to integrate in the society in general, and into employment in particular, so that they may sustain themselves financially with dignity. For this reason, it is important to promote an inclusive learning environment for them in learning institutions which leads to academic success and this prompted the study. It is a serious issue that the number of pupils with disabilities participating in education are minimal. Various studies point to issues in the learning methods; perception, attention and memory, and participation of students with disabilities in education.

A growing number of populations of special needs children are not attending school, while a few do so in special need centres. Lack of appropriate teaching methods which can facilitate learning in light of perception with emphasis on sensory perception; light vision, smell and taste. Attention with regards to communication and language; inattention, distractibility, impulse control and ability to focus. Memory in line with auditory, visual, recognition and verbal information with learning only for mentally able students points to exclusive learning environment in school institutions of education. It is noted that the participation of students with disabilities (SWD) in the learning activities in Yaounde II and III Sub – Divisions schools is poor, translating to below the total number of pupils enrolled. It was also observed that students with mental disabilities complete primary education at a lower rate than mentally able peers indicating that there are issues with the learning methods for this group. In such a case, we are left with no option than to find out if learning methods in relation to perception, memory and

attention effects pupils' learning and if they are variables responsible for low school performance for children with Down syndrome.

1.3 RESEARCH QUESTIONS

A research question is a question a research project sets out to answer or it is an answerable inquiry into a specific issue, meaning that it is an initial step in to a research project. We will have two types of research questions that is general and specific.

1.3.1 GENERAL RESEARCH QUESTION.

How does learning methods facilitate self-regulatory strategies in children with Down Syndrome?

1.4 THERMATIC ANALYSIS

This is a statistical technique used to discover whether items or questions on a test or survey reflect broader underlying dimensions or abstract variables called factors, which are ideally independent of one another (Cattel, 1973; child, 2006; Yong and Peace, 2013). This will deal with the principal factor as conditioning, under secondary factors like operant conditioning, classical conditioning, observant conditioning, accompaniment, motivation and reinforcement. Encouragement, group work, peer tutoring, modeling, the play way method, autonomous and project learning strategies will be looked at. This will find the link between conditioning and the secondary factors.

1.4.1 Specific Research Questions

The following research questions will be used to guide the study

RSQ 1. How does the play way facilitate self-regulation in children withDown syndrome?

RSQ 2. How does project learning favors attention in children with Down syndrome?

RSQ 3. How does modeling facilitate memoryretention in children with Down syndrome?

1.5. Objectives

1.5.1 General Objectives

The general objectives of this study are to understand, apprehend and explain how learning methods can lead to self-regulatory strategies in children with Down syndrome.

1.5.2 Specific Objectives

SO. 1. Examine how the play way method favours (operant conditioning) learning through accompaniment process, so as to facilitate perception of children with Down syndrome.

SO. 2. Understand how project learning (classical conditioning) helps in facilitating accompaniment skills in learning that contribute to proper learning which will capture the attention of children with Down syndrome

SO. 3. Investigate how modeling (observant conditioning) facilitates the accompaniment process in learning which will affect the memory of children with Down syndrome.

1.6. INTEREST

We have divided the interest into three; that is scientific, social and personal interest, which will be better explained in the below paragraphs.

1.6.1. Scientific Interest.

Its fundamental interest is the importance of its contribution in renovating knowledge, here we refer to the scientific interest of the researcher. Many theories have been used to explain this educative and mental phenomenon by recent researchers. This dissertation or essay constitute a handbook or guide full of knowledge susceptible of helping other young researchers in related fields, to better re-orientate their bases.

1.6.2 Social Interest

Being a Down syndrome child or a child classified as someone who is mentally handicap, first of all considered as a mental case, talk less of a Down syndrome child. This is because the child with Down syndrome here suffers from social exclusion, mental limitation, social limitation, marginalization, stigmatization by their entourage and the society as a whole. To this effect, they are unable to learn, socialize and integrate themselves socio-mentally, thus live in isolation. In Cameroon like in the world, some victims are often frustrated and prefer giving up with their life is the solution to their torments. The social objective of this study is to show or demonstrate how or what role conditioning, modeling, reinforcement, encouragement, explanation, visualization,

group work, peer tutoring, and cooperative learning play in the accompaniment process to learning activities among children with Down syndrome. This study is equally out to propose another effective method to use during accompaniment to learning and the development of self-regulatory strategies that will lead to autonomy of children with Down syndrome. Through this, there will be increase in their standard of learning, living and they will equally contribute in the development of the country as a whole and their society in particular.

1.6.3. Personal Interest

As a student in specialize/special education, option mental handicap, this study will help us detect problems faced by children with Down syndrome in the school, and other learning institutions, and how we can contribute in helping them out from the situation they did not hope to be in, therefore, facilitating as well as their social inclusion, and integration. Since they are classified under mental handicap it will equally help us acquire knowledge in research domain, help us understand what victims of Down syndrome go through, and how they cope with the status by developing self-regulatory strategies, self-confidence, self-esteem, self-efficacy, motivation in integrating the school learning methods after receiving skillful learning or subject to self-regulatory strategies in particular domain.

1.7 Limitation and delimitation

There are limitations involve in all investigations (Cresswell& Clark, 2007); Thomas & Brubaker, 200). Leedy (1997) on the other hand indicated that the limitation of a problem should be carefully bounded for a research effort as a parcel of land for real estate transfer. In the course of this subheading, we talk of geographical and thematic limitation that will serve us for our case study is no other place but “ EINSTEIN PSYCHO-PEDAGOGIC INSTITUTE”, situated in the neighbourhood of Yaounde III.

1.7.2 Thematic Limitation

Our study is limited at demonstrating and examining the impact of conditioning, modeling, reinforcement, encouragement, explanation, visualization, group work, peer tutoring and cooperative learning in the accompaniment process to learning activities among children with Down syndrome. This will as well be a suggestion how to ensure efficient methods to be used by

trainers for effective mental integration of the learners in the school and society, therefore leading to autonomy, given the fact that much efforts have been put in place by different non-governmental organizations, government, MINEDUB, MINAS, MINESEC, capacity building centres, some well-wishers etc to ensure the above results but yet the rate of unemployment of children with Down syndrome is still high meaning that the methods being used are not efficient enough. In the topic “Learning Methods And The Development Of Self-Regulatory Strategies In Children With Down Syndrome” CASE STUDY: children with Down Syndrome at the EINSTEIN PSYCHO-PEDAGOGIC INSTITUTE, Yaounde. We will limit ourselves to the accompaniment of children with Down syndrome through conditioning. We will lay more emphasis on learning methods and how they gain knowledge and autonomy through mental accompaniment.

1.8 Definition of concepts

1.8.1 Learning

From Allison Academy, learning is a noun derived from the verb “learn” which stems from the old English leornian – “to get knowledge, be cultivated, study, read, think about”. Learning is an adaptive function by which our nervous system changes in relation to stimuli in the environment, thus changing our behavioral responses and permitting us to function in our environment. The process initially occurs in our nervous system in response to environmental stimuli. Neural pathways can be strengthened, pruned, activated or rerouted, all which causes changes in our behavioral responses.

According to (Ambrose et al, 2010, p.3), learning is a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning. It is a change in a learner which happens at the level of knowledge, attitude or behavior. Wikipedia, learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences. H.J. Klausmeier describes learning in Psychology as a process which leads to some behavior change as a result of some experience, training, observation, activity etc. It is a relatively permanent behavioral modification which takes place as a result of experience. Gales defined learning as the behavioral modification which occurs as a result of experience as well as training. Crow and Crow defined learning as the process of acquisition of knowledge, habits, and attitudes.

E.A, Peel, learning can be described as a change in the individual which takes place as a result of the environmental change. It re-establishes the relationship between a stimulus and response. It is a process which is concerned about cognitive, conative and affective aspect; knowledge acquisition is cognitive, any change in the emotions is affective, and conative is acquisition of new habits or skills. Learning is a continuous process acquired through practice which brings about modification in behavior. Learning is an adjustment to change. It is an improvement and organising experiences.

1.8.2 Learning methods

From www.cipd.org, learning methods are any activity deliberately undertaken, or resources provided, to help the learning process at individual, team or organizational level. From www.learnlife.com, learning methodologies are systems of practices and procedures that educators, mentors, teachers, and learning guides use to support and enrich learning journeys of learners. Learning methods guide the learning process and the people who help learners reach goals. www.buffalo.edu, defines learning methods as the broader techniques used to help students achieve learning outcomes. loveinshallah.com defines learning methods as a way of delivering education to students which is carried out systematically, regularly by educators.

1.8.3 Down syndrome

^{CDC}www.cdc.gov, defines Down syndrome as a condition in which a person has an extra chromosome. www.nhs.uk defines Down syndrome as when you are born with an extra chromosome by chance, because of a change in the sperm or egg. Wen.m.wikipedia.org defines Down syndrome or also known as trisomy 21, is a genetic disorder caused by the presence of all or part of a third copy of chromosome 21.

1.8.4 Accompaniment

According to revistas.uam.es, the accompaniment is understood as a personalized, open, continuous, and interactive support process that is carried out between two professionals who jointly carry out the planning, development, and assessment of the educational practice in the classroom that is to be improved. From keough.nd.edu, accompaniment, like teaching, is a practice, by being more aware of what we're trying to do, engaging in it, reflecting on

experiences of it. According to Dr. Paul Farmer and Rev. Gutierrez, in their book co-authored with the title “ In the Company of the Poor” to accompany is to help a person take their own destiny in their hands and allow their voice to be heard, as Gutierrez once said during a workshop at Notre Dame. It is the idea that we are working to help people “over there,” in recognition of the fact that “over there” and “here” are intertwined. It is the blurring of boundaries between us and them, doctor and patient, donor and recipient, expert and novice, teacher and student, in a manner of partners working together.

1.8.5 Conditioning

Etymologically, conditioning comes from the word condition, which was considered in the mid 14th century, ” condicioum, ” particular mode of being of a person or thing, also a requisite or prerequisite, a stipulation, from old french *condicion* “ stipulation; state, behavior, social status. Conditioning according to Advance English dictionary is a learning process in which an organism’s behavior becomes dependent on the occurrence of a stimulus in its environment. This is a process of learning that occurs when an animal or person associates a particular stimulus with a desired behaviour. For example, if a person gets a treat for answering a question correctly, they learn to associate knowledge with getting a reward. Conditioning according to Cambridge Dictionary of Psychology in the process of learning analysed from a behaviorist point of view, usually described as the increase or decrease of particular actions after their pairing with their particular stimuli.

Condition which is a learning process, has been spear headed by three authors that is, Pavlov a Russian Psychologist who through his dog experiment brought out classical conditioning. Skinner through operant conditioning conducted experiments on rats which he described as “ Skinner box”, and finally Albert Bandura’s observational conditioning who tested his theory through his famous Bobo-Doll experiment. Conditioning simply is the process of training or accustoming a person or animal to behave in a certain way or to accept certain circumstances. Conditioning in Physiology, is a behavioral process whereby a response becomes more frequent or more predictable in a given environment as a result of reinforcement typically being a stimulus or reward for a desired response. Conditioning in behavioral Psychology, is the theory

that the reason (response) to an object or even(stimulus) by a person or animal can be modified by learning, (classical conditioning).

1.8.6 Modeling

Modeling in Psychology, is a process that occurs during social learning. The learner imitates a role model. Learners learn to behave in certain ways by watching others do what they do. It occurs when a behavior is deliberately displayed by a role model to a learner or observer who then learn that behavior and carry it out. It is learning by copying the behavior of someone else. You can help others learn more effectively by modeling the desired behaviour. For example, if you want to teach someone how to use a new piece of software, you can show them how to do it step by step. APA Dictionary of Psychology, modeling is a technique used in cognitive behavior therapy in which learning occurs through observation and imitation alone, without comment or reinforcement by the teacher. It the process in which one or more individuals serve as examples (models) that a child will emulate. In Social Psychology, modeling is also known as observational learning or social learning. Modeling is a kind of vicarious learning in which direct instructions need not occur. It may teach a new behavior, influence the frequency of previously learned behavior, or increase the frequency of a similar behavior.

1.8.7 Reinforcement

This is a process of rewarding desired behaviours to increase the likelihood of them being repeated. For example, by giving positive feedback to a student who works hard, you're reinforcing their good behaviour and encouraging them to continue doing so. Merriam- Webster Dictionary, it is the action of strengthening or encouraging something; the state of being reinforced; something strengthens or encourages something. Something designed to provide additional strength (as in a weak area). It is a response to someone's behavior that is intended to make that person more likely to behave that way again. In Psychology, it is the action of causing a subject to learn to give or to increase the frequency of a desired response that in classical conditioning involves the repeated presentation of an unconditioned stimulus paired with a conditioned stimulus, and that in operant conditioning involves the use of a reward following a correct response or a punishment following an incorrect response. Reinforcement suggests that, when we follow behavior with pleasant consequences, that behavior is likely to be repeated.

Additionally, behavior followed by unpleasant consequences maybe less likely to occur. Reinforcement is anything that increases the probability that a response will occur. In operant conditioning, reinforcement refers to anything that increases the likelihood that response will occur.

1.8.8 Encouragement

When learners feel supported and motivated, they're more likely to engage in the learning process. Have open discussions with students where you encourage them to use their critical thinking skills to interpret the learning material and employ their active listening skills to understand the viewpoints of others.

1.8.9 Explanation

Ask students to explain their thinking and justify their ideas. This can help them to reflect on their own learning and make connections between new and existing knowledge.

1.8.10 Visualization

Help students to create mental pictures of the concepts they're learning, such as by asking them to close their eyes and imagine they're in the place they're learning about. This can make the information more concrete and easier to remember.

1.8.11 Group work

From www.buffalo.edu, group work refers to experiences in which students work together on the same task, thereby building a positive and engaging community through peer learning and teaching. Topchat.com defines group work as a collaborative learning environment where students work through problems and assessments together by delegating roles and responsibilities, pool their knowledge and skills and receive support from one another.

1.8.12 Peer tutoring

From www.readingrockets.org, peer tutoring is an instructional strategy that consist of student partnerships, linking high achieving students with low achieving students of those with comparable achievement. Knepublishing. com defines peer tutoring as students working in peers to help one another learn material or practice an academic task. Also known as proctoring, it is a

system where students tutor other students, thus helping each other to learn and grow. It is a learning method in which students work in small groups to provide each other with explicit teaching support such as fixed roles, cross-ability tutoring in which one student, who is often older, takes the tutoring role and is paired with a tutee or tutees, who are often younger; where they alternate the role of tutor and tutee.

1.8.13 Cooperative learning

Retrieved from www.learner.org, cooperative learning involves students working together in small groups on structured activity, where they work as a team to accomplish specific goal, to solve a problem, to complete a project, or to develop a product. helpfulprofessor.com defines cooperative learning as groups working in teams on a common goal. Students sharing resources to ensure everyone succeeds and students testing one another to check for knowledge. It is learning method which raises achievement of students, build positive relationships among students, create a learning community that values diversity and provide experiences that develop good learning skills and social skills. www.edutopia.org defines cooperative learning as learning that offers the emotional and interpersonal experiences that boost emotional awareness, judgment, critical analysis, flexible perspective taking, creative problem-solving, innovation, and goal-directed behavior.

1.8.14 Learning Strategies

Strategy stems from Old Greek strategy – “army leader”. (Scumaker& Deshler, 1992) defines strategies as the ways individuals organize and use particular set of skills in order to learn content or accomplish other tasks more effectively and efficiently in school as well as in non-academic settings, which include memory training, mnemonic learning, note taking, observational learning, practice. Robert M. Gagne, an educational psychologist, learning strategy is an arrangement of cognitive operations aiming to guide the students towards the understanding of problems until they find adequate answers. (Gagne RM. The conditions of learning and theory of instruction. 4th ed. New York: Holt, Rinehart and Winston; 1985). For Muelas and Navarro, learning strategies are planned procedure and techniques whose objective is the contextual processing of new information in order to achieve more sensible learning for students

(Muelas A, Navarro E. Learning Strategies and Academic Achievement. *Procedia – SocBehav Sci.* 2015;165:217-221).

1.8.15 Behaviorism

As Simply Psychology puts it: "Behaviorism is only concerned with observable stimulus-response behaviors, as they can be studied in a systematic and observable manner. "Learning is based on a system of routines that "drill" information into a student's memory bank, as well as positive feedback from teachers and an educational institution itself.

If students do an excellent job, they receive positive reinforcement and are signaled out for recognition. Behaviorism learning theory is the idea that how a student behaves is based on their interaction with their environment. It suggests that behaviors are influenced and learned from external forces rather than internal forces. Behavioral learning theory is the basis for psychology that can be observed and quantified. Positive reinforcement is a popular element of behaviorism—classical conditioning observed in Pavlov's dog experiments suggests that behaviors are directly motivated by the reward that can be obtained. The behavioural learning theory suggests that people learn by observing the behaviour of others and then copying it. The idea behind behaviourism is that if you can observe and measure someone's behaviour, then you can control it. Therefore, the focus of this theory is on observable behaviours, meaning that you focus on external learning factors. These are some behavioural learning theories you can use to teach others or yourself:

1.8.16 Cognitivism

Learning relies on both external factors (like information or data) and the internal thought process. Developed in the 1950s, this theory moves away from behaviorism to focus on the mind's role in learning. According to the International Bureau of Education: "In cognitive psychology, learning is understood as the acquisition of knowledge: the learner is an information-processor who absorbs information, undertakes cognitive operations on it and stocks it in memory." Cognitive learning theory impacts students because their understanding of their thought process can help them learn. Teachers can give students opportunities to ask questions, to fail, and think out loud. These strategies can help students understand how their thought

process works, and utilize this knowledge to construct better learning opportunities. Cognitive theory is the study of how people process information. The basis of this theory is the idea that people are actively involved in constructing their own knowledge. According to cognitive theory, learners aren't passive recipients of the information.

1.8.17 Socialism

This theory incorporates some of the tacit tenets of peer pressure. Specifically, students observe other students and model their own behavior accordingly. Sometimes it's to emulate peers; other times it's to distinguish themselves from peers. Harnessing the power of this theory involves getting students' attention, focusing on how students can retain information, identifying when it's appropriate to reproduce a previous behavior, and determining students' motivation.

1.8.18 Motivation

According to link.springer.com motivation in learning is a process of interaction between the learner and the environment, which is marked by selection, initiation, increase, or persistence of goal-directed behavior. www.merriam-webster.com defines motivation as the quality of the individual, the situation of the activity in which the individual is engaged. It is a condition of being motivated, a motivating force, stimulus, or influence (as a drive or incentive). Study.com defines motivation as the willingness and desire of a student to learn. It is derived from the word “motive” which means a reason for doing something. It is a factor that stimulates an organism for achieving a particular tasks. Motivation is the process of activating, maintaining and directing behavior towards a particular goal. According to Good, motivation is the process of arousing, sustaining and regulating activity.

CHAPTER TWO
LITERATURE REVIEW ON LEARNING METHODS,
AND THE DEVELOPMENT OF SELF-REGULATORY
STRATEGIES IN CHILDREN WITH DOWN SYNDROME

2 Learning Methods according to (Thorndike, 1911)

Learning is how we perceive, interpret, and understand new information or obtain new knowledge. We can learn through experiences, instruction, or observation. The foundation of learning is attributed to the Law of Effect by Edward Thorndike. The Law of Effect states that behaviors with positive consequences are usually repeated and behaviors with negative consequences are less likely to be repeated. We use learning methods as the many different ways we gain information and knowledge. We gain this knowledge from our environment and other people.

2.1 Types of Learning Methods

The five types of learning methods in psychology are classical conditioning, operant conditioning, latent learning, learning through insight, and social learning (observational learning).

2.1.2 Classical Conditioning (Pavlov, 1897)

Classical conditioning is an unconscious way of learning to associate two things in your environment. You might be familiar with Pavlov's famous classical conditioning experiment using a bell, food, and dogs.

In aversive conditioning, there is an unpleasant association between two things in our environment that teaches us to avoid one or both of these things. In the famous experiment with Little Albert by John Watson, the baby learned to associate small, furry animals with a loud, sudden bang. Initially, Albert did not fear the small white animal. After repeated pairing with a loud, scary noise, Albert cried every time the small animal was brought near him.

2.1.3 Operant Conditioning (Skinner, 1904-1990)

Operant conditioning is learning through rewards and punishment. When a child is taught to use the potty, parents often reward the child for using the potty instead of a diaper. After a few tries, the child learns that using the bathroom will bring a reward and repeats the behavior in hopes of receiving another reward each time. Positive reinforcement is when you add something (like a reward) to encourage a behavior. Negative reinforcement is when you take something away to encourage a behavior. Punishment is when you add something aversive or take away something pleasant to discourage a behavior. In aversive operant conditioning, we learn to escape, avoid, or

feel completely helpless. Escape is when an animal or person tries to escape a negative experience that is already happening. This is like when a cat tries to escape getting splashed with water. Avoidance is when someone tries to get away from a negative experience before it even happens. A person might try to avoid going out in the direct sun if they have fair skin to avoid getting burned.

2.1.4 Latent Learning (Edward, T. 1930)

Latent learning is learning in the absence of rewards. Latent learning can also be called cognitive learning since it does initially involve any behavior changes. When a child learns how to do something through observation, they may not display what they have learned right away. In a month or two, if they are presented with the same situation, they might display what they learned earlier on. Even though the child learns and retains the information at one point in time, they do not display what they have learned until later on.

Learning by Insight (Wolfgang, K. 1920)

Learning by insight is the sudden solution to a specific problem popping up in our minds. Usually, there is a reason we arrive at a solution, but we are not consciously aware of the reasoning process. These ideas pop up in your mind seemingly out of nowhere!

2.1.5 Social Learning (Bandura, A. 1991)

Social learning is also called observational learning or vicarious learning. Social learning is all about observing and imitating behavior. Social learning is very common in children, as they often mimic the behaviors and attitudes of adults. We observe behavior in others and learn by studying their actions and watching if they are rewarded or punished for their behavior. We learn both how to do something and what the consequences might be. In the workplace, adults often learn new job skills by observing or shadowing more experienced workers.

2.1.6 Examples of the Learning Methods

Any of the learning methods can happen through chaining and shaping, but the most common way that we learn is through operant conditioning. Chaining is a sequence of behaviors that are reinforced or rewarded until the whole process or behavior is learned. Shaping reinforces simple versions of a more complicated behavior as the versions get gradually harder over time until the person has mastered the more complicated behavior. Chaining occurs in steps. If someone wants to teach a child to count to 50, they might start off with counting to 10. After counting to 10, the

child is rewarded. After counting to 20, they are rewarded again. Each step is rewarded until the child can count all the way to 50.

2.1.7 Creativity and Learning Methods (Vygotsky, 1995)

Creative learning allows us to use our unique learning and problem-solving abilities and apply them to how we practice and remember new information or skills. Creativity can help you do better on exams or perform better in a job. Creative learning can also occur through trial and error. Each individual learns differently, making creative learning important for everyone!

Learning is how we perceive, interpret, and understand new information or obtain new knowledge through experiences, instruction, or observation. The Law of Effect by Edward Thorndike states that behaviors with positive consequences are usually repeated and behaviors with negative consequences are less likely to be repeated. The five main types of learning methods are classical conditioning, operant conditioning, latent learning, insight, and social learning (observational learning).

2.2 Self-Regulation (Bell, A. 2016)

The ability to control one's thoughts, actions, and feelings in different situations has significant implications for personal and academic success. However, as intuitive and fundamental self-regulation sounds, it rarely comes naturally to most individuals. A substantial part of this is attributed to the fact that these skills are seldom taught in a structured manner from early childhood. Andrea Bell from GoodTherapy.org has a straightforward definition of self-regulation: It's "control of oneself by oneself" (2016). Self-control can be used by a wide range of organisms and organizations, but for our purposes, we'll focus on the psychological concept of self-regulation.

As Bell also notes:

“Someone who has good emotional self-regulation has the ability to keep their emotions in check. They can resist impulsive behaviors that might worsen their situation, and they can cheer themselves up when they're feeling down. They have a flexible range of emotional and behavioral responses that are well matched to the demands of their environment” (2016).

2. 2. 1 Behavioral Self-Regulation (Stosny, S. 2011)

Behavioral self-regulation is “the ability to act in your long-term best interest, consistent with your deepest values” (Stosny, 2011). It is what allows us to feel one way but act another.

Emotional Self-Regulation

On the other hand, emotional self-regulation involves control of—or, at least, influence over—your emotions.

2.2.2 Self-Regulation Theory (Baumeister,et al. 2007)

Self-regulation theory (SRT) simply outlines the process and components involved when we decide what to think, feel, say, and do. It is particularly salient in the context of making a healthy choice when we have a strong desire to do the opposite (e.g., refraining from eating an entire pizza just because it tastes good) According to modern SRT expert Roy Baumeister, there are four components involved (2007): *Standards* of desirable behavior; Motivation to meet standards; *Monitoring* of situations and thoughts that precede breaking standards; Willpower allowing one’s internal strength to control urges. These four components interact to determine our self-regulatory activity at any given moment. According to SRT, our behavior is determined by our personal standards of good behavior, our motivation to meet those standards, the degree to which we are consciously aware of our circumstances and our actions, and the extent of our willpower to resist temptations and choose the best path.

2.2.3 The Psychology of Self-Regulation (Bandura, A. 1991)

According to Albert Bandura, an expert on self-efficacy and a leading researcher of SRT, self-regulation is a continuously active process in which we:

1. Monitor our own behavior, the influences on our behavior, and the consequences of our behavior;
2. Judge our behavior in relation to our own personal standards and broader, more contextual standards;
3. React to our own behavior (that is what we think and how we feel about our behavior) (1991).

Bandura also notes that self-efficacy plays a significant role in this process, exerting its influence on our thoughts, feelings, motivations, and actions. Barry Zimmerman, another big name in SRT research, put forth his own theory founded on self-regulation: self-regulated learning theory. Self-regulated learning (SRL) refers to the process a student engages in when she takes responsibility for her own learning and applies herself to academic success (Zimmerman, 2002).

This process happens in three steps:

1. Planning: The student plans her task, sets goals, outlines strategies to tackle the task, and/or creates a schedule for the task;
2. Monitoring: In this stage, the student puts her plans into action and closely monitors her performance and her experience with the methods she chose;
3. Reflection: Finally, after the task is complete and the results are in, the student reflects on how well she did and why she performed the way she did (Zimmerman, 2002).

When students take initiative and regulate their own learning, they gain deeper insights into how they learn, what works best for them, and, ultimately, they perform at a higher level.

2.2. 4 The Self-Regulatory Model (Zimmerman, 2002)

It can be useful to consider the self-regulatory model to better understand SRT.

1. Stimuli are presented (that is something happens that provokes a reaction, whether it's a thought, something another person said, receiving significant news, etc.);
2. The individual makes sense of the stimuli, both cognitively (understanding it) and emotionally (feeling it);
3. The sense-making leads the individual to choose coping responses (that is what the person does to influence her feelings about the stimuli or the actions she takes to address the stimuli);
4. The sense-making and coping responses determine the outcomes (that is the individual's overall response and how she chooses to behave);
5. The individual evaluates her coping responses in light of these outcomes and determines whether to continue using the same coping responses or to alter her formula.

An Example of the Model in Action

Self-regulation is the process of monitoring your own thoughts, feelings, and behaviors; comparing the outcomes against your goals; then deciding whether to maintain your current attitudes and behaviors or to adjust them in order to meet your goals more effectively.

As psychologist Stuart Shanker (2016):

“Self-control is about inhibiting strong impulses; self-regulation is about reducing the frequency and intensity of strong impulses by managing stress-load and recovery. In fact, self-regulation is what makes self-control possible, or, in many cases, unnecessary.”

Viewed in this light, we can think about self-regulation as a more automatic and subconscious process (unless the individual determines to purposefully monitor or alter his or her self-regulation), while self-control is a set of active and purposeful decisions and behaviors.

2.2. 5 Understanding Ego Depletion (Baumeister, 2014)

An important SRT concept is that of self-regulatory depletion, also called ego depletion. This is a state in which an individual's willpower and control over self-regulation processes have been used up, and the energy earmarked for inhibiting impulses has been expended. It often results in poor decision-making and performance (Baumeister, 2014). When a person has been faced with many temptations (especially strong temptations), he or she must exert an equally powerful amount of energy when it comes to controlling impulses. SRT argues that people have a limited amount of energy for this purpose, and once it's gone, two things happen: Inhibitions and behavioral restraints are weaker, meaning that the individual has less motivation and willpower to refrain from the temptations; The temptations, desires, or urges are felt much more strongly than when willpower is at a normal, non-depleted level (Baumeister, 2014).

This is a key idea in SRT. It explains why children struggle to avoid engaging in “bad behavior” when children are tempted by it over a long period of time. Recent neuroscience research supports this idea of self-regulatory depletion. A study from 2013 by Wagner and colleagues used functional neuroimaging to show that people who had depleted their self-regulatory energy experienced less connectivity between the regions of the brain involved in self-control and

rewards. In other words, their brains were less accommodating in helping them resist temptation after sustained self-regulatory activity.

2.2.6 Examples of Self-Regulatory Behavior

Although self-regulatory depletion is a difficult hurdle, SRT does not imply that it is impossible to remain in control of the child's urges and behavior when her energy is depleted. It merely states that it becomes harder and harder as her energy level decreases. However, there are many examples of successful self-regulatory behavior, even when the individual is fatigued from constant self-regulation. Examples include: A child who refrains from throwing a tantrum when she is told she cannot have the toy she desperately wants; A student who is tempted to join her friends for a fun night out but instead decides to stay in to study for tomorrow's exam;

2.2. 7 Emotional Intelligence and Wellbeing (Mayer, J.D. &Salovey, P. 1997)

To get more specific, one of the ways in which self-regulation contributes to wellbeing is through emotional intelligence.

Emotional intelligence can be described as: "The ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (Mayer &Salovey, 1997). According to emotional intelligence expert Daniel Goleman, there are five components of emotional intelligence: Self-awareness; Self-regulation; Internal motivation; Empathy; Social skills.

Self-regulation, or the extent of an individual's ability to influence or control his or her own emotions and impulses, is a vital piece of emotional intelligence, and it's easy to see why. And, as researchers Di Fabio and Kenny found, emotional intelligence is strongly related to wellbeing (2016). The better children with down syndrome are at understanding and addressing their emotions and the emotions of others, the better they will make sense of their environments, adjusting to them, and pursuing their goals.

2.2.8 Self-Regulation and the Motivation to Succeed

Speaking of pursuing our goals, self-regulation is also entwined with motivation., Motivation is one of the core components of self-regulation; it is one factor that determines how well we are

able to regulate our emotions and behaviors. An individual's level of motivation to succeed in his endeavors is directly related to his performance. Even if he has the best of intentions, well-laid plans, and extraordinary willpower, he will likely fail if he is not motivated to regulate his behavior and avoid the temptation to slack off or set his goals aside for another day. The more motivated we are to achieve our goals, the more capable we are to strive toward them. This impacts our wellbeing by filling us with a sense of purpose, competence, and self-esteem, especially when we are able to meet our goals.

2.2.8 The Art of Mindfulness (Razza, et al. 2015)

Mindfulness can be defined as the conscious effort to maintain a moment-to-moment awareness of what's going on, both inside your head and around you. Mindfulness and self-regulation are a powerful combination for contributing to wellbeing. Self-regulation requires self-awareness and monitoring of one's own emotional state and responses to stimuli. Being conscious of his/her own thoughts, feelings, and behavior is the foundation of self-regulation: Without it, there is no ability to reflect or choose a different path. Teaching mindfulness is a great way to improve one's ability to self-regulate and to enhance overall well-being. Mindfulness encourages active awareness of one's own thoughts and feelings and promotes conscious decisions about how to behave over simply going along with whatever your feelings tell you.

2.2.9 Self-Regulation and Executive Function (Centre on the developing Child, n.d)

Mindfulness is an excellent way to build certain attention skills, which are part of a larger set of vital skills that allow children to plan, focus, remember important things, and multitask more effectively. These skills are known as executive function skills, and they involve three key types of brain functions: Working memory: our cache of short-term memories, or information we recently took in; Mental flexibility: our ability to shift our focus from one stimulus to another and apply context-appropriate rules for attention and behavior; Self-control: our ability to set priorities, regulate our emotions, and to resist our impulses (Center on the Developing Child, n.d.). These skills are not inherent but are learned and built over time. They are vital skills for navigating the world and they contribute to good decision making. When children are able to successfully navigate the world and make good choices, we set ourselves up to meet our goals and enjoy greater wellbeing.

2.2.10 Early Childhood and Child Development (Thrive, P. 2013)

The development of self-regulation begins very early on. As soon as children are able to access working memory, exhibit mental flexibility, and control their behavior, you can get started with helping them develop self-regulation. Supporting the self-regulation of very young children (e.g., toddlers and preschoolers): Provide a structured and predictable daily routine and schedule; Change the environment by eliminating distractions: turn off the tv, dim lights, or provide a soothing object (like a teddy bear or a photo of the child's parents) when you sense a child is becoming upset; Role play with the child to practice how to act or what to say in certain situations; Teach and talk about feelings and review home/classroom rules regularly; Allow children to let off steam by creating a quiet corner with a small tent or pile of pillows; Encourage pretend play scenarios among preschoolers; Stay calm and firm in your voice and actions even when a child is "out of control"; In the classroom or at playgroups, pair children with limited self-regulatory skills with those who have good self-regulatory skills as a peer model; Take a break yourself when needed, as children with limited self-regulatory skills can test an adult's patience (Thrive Place, 2013).

Games and activities can also be used to help young children build their self-regulation skills. Teaching self-regulation skills through modeling them yourself, providing opportunities to practice these skills, monitoring and reinforcing their progress, and coaching them on how, why, and when to use their skills. Providing a warm, safe, and responsive relationship in which the children are comfortable with making mistakes. Structuring the environment to make children self-regulation easier and more manageable. Limit opportunities for risk-taking behavior, provide positive discipline, highlight natural consequences of poor decision-making, and reduce the emotional intensity of conflict situations (Murray & Rosenbalm, 2017).

2.2.11 The Role of Self-Regulation in Education (Zimmermann, 2002)

Children reach another significant stage of self-regulation development when they begin attending school—and self-regulation is tested as school gets more challenging. This is where Zimmerman's self-regulated learning theory comes into play again. There are three times when self-regulation can aid the learning process: Before the learning task is begun, when the children can consider the task, set goals, and develop a plan to tackle the task; During the task, when the

children must monitor his own performance and see how well his strategies work; After the task, when the children can reflect back on their performance and determine what worked well, what didn't, and what needs to change.

Zimmerman encourages teachers to do the following three things to help students continue to develop self-regulation: Give students a choice in tasks, methods, or study partners as often as you can; Give students the opportunity to assess their own work and learn from their mistakes; Pay attention to the student's beliefs about his or her own learning abilities and respond with encouragement and support when necessary (2002).

2.2.12 Self-Regulation in the Classroom

Participate in small and large group activities; Complete work on time; Remain on task; Follow the classroom rules and routines; Ask for help at appropriate times; Wait for your turn; Refrain from speaking out of turn.

2.2.13 Emotion Regulation Skills

There four main strategies: Opposite action: doing the opposite of what you feel like doing; Check the facts: looking back over your experiences to learn the facts of what happened, like the event that triggered a reaction, any interpretations or assumptions made, and whether the response matched the intensity of the situation; P.L.E.A.S.E.: This acronym stands for "treat physical illness (PL), eat healthy (E), avoid mood-altering drugs (A), sleep well (S), and exercise (E)." All of these behaviors will help you maintain control of your emotions; Paying attention to positive events: keeping your focus on the positive aspects of an experience instead of the negative, trying to engage in a positive activity, and keeping yourself open to the good things.

2.2.14 The Zones of Self-Regulation. (Kuypers, L. (n.d))

According to developer Leah Kuypers, *The Zones of Regulation* is a "systematic, cognitive-behavioral approach used to teach self-regulation by categorizing all the different ways we feel and states of alertness we experience into four concrete colored zones" (Kuypers, n.d.).

2.3 Down Syndrome (Trisomy 21) in Children (Collman&Stoller, 1963)

Down syndrome is a genetic disorder. It is also called trisomy 21. It includes certain birth defects, learning problems, and facial features. A child with Down syndrome also may have heart defects and problems with vision and hearing. How severe or mild these problems are varies from child to child. Down syndrome is one of the most common genetic birth defects. It affects about 1 in 800 babies. Adults with Down syndrome may live about 60 years, but this can vary. The growing population of children with Down syndrome, is a concern, had it not been of Down syndrome, the global percentage of children with mental disabilities would have been on the decline.

2.3.1 Causes of Down syndrome

When a baby is conceived, a normal egg cell and normal sperm cell start with 46 chromosomes. The egg and sperm cells then divide in half. The egg and sperm cells then have 23 chromosomes each. When a sperm with 23 chromosomes fertilizes an egg with 23 chromosomes, the baby will then have a complete set of 46 chromosomes. Half are from the father and half are from the mother. But sometimes an error occurs when the 46 chromosomes are being divided in half. An egg or sperm cell may keep both copies of chromosome number 21, instead of just 1 copy. If this egg or sperm is fertilized, then the baby will have 3 copies of chromosome number 21. This is called trisomy 21.

2.3.2 Risk for Down syndrome

A mother's age at her child's birth is the only factor linked to the risk of having a baby with Down syndrome. This risk increases with each year of age, especially after age 35. But younger women are more likely to have babies than older women. So most babies with Down syndrome are born to women younger than 35.

2.3.3 Symptoms of Down syndrome in a child

Symptoms can occur a bit differently in each child. They can include: Eyes that slant upward, Small ears that may fold over slightly at the top, Small mouth that makes the tongue appear large, Small nose with a flattened bridge, Short neck, Small hands with short fingers, 2 instead of 3 palm creases, including one across the palm and one around the base of the thumb, Short

height, Loose joints, Intestinal problems, Vision problems, Hearing problems, Thyroid problems, Blood conditions, such as leukemia, and risk for infections, Learning problems

2.3.4 Conditions or disorders commonly associated with Down syndrome

In addition to intellectual and developmental disabilities, children with Down syndrome are at an increased risk for certain health problems. However, each individual with Down syndrome is different, and not every person will have serious health problems. Many of these associated conditions can be treated with medication, surgery, or other interventions.

Some of the conditions that occur more often among children with Down syndrome include:

Heart anomalies. Almost one half of babies with Down syndrome have congenital heart disease (CHD), the most common type of congenital anomaly. CHD can lead to high blood pressure in the lungs, an inability of the heart to effectively and efficiently pump blood, and cyanosis (blue-tinted skin caused by reduced oxygen in the blood). For this reason, the American Academy of Pediatrics (AAP) Committee on Genetics recommends that infants with Down syndrome receive an echocardiogram (a sound “picture” of the heart) and an evaluation from a pediatric cardiologist. Sometimes the heart anomaly can be detected before birth, but testing after birth is more accurate. Some heart anomalies are minor and may be treated with medication, but others require immediate surgery.

Vision problems. More than half of children with Down syndrome have vision problems, including cataracts (clouding of the eye lens) that may be present at birth. The risk of cataract increases with age. Other eye problems that are more likely in children with Down syndrome are near-sightedness, “crossed” eyes, and rapid, involuntary eye movements. Glasses, surgery, or other treatments usually improve vision. The AAP recommends that infants with Down syndrome be examined by a pediatric eye specialist during the newborn period, and then have vision exams regularly as recommended.

Hearing loss. Up to three quarters of children with Down syndrome have some hearing loss. Sometimes the hearing loss is related to structural problems with the ear. The AAP recommends that babies with Down syndrome be screened for hearing loss at birth and have regular follow-up

hearing exams. Many inherited hearing problems can be corrected. Children with Down syndrome also tend to get a lot of ear infections. These should be treated quickly to prevent possible hearing loss.

Infections. People with Down syndrome are much more likely to die from untreated and unmonitored infections than other people. Down syndrome often causes problems in the immune system that can make it difficult for the body to fight off infections, so even seemingly minor infections should be treated quickly and monitored continuously. Caregivers should also make sure that children with Down syndrome receive all recommended immunizations to help prevent certain infections. Infants with Down syndrome have a 62-fold higher rate of pneumonia, especially in the first year after birth, than do infants without Down syndrome, for example.

Hypothyroidism. The thyroid is a gland that makes hormones the body uses to regulate things such as temperature and energy. Hypothyroidism, when the thyroid makes little or no thyroid hormone, occurs more often in children with Down syndrome than in children without Down syndrome. Taking thyroid hormone by mouth, throughout life, can successfully treat the condition. A child may have thyroid problems at birth or may develop them later, so health care providers recommend a thyroid examination at birth, at 6 months, and annually throughout life. Routine newborn screening may detect hypothyroidism at birth. However, some state newborn screening programs only screen for hypothyroidism by measuring free thyroxine (T4) in the blood. Because many infants with Down syndrome have normal T4, they should be screened for levels of thyroid-stimulating hormone (TSH) in these states as well.

Blood disorders. Children with Down syndrome are much more likely than other children to develop leukemia, which is cancer of the white blood cells. Children with leukemia should receive appropriate cancer treatment, which may include chemotherapy. Those with Down syndrome are also more likely to have anemia (low iron in the blood) and polycythemia (high red blood cell levels), among other blood disorders. These conditions may require additional treatment and monitoring.

Hypotonia (poor muscle tone). Poor muscle tone and low strength contribute to the delays in rolling over, sitting up, crawling, and walking that are common in children with Down

syndrome. Despite these delays, children with Down syndrome can learn to participate in physical activities like other children. Poor muscle tone, combined with a tendency for the tongue to stick out, can also make it difficult for an infant with Down syndrome to feed properly, regardless of whether they are breastfed or fed from a bottle. Infants may need nutritional supplements to ensure they are getting all the nutrients they need. Parents can work with breastfeeding experts and pediatric nutritionists to ensure proper nutrition.⁷ In some cases, the weak muscles can cause problems along the digestive tract, leading to various digestive problems, from difficulty swallowing to constipation. Families may need to work with a gastroenterologist to overcome these problems.

Disrupted sleep patterns and sleep disorders. Many children with Down syndrome have disrupted sleep patterns and often have obstructive sleep apnea, which causes significant pauses in breathing during sleep. A child's health care provider may recommend a sleep study in a special sleep lab to detect problems and determine possible solutions. It might be necessary to remove the tonsils or to use a continuous positive airway pressure device to create airflow during sleep.

Gum disease and dental problems. Children with Down syndrome may develop teeth more slowly than other children, develop teeth in a different order, develop fewer teeth, or have misaligned teeth compared with children who do not have Down syndrome. Gum disease (periodontal disease), a more serious health issue, may develop for a number of reasons, including poor oral hygiene. Health care providers recommend visiting the dentist within 6 months of the appearance of the child's first tooth or by the time the child is 1 year old.

Epilepsy. Children with Down syndrome are more likely to have epilepsy, a condition characterized by seizures, than those without Down syndrome. The risk for epilepsy increases with age, but seizures usually occur either during the first 2 years of life or after the third decade of life. Almost half of people with Down syndrome who are older than age 50 have epilepsy. Seizures can usually be treated and controlled well with medication.

Digestive problems. Digestive problems range from structural anomalies in the digestive system or its organs, to problems digesting certain types of food or food ingredients. Treatments for

these problems vary based on the specific problem. Some structural anomalies require surgery. Some people with Down syndrome have to eat a special diet throughout their lifetime. .

Mental health and emotional problems. Children with Down syndrome may experience behavioral and emotional problems, including anxiety, depression, and attention-deficit/hyperactivity disorder. They might also display repetitive movements, aggression, autism, psychosis, or social withdrawal. Although they are not more likely to experience these problems, they are more likely to have difficulty coping with the problems in positive ways, especially during adolescence.

2.3.5 Statistics of Down syndrome children in the Sub Sahara

There are few published studies in Africa about the prevalence of Down Syndrome (DS). The first rate prevalence of 1.16/1000 live births was reported in 1982 in Nigeria. In South Africa, the prevalence varies according to the area and it accounts for 0.8 to 2.1/1000 of the live births.

2.3.6 Africa (Langdon, D. 1866)

Down Syndrome (DS) which is now regarded as the commonest cause of congenital mental disability in developed countries was first described by Langdon Down in 1866. However not until 1955 did Luder and Musokerecognize and described the first Africa children with Down syndrome. Before this, no less than an authority than Jellife had commented that “ Mongolism occurs commonly in all ethnic groups, with the possible exception of people of African extraction amongst whom it would appear to be uncommon or even rare.” In justifying his comment, he noted his six years’ experience with African children in the Southern Sudan and Nigeria during which time he saw no DS cases.

He then proceeded to suggest that in view of the apparent rarity of DS in “unmixed African populations on the African continent”, the fact that the condition was common in Jamaican children suggested that the causative factor must therefore be acquired from non-African, that id, white or Asiatic, sources. It took until 1982 for Adeyokunnu to lay to rest the myth of the rarity of DS in Africans. Since then, very little further research has been under taken, possibly because of the emphasis in Africa on the eradication of malnutrition and infectious diseases, coupled with

the continuing lack of awareness of the incidence of DS and the difficulties inherent in the diagnosis of the condition in African neonates.

2.3.7 INCIDENCE AND PREVALENCE (Adeyokunnu, 1982)

After the first documentation of DS in African children by Luder and Musoke, numerous attempts to study the incidence of DS in African populations gave contradictory results and floundered owing to incomplete ascertainment at birth, high mortality in infancy, and short periods of case collection. The first reliable documentation of the incidence of DS was by Adeyokunnu in 1982. This retrospective study of over nine years at the academic hospital, Ibadan, Nigeria, recorded an incidence of 1.16 per 1000 live births. It can be anticipated that the DS incidence reported in this series may have been lower than the true incidence owing to incomplete ascertainment of cases, but this was the first paper to document conclusively an incidence of DS in African newborns similar to other populations throughout the world.

More recently, in three separate perspective studies in South Africa, the DS incidence in African newborns has been shown to be as high as, and in circumstances higher, than that occurring in other population. In 1995, Delport et al documented an incidence of 1.33 per 1000 live births in Pretoria urban academic hospital, and Venter et al recorded a figure of 2.09 per 1000 live births in a rural hospital. Before this, Kromberg et al in 1992 recorded an interim DS incidence of 1.67 per 1000 live births in an academic hospital in Johannesburg. In these three studies, 52%, 56%, and 55% respectively, of the mothers of the children with DS infants were 33 years of age or older. Subsequently the incidence of DS in the latter study has been refined to 1.8 per 1000 live births for those infants born in Baragwanath Hospital. Johannesburg, and 1.2 per 1000 live births of the deliveries from the surrounding clinic maternity units were included (J G R Kromberg, personal communication). The latter figure highlights the problem of ascertainment of cases in the South African studies and probably the Nigerian study. Owing to pressure on available beds, it is the policy in most South African maternity units to discharge all mothers and their infants within 24 hours of delivery if both are considered to be well.

To the present the prevalence of DS in African populations is unknown. In a study on disability in children between 2 and 9 years of age at present being undertaken in a rural population in the

Eastern Transvaal, South Africa, only two children with DS out of a total 4168 screened have been recorded to date (J G R Kromberg, personal communication). Given the incidences of Ds previously recorded, and the above minimum recorded prevalence of 1 in 2084 children, this would indicate a significant mortality of DS infants and children between birth and 2 years of age.

2.3.8 Prevalence rates of Down syndrome in some states by UNAIDS, WHO

Babies:

Down syndrome continues to be the most common chromosomal disorder. Each year, about 6,000 babies are born with Down syndrome, which is about 1 in every 700 babies born. Between 1979 and 2003, the number of babies born with Down syndrome increased by about 30%. Older mothers are more likely to have a baby affected by Down syndrome than younger mothers. In other words, the prevalence of Down syndrome increases as the mother's age increases. Prevalence is an estimate of how often a condition occurs among a certain group of people. To estimate the prevalence of Down syndrome, the number of pregnancies affected by Down syndrome is compared to the total number of live births.

Children and Adults:

In 2002, about 1 out of every 1,000 children and teenagers (0 to 19 years old) living in the United States had Down syndrome. This means that in 2002 about 83,000 children and teenagers were living with Down syndrome. Researchers estimated that in 2008 about 1 out of every 1,200 people (children, teens, and adults) living in the United States had Down syndrome. This means that in 2008 about 250,700 children, teens, and adults were living with Down syndrome in the United States.

2.3.9 The prevalence of Down syndrome in Cameroon (Baninjel, J. 2018)

Cognitive object relations and performance anxiety in children with Down's syndrome

The performance of mentally handicapped children often depends on the efforts of both the child and his or her environment. However, the strategy for achieving this may encounter obstacles, especially when the subject, in relation to a cognitive object, manifests a certain performance

anxiety. This is what emerges from this study, which began with an observation made during assessments of children with Down's syndrome at school, who were afraid of obtaining poor results. From this observation stems the problem of the impact of anxiety-provoking dispositions linked to the relationship with the cognitive object on performance anxiety in children with Down's syndrome attending school. Klein and Pine (2002), indicated a prevalence rate of anxiety troubles of adolescent children to 7% and 23.7%. Banindjel et al, (2000) showed that 10 out of 20% of children with mental handicap are afraid of failing at school, especially children with Down syndrome. Most of these children put more efforts in doing their assignments in class, which they are supposed to do at home.

2.3.10 Mental vulnerability of children with Down syndrome; Munir, K. (n.d)

Developmental, cognitive, and behavioral symptoms

Most children with Down syndrome meet developmental milestones later than other children, including the ability to walk and talk. They often have mild to moderate intellectual disability and may have specific challenges with attention span, verbal memory, and expressive communication. Behavioral problems such as stubbornness, impulsivity, and temper tantrums may be more common in children with Down syndrome. Many children talk out loud to themselves as a way of understanding and processing information. On the other hand, many children with Down syndrome have strong social skills. Even as infants, many use non-verbal communication to connect with others. They are often strong visual learners, understanding information best when they can see it, either through pictures, objects, or demonstration. Many children with Down syndrome learn to read words sooner than their parents or teachers expect.

2.3. 11 Ways to Support Children with Down Syndrome in the Montessori Classroom

The Montessori environment and materials are helpful for any child, but neurodivergent students may uniquely benefit from a learning environment that naturally addresses some of their challenges. The minimalist design that is common in a Montessori classroom not only adds visual appeal, but also encourages simplicity over stimulation, helping a child with Down syndrome feel less of the anxiety and frustration that may come from attempting to absorb too many stimuli at one time. Montessori materials isolate a single skill and are self-correcting,

making it easier for children to focus and remain on task. However, despite the inherent benefits of a Montessori environment, additional support from the guide may be necessary to help neurodivergent students experience the greatest level of success.

2.3.12 Provide opportunities for students to serve as social skills role models

Students with Down syndrome generally have good social skills. As is commonplace in a Montessori setting, using this strength to allow students to become role models for their peers in regards to socialization can provide a boost of confidence and an opportunity for them to truly shine.

Allow self-pacing

The Montessori Method encourages following the child and allowing them to set the pace for their learning. Applying this principle gives children with Down syndrome the freedom to take the time they may need to get acclimated to a project and will eliminate the frustration that is likely to arise from the feeling of being rushed. Additionally, if they are feeling as though it is difficult to concentrate on a particular work, children with Down syndrome should be allotted the freedom to move on to another work for a period of time and come back to the first when they feel they are better able to focus. Giving students with Down syndrome enough time to process - ++language and respond is also beneficial in ensuring they comprehend information.

Place a strong emphasis on visual learning

In all possible situations, providing visual aids (such as demonstrations, pictures, and illustrations) can assist students with Down syndrome in understanding and processing information.

Provide individual motivation

Although intrinsic motivation is encouraged in the Montessori environment, taking the time to foster a sense of motivation for students with Down syndrome is crucial to helping them remain engaged with their learning.

Ensure proper supports are put in place within the prepared environment

For students with Down syndrome, providing the appropriate supports within the prepared environment will be crucial to their success in the classroom. The guide should ensure the child has a choice of work spaces with the appropriate table height and foot support to prevent muscle fatigue. Providing something for a child to lean against to ensure their back is supported will also be important when students with Down syndrome are working on the floor.

Be warm, encouraging, and positive

Acknowledging and validating the child's feelings, encouraging them, and providing praise in the form of specific observations can motivate these students and allow them to reach their full potential.

A Circle of Friends

Help your child form good friendships with a mix of children with Down syndrome—and also without. This helps all children to have a chance to get to know plenty of different types of people. We all learn a lot from who we surround ourselves with. Social interactions are the perfect time to learn to handle anxiety well.

Include the Child in Household Chores

A child with Down syndrome feels useful and enjoys a sense of responsibility when helping out. Allow them to have household chores that they do regularly. As your child has things like chores to focus on, their anxiety is relieved.

Offer Encouragement and Support

We all need encouragement and support, and so do our children. When your child is feeling anxious, offer a hug and let them know you understand, and you'll get through it together.

Make Time for Fun

Happiness makes anxiety disappear. Schedule fun times with your child. When things aren't scheduled, it's easy for time to fly by and your time together having fun doesn't happen. Here are some ideas to enjoy some time alone with your child: Take a walk around the neighborhood, Go out for dinner or for ice cream, Read a bedtime story, Visit the library, Do some shopping together, and Rake leaves and jump in them.

Support and Self-Care for Yourself

Find the support you need through support groups and other parents in the same situation. Being around others who understand is helpful. When you feel alone, your own anxiety increases and it's difficult to help someone else. Self-care is important as well. You are always caring for others, but who's taking care of you? Your family needs you healthy and not stressed out. As you navigate how to help your child with Down syndrome cope with anxiety, remember no one loves or knows your child as you do. You can help your child achieve anything, including reducing anxiety.

2.4 Addressing depression (Bull, 2011)

Depression is at least as common in people with Down's syndrome as it is in the general population and affects them in the same way. It is much more than just feeling sad or low for a while. There is a wide range of symptoms, some more common than others, which persist for at least two weeks and often considerably longer. The depression may have appeared relatively quickly or may have developed gradually over many months, and is characterised by the following changes; Feeling sad or unhappy, crying, sobbing, Weight loss, Not smiling or laughing Decreased appetite, Moody, irritable, grumpy, angry Loss of confidence and self-esteem– I can't do that, no-one likes me, Restless, cannot relax Guilty feelings – I'm bad, it's my fault, Loss of energy, fatigue, slowing down Mood at worst in mornings, improving during the day.

2.4.1 Addressing attention-deficit hyperactivity disorder

Environmental Controls

Your child is capable of learning. However, she may learn many essential skills such as functional communication, toileting, social skills, play and engagement more effectively by using explicit teaching than by picking the skills up naturally. Regardless, your child will develop skills. Expect progress and growth.

Verbal prompt: Give your child a clear instruction and wait five seconds. If she follows your direction (complies), praise her in a manner that specifically and concisely details what she did well. (e.g., "That's good for..." and insert the task completed). If she does not comply, move to the next step: a gestural and verbal prompt. **Gestural prompt:** Show your child the exact response you desire. As soon as you complete the task, return things, or yourself, so they are exactly the same as before you gave the prompt. Tell her, "Now you do it." Wait five seconds without providing any other cues. If she complies, praise her specifically for her actions. If she does not comply, move to the next step: a verbal prompt with physical prompt follow-through. **Physical prompt:** Take your child hand-over-hand through the entire response as you say, "You need to (repeat instruction)." No praise is issued if you must utilize this step.

2.4.2 Behavior Management Strategies

Understanding what motivates a child with down syndrome and deciding how to approach it can be a daunting task. Although a formal, functional assessment is the most thorough method, there are some general and effective strategies to consider as a starting point. It is important to individualize them for your child.

2.4.3 Giving positive attention effectively:

Make eye contact with your child and speak enthusiastically. Be specific about the behavior that you liked: For instance, "Good being quiet" or "Nice hands to self," instead of: "Good girl."
Keep praise statements simple: For instance, "Good picking up toys" instead of, "That was good picking up your toys so that no one would trip on them."
Give attention immediately following the behavior that you liked: Delays in rewards make it more difficult for her to

determine what she did to receive attention. **Withhold attention to an inappropriate behavior (or anything following it) occurring within the last 30 seconds:** This helps her discriminate between the behavior being rewarded as the most recent positive behavior rather than a previous misbehavior. **Give the type of attention that your child enjoys:** Children with DS-ASD find different things pleasurable than other children. Make note of the type of attention your child enjoys such as tickles, hugs or a specific touch. It is important that the attention you give to reward appropriate behavior is positive to your child.

2.4.4 Down syndrome in the context of learning disability (Davidson, M.A. 2008)

A person with Down's syndrome sometimes has some form of learning or intellectual disability. It can scale from being a mild to moderate learning disability, but learning and thinking problems are rarely severe, and many people with Down's syndrome go on to pursue higher education. Children with Down's syndrome could take longer than other children of the same age to hit a particular milestone or develop a skill.

2.4.5 Learning Disabilities and Down's Syndrome

People with Down's syndrome can experience learning difficulties and disabilities due to delays in various areas of development. However, not all areas are affected the same. People with Down's syndrome usually develop at a different rate than their peers. But, just because they don't meet educational criteria and milestones at the same time as another child their age, it doesn't mean that they won't reach it at all. Children with Down's syndrome have a huge range of abilities, such as: Social development, Strong visual learning skills, Strong word reading, High capacity for empathy

2.4.6 Intellectual Challenges

Down's syndrome is a genetic condition that occurs when a person has a full or partial copy of chromosome 21. This extra chromosome can cause physical and intellectual challenges and they can range from mild to moderate. Some of them include: Overestimating a situation, Short attention span or ADHD, Instinctive and spontaneous behavior, Delayed speech development, Delayed language development

2.4.7 Hearing and Vision Impairment

People born with Down's syndrome have anatomical differences which is why they are more prone to ear infections. Fluid tends to build up in the middle ear; if it remains untreated, the child can develop ear wax, leading to an ear infection. Fortunately, this can easily be treated. Vision is another area to take into consideration for people with Down's syndrome, mainly because of the genetic condition and physiological features of the eye. Some of these problems can be easily resolved with prescription glasses. Two of the most common vision problems for people with Down's syndrome include: Far sightedness, Near sightedness.

2.4.8 Behavioural and Emotional Challenges

Behaviour challenges are common for all children. But when evaluating behaviour in a child with Down's syndrome, it's vital to know the source of such behaviour. Some of the most common behavioural challenges include: Temper tantrums, Wandering off, Stronger reactions to certain situations, Impulsiveness, Refusal to follow instructions, Difficulty with transitions, Staying in one spot for a longer period of time. Many of these challenging behaviours are actually a way for people with Down's syndrome to communicate their needs and feelings. Positive Behaviour Support is one approach to understanding the challenges people with Down's syndrome face every day. It highlights the use of proactive teaching strategies and is provided in different settings like in school, at home and within the community.

2.4.9 Learning resources to use in teaching children with Down syndrome (Khan, I et al. 2011)

Visual supports are potent tools for students with Down syndrome. Some examples are: Visual schedules. Display daily routines or lesson plans using pictures and symbols to help students anticipate what's coming next. Visual timetables. Provide a visual representation of the daily schedule, giving students a clear sense of time. Social stories. Share visual narratives to teach social skills and appropriate behavior in various situations. Visual cues. Use visual cues or prompts to remind students of specific instructions or expectations.

Incorporate multisensory learning

Students with Down syndrome often benefit from multisensory learning experiences. Engaging multiple senses can enhance their understanding and retention of information. Incorporate hands-on activities, manipulatives, and interactive lessons whenever possible. For example, when teaching math, use physical objects like counters or beads to help students grasp numerical concepts through touch and sight.

Modify learning materials

Adapting learning materials to meet the needs of students with Down syndrome is essential for their success. Use larger fonts, simplified language, and clear visuals in printed materials. Consider audio versions of texts and digital resources with interactive features. Personalized adaptations can make learning more accessible and engaging for these students.

Use adaptive technology

Introducing adaptive technology in the classroom can empower students with Down syndrome to participate more fully in the educational process. Specialized software and apps can assist in various aspects of their learning, including reading, communication, and organization. Speech-to-text software, interactive learning apps, and communication devices can help them access information and express themselves more effectively.

2.4.10 The Down syndrome stigma and discrimination, social disadvantage (Capone,t et al. 2006)

All too often children with Down's syndrome experience stigma and discrimination because of their learning disability. Often we find this is due to a misinformed public opinion about what Down's syndrome is and what to expect from individuals with Down's syndrome. Results showed the stigma creates feelings of inferiority on those affected, causing social disadvantage, unemployment, decreased financial resources, non-acceptance, intolerance, social invisibility, less access to health services and worse quality of life.

Learning strategies and mental outcomes

Learning in children with Down syndrome is inevitably greatly compromised by the disruption to developmental processes caused by the presence of the extra copy of chromosome 21. Differences in the structure and development of the brain mean that a number of basic information processing skills central to the achievement of specific cognitive and linguistic milestones are adversely affected.

2.4.11 Learning potential

People with Down syndrome generally take longer to learn new things. New skills may need to be broken down into smaller steps than for other learners and more repetition may be needed to retain learned skills. Children with Down syndrome may require more structure in their activities so that they can work independently in class. They will continue to make steady progress and continue learning throughout life if given the opportunity to do so, just like everyone else. Many students with Down syndrome reach Year 12 and go on to post-school training or tertiary education. Access to a range of work experience opportunities is very important in helping young people with Down syndrome to make informed choices about their life after school.

2.4.12 BASIC MODELS OF LEARNING (John, B.W. 1924)

Learning may be defined, for our purposes, as a relatively permanent change in behavior that occurs as a result of experience. That is, a person is said to have learned something when they consistently exhibit a new behavior over time. First, learning involves a change in an attitude or behavior. In order for learning to occur, the change that takes place must be relatively permanent. Next, learning typically involves some form of practice or experience. Third, this practice or experience must be reinforced over time for learning to take place. Where reinforcement does not follow practice or experience, the behavior will eventually diminish and disappear (“extinction”). Finally, learning is an inferred process; we cannot observe learning directly. Instead, we must infer the existence of learning from observing changes in overt behavior.

2.4.13 Classical Conditioning (Pavlov, 1897)

Classical conditioning is the process whereby a stimulus-response (S-R) bond is developed between a conditioned stimulus and a conditioned response through the repeated linking of a conditioned stimulus with an unconditioned stimulus. The classic example of Pavlov's experiments illustrates the process. Pavlov was initially interested in the digestive processes of dogs but noticed that the dogs started to salivate at the first signal of approaching food. On the basis of this discovery, he shifted his attention to the question of whether animals could be trained to draw a causal relationship between previously unconnected factors. Specifically, using the dogs as subjects, he examined the extent to which the dogs could learn to associate the ringing of a bell with the act of salivation. The experiment began with unlearned, or unconditioned, stimulus-response relationships. When a dog was presented with meat (unconditioned stimulus), the dog salivated (unconditioned response). No learning was necessary here, as this relationship represented a natural physiological process.

2.4. 14 Operant Conditioning (Bandura, 1991)

The major focus of operant conditioning is on the effects of reinforcements, or rewards, on desired behaviors. One of the first psychologists to examine such processes was J. B. Watson, a contemporary of Pavlov, who argued that behavior is largely influenced by the rewards one receives as a result of actions. This notion is best summarized in Thorndike's law of effect. This law states that of several responses made to the same situation, those that are accompanied or closely followed by satisfaction (reinforcement) will be more likely to occur; those that are accompanied or closely followed by discomfort (punishment) will be less likely to occur.

2.4. 15 Social Learning Theory

Albert Bandura's social learning theory. Social learning theory is defined as the process of molding behavior through the reciprocal interaction of a person's cognitions, behavior, and environment. This is done through a process that Bandura calls reciprocal determinism. This concept implies that people control their own environment (for example, by quitting one's job) as much as the environment controls people (for example, being laid off). Thus, learning is seen as a more active, interactive process in which the learner has at least some control. Like Skinner,

Bandura argues that behavior is at least in part controlled by environmental cues and consequences, and Bandura uses observable behavior (as opposed to attitudes, feelings, etc.) as the primary unit of analysis.

Social learning theory has four central elements: attention, retention, reproduction, and reward. Before someone can learn something, they must notice or pay attention to the thing that is to be learned. Retention is the process by which what you have noticed is encoded into your memory. Reproduction involves the translation of what was recorded in your mind into overt actions or behaviors. Obviously, the higher the level of attention and the greater the retention, the better the reproduction of what was learned. Finally, reward can influence all three processes. For example, if you are rewarded (say, praised) for paying attention, you will pay more attention. If you are rewarded for remembering what you studied (say, good grades), you will retain more. If you are rewarded for reproducing what you learned (say, a promotion for effectively motivating your subordinates), you will produce that behavior more.

2.4.16 REINFORCEMENT AND BEHAVIOUR CHANGE (Thorndike, 2011)

A central feature of most approaches to learning is the concept of reinforcement. This concept dates from Thorndike's law of effect, which, as mentioned earlier, states that behavior that is positively reinforced tends to be repeated, whereas behavior that is not reinforced will tend not to be repeated. Hence, reinforcement can be defined as anything that causes a certain behavior to be repeated or inhibited.

2.4.17 Strategies for Behavioral Change

From a teaching standpoint, several strategies for behavioral change are available to facilitate learning in organizational settings. At least four different types should be noted: (1) positive reinforcement; (2) avoidance learning, or negative reinforcement; (3) extinction; and (4) punishment. Each type plays a different role in both the manner in which and extent to which learning occurs. Each will be considered separately here.

Positive Reinforcement. Positive reinforcement consists of presenting someone with an attractive outcome following a desired behavior. As noted by Skinner, "A positive reinforcer is a

stimulus which, when added to a situation, strengthens the probability of an operant response.” That is, a teacher may praise a learner for being on time consistently. This behavior-praise pattern may encourage the learner to be on time in the future in the hope of receiving additional praise.

Extinction

The principle of extinction suggests that undesired behavior will decline as a result of a lack of positive reinforcement. The learner may realize, albeit subtly, that being late is not leading to desired outcomes, and she may try coming to school on time.

Punishment

Finally, a fourth strategy for behavior change used by teachers, managers and supervisors is punishment. Punishment is the administration of unpleasant or adverse outcomes as a result of undesired behavior. An example of the application of punishment is for a supervisor to publicly reprimand or fine an employee who is habitually tardy. Presumably, the learner would refrain from being tardy in the future in order to avoid such an undesirable outcome.

2.3.18 Key Principles of Classical Conditioning in Psychology

Behaviorists have described a number of different phenomena associated with classical conditioning. Some of these elements involve the initial establishment of the response while others describe the disappearance of a response. Here is a closer look at five key principles of classical conditioning.

Acquisition

Acquisition is the initial stage of learning, when a response is first established and gradually strengthened. During the acquisition phase of classical conditioning, a neutral stimulus is repeatedly paired with an unconditioned stimulus. An unconditioned stimulus is something that naturally and automatically triggers a response without any learning. After an association is made, the subject will begin to emit a behavior in response to the previously neutral stimulus, which is now known as a conditioned stimulus. It is at this point that we can say that the

response has been acquired. Once the response has been established, you can gradually reinforce the response to make sure the behavior is well learned.

Extinction

Extinction is when the occurrences of a conditioned response decrease or disappear. In classical conditioning, this happens when a conditioned stimulus is no longer paired with an unconditioned stimulus. For example, if the smell of food (the unconditioned stimulus) had been paired with the sound of a whistle (the conditioned stimulus), the sound of the whistle would eventually come to evoke the conditioned response of hunger. However, if the smell of food were no longer paired with the whistle, eventually the conditioned response (hunger) would disappear.

Discrimination

Discrimination is the ability to differentiate between a conditioned stimulus and other stimuli that have not been paired with an unconditioned stimulus. For example, if a bell tone were the conditioned stimulus, discrimination would involve being able to tell the difference between the bell tone and other similar sounds. Because the subject is able to distinguish between these stimuli, they will only respond when the conditioned stimulus is presented.

Fear Response

John B. Watson's experiment with Little Albert is an example of the fear response. The child initially showed no fear of a white rat, but after the rat was paired repeatedly with loud, scary sounds, the child began to cry when the rat was present. Prior to the conditioning, the white rat was a neutral stimulus. The unconditioned stimulus was the loud, clanging sounds, and the unconditioned response was the fear response created by the noise. By repeatedly pairing the rat with the unconditioned stimulus, the white rat (now the conditioned stimulus) came to evoke the fear response (now the conditioned response). This experiment illustrates how phobias can form through classical conditioning. In many cases, a single pairing of a neutral stimulus (a dog, for example) and a frightening experience (being bitten by the dog) can lead to a lasting phobia (being afraid of dogs).

Taste Aversions

Another example of classical conditioning is the development of conditioned taste aversions. Researchers John Garcia and Bob Koelling first noticed this phenomenon when they observed how rats that had been exposed to nausea-causing radiation developed an aversion to flavored water after the radiation and water were presented together. In this example, the radiation represents the unconditioned stimulus and nausea represents the unconditioned response. After the pairing of the two, the flavored water is the conditioned stimulus, while nausea that formed when exposed to the water alone is the conditioned response.

School

Teachers can use operant conditioning in the classroom to influence student behavior by: using stickers to lead up to a bigger reward, taking away recess privileges if a student misbehaves, throwing a pizza party if 15 students earn a high grade on a test or quiz, ignoring a student who yells out and doesn't raise their hand to answer a question, giving a student detention if they're late to class too many times.

2.5 Social /Observational learning

Albert Bandura's social learning theory suggests that observation and modeling play a primary role in how and why people learn. Bandura's theory goes beyond the perception of learning being the result of direct experience with the environment. Learning, according to Bandura, can occur simply by observing others' behavior. He explains in his 1977 book *Social Learning Theory*, "most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions, this coded information serves as a guide for action."

2.5.1 Albert Bandura's Social Learning Theory

Social Learning Theory (SLT) is often described as the 'bridge' between traditional learning theory (behaviorism) and the cognitive approach. This is because it focuses on how mental (cognitive) factors are involved in learning. Unlike Skinner, Bandura (1977) believes humans are

active information processors and think about the relationship between their behavior and its consequences.

Assumptions

Social learning theory, proposed by Albert Bandura, emphasizes the importance of observing, modeling, and imitating the behaviors, attitudes, and emotional reactions of others. Social learning theory considers how both environmental and cognitive factors interact to influence human learning and behavior. In social learning theory, Albert Bandura (1977) agrees with the behaviorist learning theories of classical conditioning and operant conditioning. However, he adds two important ideas: Mediating processes occur between stimuli & responses. Behavior is learned from the environment through the process of observational learning.

2.5.2 Mediational Processes

Observational learning could not occur unless cognitive processes were at work. These mental factors mediate (i.e., intervene) in the learning process to determine whether a new response is acquired. Therefore, individuals do not automatically observe the behavior of a model and imitate it. There is some thought prior to imitation, and this consideration is called the mediational process. This occurs between observing the behavior (stimulus) and imitating it or not (response).

Attention

Attentional processes are crucial because mere exposure to a model doesn't ensure that observers will pay attention (Bandura, 1972). The model must capture the observer's interest, and the observer must deem the model's behavior worth imitating. This decides if the behavior will be modeled. The individual needs to pay attention to the behavior and its consequences and form a mental representation of the behavior. For a behavior to be imitated, it has to grab our attention. We observe many behaviors on a daily basis, and many of these are not noteworthy. Attention is, therefore, extremely important in whether a behavior influences others to imitate it.

Retention

Bandura highlighted the retention process in imitation, where individuals symbolically store a model's behavior in their minds. For successful imitation, observers must save these behaviors in symbolic forms, actively organizing them into easily recalled templates (Bandura, 1972). How well the behavior is remembered. The behavior may be noticed, but it is not always remembered, which obviously prevents imitation. It is important, therefore, that a memory of the behavior is formed to be performed later by the observer. Much of social learning is not immediate, so this process is especially vital in those cases. Even if the behavior is reproduced shortly after seeing it, there needs to be a memory to refer to.

Motor Reproduction

This is the ability to perform the behavior that the model has just demonstrated. We see much behavior daily that we would like to be able to imitate, but this is not always possible. Our physical ability limits us, so even if we wish to reproduce the behavior, we sometimes cannot. This influences our decisions whether to try and imitate it or not. Imagine the scenario of a 90-year-old lady who struggles to walk while watching Dancing on Ice. She may appreciate that the skill is desirable, but she will not attempt to imitate it because she physically cannot do it. Motor reproduction processes use internal symbolic images of observed behaviors to guide actions (Bandura, 1972). An observer internally replicates a behavior using these symbols as a reference, even if it's not externally shown (Manz & Sims, 1981).

Motivation

Lastly, motivational and reinforcement processes refer to the perceived favorable or unfavorable consequences of mimicking the model's actions that are likely to increase or decrease the likelihood of imitation. The will to perform the behavior. The observer will consider the rewards and punishments that follow a behavior. If the perceived rewards outweigh the perceived costs (if any), the observer will more likely imitate the behavior. If the vicarious reinforcement is unimportant to the observer, they will not imitate the behavior.

2.5.3 Influences on Observational Learning

Based on Bandura's research, several factors enhance the likelihood of a behavior being imitated. We are more prone to imitate behaviors when the following conditions apply:

Attentional Processes (Lockwood &Kunda, 1997; Marx &Ko, 2012)

We are more likely to model our behaviors after individuals who are similar to us. This is because we are more likely to identify with these individuals, making their behaviors seem more relevant and attainable. This can include similarity in terms of age, gender, ethnicity, or even shared interests and values (e.g., Lockwood &Kunda, 1997; Marx &Ko, 2012).

Identification with the Model

Identification occurs with another person (the model) and involves taking on (or adopting) observed behaviors, values, beliefs, and attitudes of the person you identify with. The motivation to identify with a particular model is that they have a quality that the individual would like to possess. The more an individual identifies with the model (for instance, because they are similar or aspire to be like the model), the more likely they are to imitate their behavior. This relates to an attachment to specific models that possess qualities seen as rewarding. Children will have several models with whom they identify. These may be people in their immediate world, such as parents or older siblings, or they could be fantasy characters or people in the media. Identification differs from imitation as it may involve adopting several behaviors, whereas imitation usually involves copying a single behavior.

2.5.4 Motivational Processes

➤ Rewarded Behaviors

Individuals who see that a model is rewarded for their behaviors are likelier to imitate them, while behavior resulting in negative outcomes is less likely to be copied. This is known as vicarious reinforcement. For instance, if a student sees that another student gets praised by the teacher for asking questions, they are likelier to ask questions themselves. The way role models achieve success impacts their effectiveness. People benefit more from role models whose success

is due to factors they can control, like effort, rather than uncontrollable factors like innate talent (Weiner, 1979, 1985). Studies showed girls performed better in math when their role model's success was linked to effort. In contrast, if the success was attributed to natural talent, their performance declined compared to boys (Bàges, Verniers, & Martinot, 2016).

➤ **Status of the Model**

We are likelier to imitate individuals who hold high-status positions, such as leaders, celebrities, or successful people in our field of interest. High-status individuals are often admired and seen as role models, so their behaviors are likelier to be seen as desirable and worth imitating. People are also more likely to imitate experts or knowledgeable individuals in a certain area. These individuals' behaviors are seen as effective and efficient ways of achieving goals in that area.

Reinforcement and punishment

The people around the child will respond to the behavior it imitates with either reinforcement or punishment. If a child imitates a model's behavior and the consequences are rewarding, the child will likely continue performing the behavior. If a parent sees a little girl consoling her teddy bear and says, "what a kind girl you are," this is rewarding for the child and makes it more likely that she will repeat the behavior. Her behavior has been positively reinforced (i.e., strengthened). Reinforcement can be external or internal and can be positive or negative. If a child wants approval from parents or peers, verbal approval is an external reinforcement, but feeling happy about being approved of is an internal reinforcement. A child will behave in a way that it believes will earn approval because it desires approval. Positive (or negative) reinforcement will have little impact if the external reinforcement does not match an individual's needs. Reinforcement can be positive or negative, but the important factor is that it will usually change a person's behavior.

2.5.5 Components of Social Learning

➤ **Observation**

Social learning works by observing the behaviour of other people. The consequences of specific situational actions are observed, then that behaviour is mirrored depending on the outcome of the consequence. In this way, people learn which behaviours are socially acceptable and which behaviours are usually criticised. Observational learning allows people to adapt and approach situations more confidently quickly.

➤ **Assessment**

Next, we assess whether the observed person's behaviour fits our personality and whether the results and reactions of others are desirable. If we decide that we would like to be praised and recognised for something, we analyse how the observed person came to this result. There is often not enough data to know on which factors the desired reaction depends. Therefore, it is often necessary to observe similar situations repeatedly to develop a better understanding.

➤ **Imitation**

After observation and assessment of a particular behaviour, imitation follows to achieve the desired consequence. Imitation can only happen within our personal limitations, e.g. physical traits, characteristics, and experiences. In most cases, the consequences of a behaviour depend on several factors. The views of the other person, place, time, one's character, the situation, everything can play a role in how others react to something. Therefore, it usually takes repeated positive feedback for a behaviour to become a habit, but it only takes a little criticism to avoid it in the future.

➤ **Identification**

A large part of social learning is based on the idea that people want to identify with others and their achievements, or earn the appreciation of those role models. As it is understood in social learning, identification is comparable to the Freudian notion of the Oedipus complex. A part of this concept is about internalising or adopting the behaviours of other people. While the term

imitation refers to only a single aspect, identification is about several learned behaviours coming together. Imitations, such as language use, attitude, habits, or views, help people achieve feeling similar to role models. It is important to emphasise that while social learning is based on imitating another person's behaviour, it can have completely different consequences. People are individuals, and so are the results of behaviour. Social learning should serve as a way to help you see if others' successful behaviours work for you as well. However, it should not become a direct comparison of results. It is about trying new techniques, habits, and behaviours for yourself, but you should not expect to get the exact same results as your role model. Social learning is not about becoming a different person or modifying your personality to be more like someone else. It is about improving your skills and thus becoming better than you were yesterday.

CHAPTER 3
CONDITIONING AND SELF-AWARENESS

In this chapter, we are going to look at some three theorist of learning. These include social learning, behavioral and cognitive learning.

Social learning theory

3. CONDITIONING

3.1 CONDITIONING AND TYPES

According to oxford languages, conditioning is the process of training or accustoming a person or animal to behave in a certain way or to accept certain circumstances “social conditioning”. It is a form of learning in which either a given stimulus becomes increasingly effective in evoking a response or a response occurs with increasing regularity in a well-specified and stable environment. The type of reinforcement used will determine the response (www.britannica.com>science). It is a behavioural process whereby, a response becomes more frequent or more predictable in a given environment as a result of reinforcement, with reinforcement being a stimulus or reward for a desired response. They are based on the assumption that human behavior is learned.

3.1.1 TYPES OF CONDITIONING

There are two types of conditioning in Psychology;

a. Classical conditioning

It is best known with the experiment of involving Pavlov’s dog. He first noticed this phenomenon when his assistant would ring the bell to signal for the dog’s meal, the dog would anticipate his food, thus salivating at the sight of the food. He then theorized that, the dog was conditioned into thinking that when the bell rang, food would come so salivated. There is the presence of a stimulus which produces a conditioned response. We experience this process throughout our daily lives. Classical conditioning was first discovered by Ivan P. Pavlov in the early 1900s. It can be conceptualized as learning about event sequences that occur independently of one's actions in one's environment. Classical conditioning is a simple form of associative learning, where the behavioral response is modified by conditioned stimulus. In the classical example, developed by Ivan Pavlov, dogs produce reflex response of salivation when conditioned with a sound stimulus. Associative learning relies on neural properties to predict

positive or negative future situations from experienced combinations of environmental stimuli and/or own actions. Therefore, the variety of environmental stimuli and their combinations have to be encoded in the brain to assign values to them through associative learning. Classical or Pavlovian conditioning is the simplest form of associative learning by which animals, including humans, learn relations among events in the world so that their future behaviors are better adapted to their environments (Rescorla 1988).

b. Operant conditioning

It is associated to Skinner's Box study. Skinner's Box involved a rat learning to press a lever to either get a piece of cheese or to prevent from being electrocuted. The behavior of the rat was reinforced with either a reward (cheese) or punishment (electric shock) (mytutor.co.uk). In Psychology, learning is a relative change in behavior as a result of experience. It is the process that allows us to adapt to the changing conditions of the world around us. We can alter our actions until we find the behavior that leads us to survival. (www.scribd.com). There are three main steps of learning; classical, operant conditioning and observational learning. Observational learning is the process of watching others and then, imitating what they do.

In Psychology, in operant conditioning, organisms learn to associate a behavior and its consequence. A pleasant consequence makes that behavior more likely to be repeated in the future. The target behavior is followed by reinforcement or punishment to either strengthen or weaken it, so that the learner is more likely to exhibit the desired behavior in the future. The stimulus (either reinforcement or punishment) occurs soon after the response. Skinner believed that behavior is motivated by the consequences we receive for the behavior: the reinforcements and punishments. His idea that learning is the result of consequences is based on the law of effect, which was first proposed by psychologist Edward Thorndike. According to the law of effect, behaviors that are followed by consequences that are satisfying to the organism are more likely to be repeated, and behaviors that are followed by unpleasant consequences are less likely to be repeated (Thorndike, 1911).

B. F. Skinner developed operant conditioning for systematic study of how behaviors are strengthened or weakened according to their consequences. *Reinforcement* means you are increasing a behavior, and *punishment* means you are decreasing a behavior. Reinforcement can

be positive or negative, and punishment can also be positive or negative. All reinforcers (positive or negative) *increase* the likelihood of a behavioral response. All punishers (positive or negative) *decrease* the likelihood of a behavioral response. In his operant conditioning experiments, Skinner often used an approach called shaping. Instead of rewarding only the target behavior, in shaping, we reward successive approximations of a target behavior. In order for reinforcement to work, the organism must first display the behavior. Shaping is needed because it is extremely unlikely that an organism will display anything but the simplest of behaviors spontaneously. In shaping, behaviors are broken down into many small, achievable steps. Shaping is often used in teaching a complex behavior or chain of behaviors. An important part of shaping is stimulus discrimination.

3.1.2 CONDITIONING AS A LEARNING PROCESS ACCORDING TO PAVLOV, Skinner and Bandura

According to Pavlov, learning occurs when a neutral stimulus (e.g. tone) becomes associated with a stimulus (e.g. food) that naturally produces a behavior. (classical conditioning). After the association is learned, the previously neutral stimulus is sufficient to produce the behavior. Conditioning is evolutionary beneficial because it allows organisms to develop expectations that help them prepare for both good and bad events.

As for Skinner operant conditioning sometimes called instrumental conditioning is a method of learning that uses rewards and punishment to modify a behavior. Behavior that is rewarded is likely to be repeated, behavior that is punished is prone to happen less. The cause of human behavior is something in a person's environment, and the consequence of a behavior determine the possibility of it being repeated. The results of your past behavior will condition you to either repeat or avoid those behaviours. Cyrus Mahome, Matt McMillen. (2023).

According to Bandura, people learn new behaviours by observing and imitating the actions of others and then, imitate the behaviour by completing the challenge themselves. Bandura and Jeffrey (1973) described four processes that account for learning by observation: attention, retention, motor reproduction and motivational.

3.1.3 Learning through Observation or observational learning

Observational learning is the process of learning by watching the behaviors of others. The targeted behavior is watched, memorized, and then mimicked. Also known as shaping and modeling, observational learning is most common in children as they imitate behaviors of adults. Albert Bandura, was one of the first psychologists to recognize the phenomenon of observational learning. His theory, Social Learning Theory, stresses the importance of observation and modeling of behaviors, attitudes and emotional reactions of others. Children watch their family members and mimic their behaviors. According to Bandura's research, there are four processes that influence observational learning: Attention, retention, reproduction, modeling.

3.1.4 Types of classical conditioning in Psychology

Unconditioned Stimulus

An unconditioned stimulus is a stimulus or trigger that leads to an automatic response. If a cold breeze makes you shiver, for instance, the cold breeze is an unconditioned stimulus; it produces an involuntary response (the shivering).

Neutral Stimulus

A neutral stimulus is a stimulus that doesn't initially trigger a response on its own. If you hear the sound of a fan but don't feel the breeze, for example, it wouldn't necessarily trigger a response. That would make it a neutral stimulus.

Conditioned Stimulus

A conditioned stimulus is a stimulus that was once neutral (didn't trigger a response) but now leads to a response. If you previously didn't pay attention to dogs, but then got bit by one, and now you feel fear every time you see a dog, the dog has become a conditioned stimulus.

Unconditioned Response

An unconditioned response is an automatic response or a response that occurs without thought when an unconditioned stimulus is present. If you smell your favorite food and your mouth starts watering, the watering is an unconditioned response.

Conditioned Response

A conditioned response is a learned response or a response that is created where no response existed before. Going back to the example of being bit by a dog, the fear you experience after the bite is a conditioned response.

3.1.5 Principles of classical conditioning in Psychology

Acquisition

Acquisition is the initial stage of learning, when a response is first established and gradually strengthened. During the acquisition phase of classical conditioning, a neutral stimulus is repeatedly paired with an unconditioned stimulus. An unconditioned stimulus is something that naturally and automatically triggers a response without any learning. After an association is made, the subject will begin to emit a behavior in response to the previously neutral stimulus, which is now known as a conditioned stimulus

Extinction

Extinction is when the occurrences of a conditioned response decrease or disappear. In classical conditioning, this happens when a conditioned stimulus is no longer paired with an unconditioned stimulus. For example, if the smell of food (the unconditioned stimulus) had been paired with the sound of a whistle (the conditioned stimulus), the sound of the whistle would eventually come to evoke the conditioned response of hunger. However, if the smell of food were no longer paired with the whistle, eventually the conditioned response (hunger) would disappear.

Spontaneous Recovery

Sometimes a learned response can suddenly reemerge, even after a period of extinction. This is called spontaneous recovery. For example, imagine that after training a dog to salivate to the sound of a bell, you stop reinforcing the behavior and the response becomes extinct. After a rest period during which the conditioned stimulus is not presented, you ring the bell and the animal spontaneously recovers the previously learned response. If the conditioned stimulus and unconditioned stimulus are no longer associated, extinction will return very rapidly after a spontaneous recovery.

Generalization

Stimulus generalization is the tendency for a conditioned stimulus to evoke similar responses after the response has been conditioned. For example, if a dog has been conditioned to salivate at the sound of a bell, the animal may also exhibit the same response to a sound that's similar to the bell. In John B. Watson's famous Little Albert Experiment, for example, a small child was conditioned to fear a white rat. The child demonstrated stimulus generalization by also exhibiting fear in response to other fuzzy white objects, including stuffed toys and Watson's own hair.

Discrimination

Discrimination is the ability to differentiate between a conditioned stimulus and other stimuli that have not been paired with an unconditioned stimulus. For example, if a bell tone were the conditioned stimulus, discrimination would involve being able to tell the difference between the bell tone and other similar sounds. Because the subject is able to distinguish between these stimuli, they will only respond when the conditioned stimulus is presented.

3.1.6 Examples of Classical Conditioning

It can be helpful to look at a few examples of how the classical conditioning process operates both in experimental and real-world settings.

Fear Response

John B. Watson's experiment with Little Albert is an example of the fear response. The child initially showed no fear of a white rat, but after the rat was paired repeatedly with loud, scary sounds, the child began to cry when the rat was present. Prior to the conditioning, the white rat was a neutral stimulus. The unconditioned stimulus was the loud, clanging sounds, and the unconditioned response was the fear response created by the noise. By repeatedly pairing the rat with the unconditioned stimulus, the white rat (now the conditioned stimulus) came to evoke the fear response (now the conditioned response).

Taste Aversions

Another example of classical conditioning is the development of conditioned taste aversions. Researchers John Garcia and Bob Koelling first noticed this phenomenon when they observed how rats that had been exposed to nausea-causing radiation developed an aversion to flavored water after the radiation and water were presented together. In this example, the radiation represents the unconditioned stimulus and nausea represents the unconditioned response. After the pairing of the two, the flavored water is the conditioned stimulus, while nausea that formed when exposed to the water alone is the conditioned response.

3.1.7 Operant conditioning

Skinnerian conditioning, is a method of learning that uses rewards and punishment to modify behavior. Through operant conditioning, behavior that is rewarded is likely to be repeated, while behavior that is punished is prone to happen less. Operant conditioning is a form of learning in which the motivation for a behavior happens after the behavior is demonstrated. An animal or a human receives a consequence after performing a specific behavior. The consequence is either a reinforcer or a punisher. Actions that are followed by reinforcement will be strengthened and more likely to occur again in the future. Operant conditioning, sometimes referred to as instrumental conditioning, is a method of learning that employs rewards and punishments for behavior. Through operant conditioning, an association is made between a behavior and a consequence (whether negative or positive) for that behavior.

3.1.8 Types of operant behaviors

B.F. Skinner divided behavior into two different types: respondent and operant.

Respondent behavior. This is the type of behavior that you can't control. It's Skinner's term for what happened with Pavlov's dogs -- when they heard a bell, they responded by salivating. It was a reflex, not a choice. People have respondent behaviors, too. If someone puts your favorite food in front of you, you likely will start salivating, just like Pavlov's dogs.

Operant behavior. These are voluntary behaviors that you choose to do base on previous consequences. You choose to behave in a certain way to get an expected result. For example, you study hard in anticipation of a reward from your parents. Or if you get punished for talking back to your parents, you are more likely to choose not to do that in the future.

During conditioning

We begin to associate the neutral stimulus with the unconditioned response. For instance, you may associate a specific type of food with a stomach virus, or the bell ringing before getting food may be associated with receiving food.

After conditioning

Once you've learned to associate the conditioned stimulus with the unconditioned response, it becomes the conditioned response. So, the specific type of food now produces nausea (even if it wasn't necessarily what caused the stomach virus), and the bell creates salivation. In this way, you've unconsciously learned to associate the new stimulus (whether situation, object, person, etc) with response.

3.1.9 PRINCIPLES OF OPERANT CONDITIONING

There are five principles in operant conditioning. These include positive reinforcement, negative reinforcement, positive punishment, negative punishment, and extinction. Extinction occurs when a response is no longer reinforced, or punished, which can lead to the fading and disappearance of the behavior.

3.1.10 Components of Operant Conditioning

There are several key concepts in operant conditioning. The type of reinforcement or punishment that is used can have an effect on how the individual responds and the effect of conditioning. There are four types of operant conditioning that can be utilized to change behavior: positive reinforcement, negative reinforcement, positive punishment, and negative punishment.

3.1.11 Reinforcement in Operant Conditioning

Reinforcement is any event that strengthens or increases the behavior it follows. There are two kinds of reinforcers. In both of these cases of reinforcement, the behavior increases. **Positive reinforcers** are favorable events or outcomes that are presented after the behavior. In positive reinforcement situations, a response or behavior is strengthened by the addition of praise or a direct reward. If you do a good job at work and your manager gives you a bonus, that bonus is a positive reinforcer. **Negative reinforcers** involve the removal of an unfavorable events or outcomes after the display of a behavior. In these situations, a response is strengthened by the removal of something considered unpleasant. For example, if your child starts to scream in the middle of a restaurant, but stops once you hand them a treat, your action led to the removal of the unpleasant condition, negatively reinforcing your behavior (not your child's).

3.1.12 Punishment in Operant Conditioning

Punishment is the presentation of an adverse event or outcome that causes a decrease in the behavior it follows. There are two kinds of punishment. In both of these cases, the behavior decreases. **Positive punishment**, sometimes referred to as punishment by application, presents an unfavorable event or outcome in order to weaken the response it follows. Spanking for misbehavior is an example of punishment by application. **Negative punishment**, also known as punishment by removal, occurs when a favorable event or outcome is removed after a behavior occurs.

3.1.13 Understanding Reinforcement

In operant conditioning, "reinforcement" refers to anything that increases the likelihood that a response will occur. For example, reinforcement might involve presenting praise (a reinforcer) immediately after a child puts away their toys (the response). By reinforcing the desired behavior with praise, the child will be more likely to perform the same action again in the future. In a classroom setting, for example, types of reinforcement might include giving praise, letting students out of unwanted work, or providing token rewards, candy, extra playtime, or fun activities.

3.2 OBSERVATIONAL LEARNING

In Psychology, Observational learning is *the process of learning by watching the behaviors of others*. The targeted behavior is watched, memorized, and then mimicked. Also known as shaping and modeling, observational learning is most common in children as they imitate behaviors of adults. Observational learning is an important area in the field of psychology and behavior science more generally. It deals with modeling.

3.2.1 The Role of Modeling

An early and longstanding aim of the observational learning literature is to understand the role of modeling in behavior change (e.g., Bandura & Huston, 1961; Bandura & McDonald, 1963; Bandura, Ross, & Ross, 1961). Behavior change can and does occur through observation, even when such observation is incidental, occurring in the context of other activities.

3.2.2 COGNITISM OVER VIEW

Cognitivism is a theory of learning that focuses on processes of the mind. Cognitivist learning states that the way we learn is determined by the way our mind takes in, stores, processes, and then accesses information. The core belief of cognitivism is that the way people process and store information is key to understanding how they learn. This means that the focus of the theory is on understanding how people think, rather than on focusing on behavior or teaching methods. Cognitivism holds that learning is an active process, which involves making connections between new information and what we already know. One of the key principles of cognitivism is

that people are able to construct their own knowledge based on their experiences and what they already know.

This means that the learner takes an active role in their learning, rather than passively accepting information from a teacher. This view of learning puts a lot of emphasis on understanding how people think, remember, and make decisions. Another key principle of cognitivism is that learning occurs through the use of mental processes such as problem-solving, reasoning, and decision-making. These processes allow us to make sense of the world around us and to take in new information. This means that learners must be actively engaged in the learning process in order to gain a deep understanding of the material. Cognitivism also emphasizes the importance of feedback and self-regulation in learning. Feedback helps learners understand their performance and identify areas for improvement. Self-regulation allows learners to assess their own progress, which can help them stay motivated and on track with their goals.

3.2.3 Cognitivism as an important learning theory

Because it emphasizes the importance of understanding how people think and learn. This knowledge can be used to create more effective learning experiences for students by taking into account their unique cognitive styles and needs. Additionally, this knowledge can help teachers create more meaningful lessons that engage learners and help them understand material more deeply. Is a major learning theory that focuses on how people process information and acquire knowledge. This article will explore the core principles of cognitivism, as well as its implications for teaching and learning. This view of learning puts a lot of emphasis on understanding how people think, remember, and make decisions.

3.3 COGNITION IN PSYCHOLOGY

Cognitivism is all about the internal mental processes that are responsible for learning taking place, such as receiving, organizing, storing, and retrieval of information. An example of cognitivism is the way that we solve problems by using prior knowledge.

3.3.1 Cognitivism in the classroom

Cognitivism is used in the classroom by educators to make learning meaningful and permanent for students. Educators can use a variety of strategies in the beginning, middle, and conclusion of a learning cycle so that connections are made in the brains of the learners. The mind is an information processor and learners process information by activating prior knowledge, or schema, in order to make connections for new learning. Cognitivism is essentially how we absorb information, solve problems, and ultimately learn. Cognitivism is the basis for most learning theories, as it deals with the way our brains absorb, retain, and recall knowledge. Cognitivism is also crucial in the development of learning new skills and memorizing concepts that would otherwise be difficult to remember without the connection of neural pathways.

3.3.2 Cognitivism in Education

Cognitivism is used in education to learn new skills and strategies by making meaningful connections in the brain. Cognitivism in the education field is the basis for learning because it is constructive, meaning that it builds upon the knowledge that students may already have in their brains. Cognitivism helps children to learn faster and better because it helps to grow and connect the pathways in the brain and allows for students to use their brains more effectively. Cognitive learning focuses on the processes and addresses how information is received, processed, organized, and then later retrieved by the mind. Using these processes, educators can structure their lessons to deliver their content in a way that students can attain, process, use, and hopefully store the knowledge long term.

3.3.3 Characteristics of cognitive learning theory

The main principle of cognitive theory is the idea that children are born with a limited cognitive ability that must develop over time. **Cognitive ability** is the core skills your brain uses to think, read, learn, remember, reason, and pay attention. In 1936, Piaget introduced his cognitive development theory and broke the developmental process down into four stages: The sensorimotor stage, the preoperational stage, the concrete operational stage and the formal operational stage. As children develop from one stage to the next, they expand their knowledge.

Piaget's original cognitive development theory has been criticized for being outdated and too culturally bound (valid only within a particular culture). Vygotsky, whose theories are grounded in the cognitive approach, built upon Piaget's work to develop his sociocultural cognitive theory. This theory recognized and examined the influence of social and cultural aspects on a child's cognitive development.

3.3.4 Piaget and the Cognitive Development Theory

Jean Piaget (1896-1980) was a Swiss psychologist and genetic epistemologist. Piaget believed that the way children think is fundamentally different from how adults think. This theory was pretty ground-breaking at the time as, before Piaget, people often thought of children as 'mini adults'. Piaget's theory was very influential in the field of language acquisition and helped directly link language learning with intellectual development. Piaget suggested that language and cognitive skills are directly related and that stronger cognitive skills lead to stronger language skills. The principal goal of education in the schools should be creating men and women who are capable of doing new things, not simply repeating what other generations have done. (Jean Piaget, *The Origins of Intelligence in Children*, 1953)

3.3.5 Schemas

Piaget believed that knowledge could not simply emerge from an experience; instead, an existing structure is necessary to help make sense of the world. He believed that children are born with a primary mental structure upon which all new knowledge can be built. He suggested that cognitive mental growth is achieved by integrating simpler concepts of knowledge into higher-level concepts at each stage of development. Piaget named these concepts of knowledge schemas. Piaget saw children as constantly creating and recreating their model of reality based on these schemas.

Implications of Cognitive Theory in the classroom

Cognitive learning is a teaching approach that **encourages students to be active and engaged in the learning process**. Cognitive learning moves away from memorization or repetition and focuses on developing a proper understanding. Cognitive theory examples include Encouraging

students to figure out answers for themselves rather than telling them, Asking students to reflect on their answers and explain how they came to their conclusions, Helping students find solutions to their problems, Encouraging discussions in the classroom, Helping students identify patterns in their learning, Helping students recognize their own mistakes, Using visual aids to reinforce new knowledge and Utilizing instructional scaffolding techniques (scaffolding is a teaching technique that supports student-centred learning)

3.3.6 Information process theory

Information process theory is a cognitive approach to Second Language Acquisition proposed by Barry McLaughlin in 1983. The theory recognizes that **learning a new language is an active process** that involves building upon schemas and utilizing specific learning strategies to enhance comprehension and retain information. The information process approach is often contrasted with the behaviourist approach, which sees language learning as an unconscious process. McLaughlin (1983) proposes that learning a new language involves moving from a conscious process to an automatic process via practice.

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Behaviorism is a branch of Psychology that focuses on how people learn through their interactions with the environment. It is based on the idea that all behavior is acquired through conditioning, which is a process of reinforcement and punishment. According to this theory, learning is change in observable behavior that result from experience. They believe that the learner's environment needs to be manipulated to foster development. This is in contrary to the cognitive view which places emphasis for learning in the mind of the learner.

3.5 BEHAVIORISM ACCORDING TO WATSON (Father of Behaviorism)

John Broadus Watson was born in South Carolina on January 9, 1878, to impoverished parents, Pickens and Emma Watson. John Watson spent a lot of time around animals on his childhood

3.5.1 John B. Watson: Contribution to Psychology

In 1908, Watson was offered a faculty position and department chair at the prestigious Johns Hopkins University in Baltimore, Maryland. During his academic career, John B. Watson made numerous contributions to the field of psychology. Watson's psychology contributions include the introduction of behaviorism as well as his most infamous and controversial "Little Albert" experiment, which helped pave the way for the behaviorism approach to psychology. Behaviorism, according to Watson, was the science of observable behavior. Only behavior that

could be observed, recorded and measured was of any real value for the study of humans or animals.

Behaviourists propose that environmental stimuli and consequences shape behavior and that learning occurs through a process called operant conditioning. Operant conditioning involves reinforcing or punishing a behavior based on their outcomes. Behaviourists theory has short coming in that it is too simplistic, deterministic, and neglecting the role of cognition, emotion, and the social factors in human behavior. Behavioural theory emphasizes the role of external stimuli and consequences in shaping behavior.

3.5.2 The Theory of Behaviorism in Learning

Behaviorism is a psychological approach that focuses on studying observable behavior rather than internal mental processes. Founded by John B. Watson in the early 20th century, behaviorism emphasizes the importance of understanding the influence of the environment on individuals' actions. This approach rejects the notion of analyzing emotions, thoughts, or consciousness, instead focusing solely on what can be directly observed and measured. By examining the relationship between stimuli and responses, behaviorism aims to explain human behavior through principles of conditioning, reinforcement, and stimulus-response associations.

3.5.3 Types of Behaviorism

There are two main types of behaviorism: methodological behaviorism and radical behaviorism. Both types focus on the study of human and animal behavior, but they differ in key elements, strategies, and criticisms. Methodological behaviorism, also known as Watsonian behaviorism, is based on the belief that only observable behavior should be studied. It originated from the works of John B. Watson and emphasizes the use of scientific methods for understanding behavior. This type of behaviorism excludes mental processes and focuses solely on behavior as a response to stimuli. It heavily relies on objective observation and experimentation, and it often uses conditioning techniques, such as classical and operant conditioning, to explain behaviors.

Ivan Pavlov, a Russian physiologist, is renowned for his experiments on classical conditioning. He discovered that dogs could be conditioned to associate a neutral stimulus, such as the ringing

of a bell, with an unconditioned stimulus, such as food. This led to the creation of what is known as Pavlovian conditioning, demonstrating the power of conditioning in shaping behavior. Edward Thorndike, an American psychologist, introduced the concept of the law of effect, stating that behavior that is followed by a pleasant consequence is more likely to be repeated, while behavior followed by an unpleasant consequence is less likely to be repeated. John B. Watson, an influential American psychologist, is considered the founder of behaviorism. He emphasized the importance of studying observable behavior and rejected the study of internal mental processes. Watson believed that all behavior is learned, and he aimed to explain how it could be understood and controlled.

Skinner expanded on the work of Watson and developed the concept of operant conditioning. He proposed that behavior is shaped by consequences and that reinforcement or punishment could be used to increase or decrease the likelihood of certain behaviors. Skinner's research on schedules of reinforcement and his invention of the operant conditioning chamber (commonly known as the "Skinner box") further solidified the principles of behaviorism. In conclusion, behaviorism in learning has a rich history shaped by the contributions of Ivan Pavlov, Edward Thorndike, John B. Watson, and B.F. Skinner. Their work laid the groundwork for understanding how behavior is learned and influenced by external factors.

3.5.4 Application of Behaviourism Theory in Learning/classroom

In order to apply the concepts of behavioral learning in the context of learning theory, several strategies can be incorporated. Firstly, creating the right environment is crucial. This involves using a conditioned stimulus, which is a stimulus that produces a specific response when paired with a specific behavior. For example, a teacher can use a bell as a conditioned stimulus to signal the start of a learning activity, conditioning the students to associate the bell with focused attention and engagement. Another strategy is introducing self-directed learning and gamification. Self-directed learning allows students to take control of their own learning process, fostering independence and motivation. Gamification involves incorporating game-like elements into the learning experience, such as rewards, badges, and competition, to make it more engaging and enjoyable. There are many ways teachers can apply behaviorism in the classroom. These include; positive reinforcement, negative reinforcement, punishment, modeling, shaping, cueing.

3.5.5 Positive Reinforcement

Positive reinforcement entails offering reward or incentives to strengthen desired behaviors. This can include verbal praise, stickers, tokens or other tangible rewards. By positively reinforcing desired behaviours, educators can motivate students and increase the likelihood of those behaviours to being repeated. For example a teacher can praise a student for completing their homework, give them a sticker for raising their hand, or reward them with extra recess time for being cooperative. Positive reinforcement encourages students to repeat desired behaviours and achieve their goals. It boosts students' self-esteem and confidence. It fosters a positive and nurturing learning atmosphere.

3.5.6 Negative Reinforcement

Negative reinforcement is the removal of an unpleasant stimulus after a behavior to increase its frequency. For example, a teacher can reduce the amount of homework for a student who performs well on a test, allow them to skip a quiz if they score high on a pre-test, or exempt them from a penalty if they correct their mistake.

Negative reinforcement can have several benefits, such as:

- It helps students avoid or escape from unpleasant or aversive situations.
- It increases students' motivation and persistence.
- It reduces students' anxiety and stress.

3.5.7 Positive Punishment

Positive punishment is a concept in psychology that involves applying negative consequences to discourage undesirable behaviors. It is based on the principle that by associating an unpleasant outcome with a specific behavior, individuals are less likely to repeat that behavior in the future. The effects of positive punishment can be twofold. First, it serves as a deterrent by creating an aversive experience that individuals want to avoid. For example, a student who consistently disrupts the class may be given extra homework or be made to stay after school. By experiencing these negative consequences, the student may be less likely to repeat their disruptive behavior.

Second, positive punishment can help individuals understand the consequences of their actions and develop self-control. By immediately linking the negative outcome to their behavior, individuals learn to associate their actions with undesirable outcomes. This can lead to a better understanding of cause-and-effect relationships and promote responsible decision-making.

3.5.8 Negative Punishment

Negative punishment is a concept within the framework of behaviorism that aims to decrease the frequency of a particular behavior by removing a desired stimulus. In behaviorism, the focus is on understanding how the environment influences behavior, and negative punishment is one of the strategies used to shape and modify behavior. Negative punishment involves the removal of a desired stimulus as a consequence of engaging in a certain behavior. This leads to a decrease in the frequency of the behavior in future instances. For example, let's imagine a child repeatedly interrupts their sibling during playtime. To address this behavior using negative punishment, the parent can remove the child from the play area whenever they interrupt. By doing so, the child experiences the removal of the desired stimulus, which is the opportunity to play with their sibling. Consequently, the child learns that their interrupting behavior results in the loss of the enjoyable activity, and they are more likely to refrain from interrupting in the future.

3.5.9 Benefits of working with behaviorists theorist learning model

Implementing a behavioural learning model in education offers several advantages. It provides a systematic and structured approach to teaching, enabling educators to set clear expectations and establish consistent routines in the classroom. The use of reinforcement encourages desirable behaviors, fostering a positive learning environment. Additionally, behaviorism emphasizes measurable outcomes, allowing educators to assess students' progress and tailor instructions accordingly. By focusing on observable behaviours, behaviorism provides a practical framework for effective teaching and learning. It provides a clear objective way of measuring and evaluating student performance and progress. It allows teachers to tailor instruction and feedback according to each student's needs and abilities. It helps teachers manage classroom behavior and discipline by using positive reinforcement and negative reinforcement strategies. It motivates students to

learn by rewarding them for their achievements and efforts. It helps students develop self-regulatory skills by teaching them how to monitor and control their behavior.

3.5.10 Application of Behaviorism in the Classroom

There are many ways that teachers can apply behaviorism in the classroom to enhance student learning and behavior. Here are some examples of behaviorist teaching strategies:

Positive Reinforcement

Positive reinforcement entails offering rewards or incentives to strengthen desired behaviors. This can include verbal praise, stickers, tokens, or other tangible rewards. By positively reinforcing desired behaviors, educators can motivate students and increase the likelihood of those behaviors being repeated. For example, a teacher can praise a student for completing their homework, give them a sticker for raising their hand, or reward them with extra recess time for being cooperative.

Positive reinforcement can have several benefits, such as:

- It encourages students to repeat desirable behaviors and achieve their goals.
- It boosts students' self-esteem and confidence.
- It fosters a positive and nurturing learning atmosphere.

Punishment

Punishment involves applying negative consequences to discourage undesirable behaviors. It can take the form of reprimands, time-outs, or loss of privileges. For example, a teacher can scold a student for talking out of turn, take away their privileges for breaking a rule, or give them extra work for not paying attention. However, it is important to use punishment judiciously and consider its potential impact on the student's motivation and self-esteem.

Punishment can have several drawbacks, such as:

- It can cause students to resent or fear the teacher or the subject.

- It can damage students' self-esteem and confidence.
- It can lead to aggression, defiance, or avoidance behaviors.

3.5.11 Modeling

Modeling involves demonstrating desired behaviors for students to observe and imitate. Educators can act as positive role models by displaying appropriate behavior and providing examples of how to perform certain tasks or handle specific situations. For example, a teacher can show students how to solve a math problem, how to write an essay, or how to behave in a group project.

Modeling can have several benefits, such as:

- It provides students with clear and concrete examples of what to do and how to do it.
- It helps students acquire new skills and knowledge faster and easier.
- It influences students' attitudes and values by showing them what is acceptable and desirable.

3.5.12 Shaping

Shaping is the process of gradually reinforcing successive approximations of a desired behavior until it is mastered. This technique breaks down complex behaviors into smaller, manageable steps, allowing students to develop the desired skills or behaviors gradually. For example, a teacher can reward a student for writing one sentence, then two sentences, then a paragraph, until they can write a full essay.

Shaping can have several benefits, such as:

- It helps students overcome difficulties and challenges by breaking down complex tasks into manageable steps.
- It allows teachers to monitor and adjust instruction and feedback according to each student's progress and performance.
- It fosters creativity and innovation by encouraging students to try new things and explore different possibilities.

3.5.13 Cueing

Cueing is the process of providing hints or prompts to steer a student's behavior or performance. For example, to facilitate students' memory recall, problem-solving, and task completion, educators have the option to employ different cues. These cues may include verbal cues—like asking questions or offering reminders, visual cues—such as gestures or pictures, and physical cues—like touch or movement.

Cueing can have several benefits, such as:

- It helps students focus their attention and memory on relevant aspects of the learning material or situation.
- It supports students' comprehension and understanding by clarifying concepts or instructions.
- It enhances students' engagement and participation by stimulating their curiosity and interest.

3.5.14 Behaviorist Teaching Strategies

Incorporating behaviorist teaching strategies can enhance student engagement and learning. There are many teaching strategies that are based on behavioral learning theory. Some of these strategies are:

- **Direct Instruction:** This method involves clear and structured teaching, with a focus on repetition and practice. It ensures that students receive consistent and explicit information.
- **Token Economy:** In a token economy system, students earn tokens or points for exhibiting appropriate behavior. These tokens can be exchanged for rewards or privileges, providing students with a tangible incentive to stay on task.
- **Prompting and Fading:** Educators can use prompts to guide students toward the correct response. As the student becomes proficient, prompts are gradually reduced, allowing them to respond independently.

- **Behavior Contracts:** Behavior contracts outline specific goals and rewards for meeting them. Students and teachers both sign the contract, making the expectations clear and encouraging students to take responsibility for their actions.
- **Time-Out:** Time-out is a temporary removal of a student from a reinforcing environment due to disruptive behavior. It provides an opportunity for the student to calm down and reflect on their actions.
- **Task Analysis:** Complex tasks can be broken down into smaller, manageable steps. By teaching one step at a time and gradually building on the skills, students can achieve success more easily.

For more information focusing on other categories of learning theories, be sure to explore other National University resources.

3.5.15 Drawbacks of Working with a Behavioral Learning Model

While behaviorism has its advantages, there are also drawbacks to consider. Critics argue that behaviorism focuses solely on external behavior and overlooks the influence of internal cognitive processes. It may not fully address complex learning, creativity, and critical thinking skills, which are essential in today's education.

Additionally, excessive reliance on behaviorist techniques may lead to a rigid and overly controlled learning environment, limiting students' autonomy and creativity.

Working with a behavioral learning model can also have some drawbacks for educators and students alike.

Some of these drawbacks are:

- **Lack of Focus on Cognitive Skills:** The behavioral model primarily emphasizes observable behaviors and external stimuli. It may overlook the development of critical thinking, problem-solving, and higher-order cognitive skills, which are essential for long-term learning and academic success.

- **Limited Application to Complex Learning:** The behavioral approach is most suitable for simple and rote learning tasks. However, it may not fully address the complexities of real-world problem-solving and creative thinking, which require deeper understanding and analysis.
- **Narrow Assessment of Learning Outcomes:** Behavioral learning often relies on measurable outcomes, such as correct responses or completion of tasks. This narrow focus might neglect other valuable aspects of learning, such as creativity, emotional intelligence, and social skills.
- **Possible Overemphasis on Rewards and Punishments:** A heavy reliance on rewards and punishments may lead to extrinsic motivation, where students perform for the sake of rewards rather than a genuine interest in learning. This could hinder intrinsic motivation and long-term engagement.
- **Limited Individualization:** The behavioral model might not fully accommodate individual differences in learning styles, strengths, and challenges. Some students may require personalized approaches that consider their unique needs.
- **Potential for Negative Emotional Impact:** Punishments and negative reinforcement can sometimes lead to stress, anxiety, and fear of failure among students. This negative emotional impact may hinder their overall learning experience.
- **Short-Term Focus:** Behaviorist techniques often yield quick results in terms of behavior change. However, their effects may not be long-lasting, and students might revert to previous behaviors once the external incentives are removed.
- **Less Autonomy and Creativity:** The behavioral approach may limit students' autonomy and creativity since they are encouraged to follow specific instructions and predefined behavioral expectations.

Despite these drawbacks, it's essential to acknowledge that behaviorist techniques can still be valuable tools when used in moderation and in conjunction with other educational approaches. By combining various teaching methods, educators can create a more balanced and effective learning environment that addresses the diverse needs of students.

CHAPTER FOUR : MTHODOLOGY

It is important to follow a scientific methodology because it will help us better understand the phenomenon and the results obtained. It is equally important to note that empirical research is very important in the world of today because most people believe in something if only they can see, hear, or experience. It is used to validate multiple hypotheses and increase human knowledge and continue doing it to keep advancing in various fields. In this section of our work, we shall focus on recalling our research problem, research questions, hypothesis, research questions, hypothesis, research design, research method, research format, research techniques, data collection, population, sampling, sampling techniques, data analysis etc, all to better expatiate and understand the outcome of our scientific research.

4.1.1 Recall of research question

A research question is simply a question a research project sets out to answer or it is an answerable inquiry into a particular issue, meaning it is the start into a research project. We will have two types of research questions; that is general and specific.

4.1.2 General research question

How learning methods does facilitates self-regulatory strategies in children with Down syndrome?

4.1.3 The synoptic table

Table n° 1 Synoptic table highlighting research questions, hypotheses, variable indicators, instrument of data collection, and data analysis.

Research Question	General Hypothesis	Variables	Modalities	Indicators	Indices
How does learning methods facilitate self-regulatory strategies in children with Down syndrome	Learning methods affect the perception, attention and memory of children with Down syndrome	Independent variables; learning methods	Learning method from an Operant conditioning point of view	➤ Behaviour modification ➤ Aversive stimuli ➤ Reinforcement ➤ Punishment ➤ shapping	• Play way • Project • Experiment • Individual learning • Group learning
			Learning method from a Classical conditioning point of view	❖ Fear response ❖ Taste aversion	🌈 Scary sounds, changing sounds 🌈 Nausea causing radiation
			Learning method from an Observant conditioning or modeling point of view	● Retention ● Attention ● Reproduction ● Motivation	1. Poor environmental conditions 2. Illness 3. Lack of focus 4. Hunger 5. Lack of interest 6. Poor memory
		Dependent variable ; development of self-regulatory strategies	Learning method from a Behavioural strategies point and cognitive strategies point.	● Conversation style ● Team work ● Creativity ● Problem solving ● Repetition ● Drilling ● Question and answer ● Regular review	➤ Lack of focus ➤ Lack of cooperation ➤ Lack of critical thinking ➤ Poor attention

4.1.4 Presentation of variables.

Independent variable

Learning methods

Dependent variable; development of self-regulatory strategies

From the above table, we can see that learning methods facilitates the perception, attention and memory of children with Down syndrome. Hypothesis 1 is related to conditioning and perception in children with Down syndrome through operant conditioning as reported by Skinner. Reinforcement is the most effective way to teach a person to increase a behavior. According to

Skinner, punishment in operant conditioning decreases bad behavior by adding a negative reinforcement stimulus by removing an aversive stimuli. In shaping, Skinner used the approach of rewarding successive approximations of a target behavior. This is done by breaking down behavior into many small achievable steps.

In observant learning, Albert Bandura used the indicators of attention, retention, reproduction and motivation. In attention, the learner must pay focus to something in the environment. They must notice the model, and the behavior occurring. The child must have interest in what he/she is observing.

In classical conditioning, Ivan Pavlov and Watson dealt on fear response and taste aversion. It shows how phobia can form through classical conditioning. By continuously pairing an unconditioned stimulus. The child will produce an unconditioned response, which will now produce a condition response which is fear. Conditioned tasted aversion is a learned association between the taste of a particular food and illness such that the food is considered the cause of the illness. It the avoidance of a particular taste. For example, when nausea occurs after food is eaten. A neutral stimulus (Food) is paired with an unconditioned stimulus (an illness), which leads to an unconditioned response (feeling sick).

Bandura emphasized that, for attention to be effective, what is being modeled must be retained. The observer must structure the information in a way which is easy to remember. In reproduction, the behavior is remembered and the observer must be motivated to produce the desired behavior. He noted that factors which can cause low levels of retention, attention, reproduction and motivation may include poor environment, lack of focus, poor memory, illness, lack of interest and hunger.

4.1.5 Data collection instrument

The data was collected using interview questions and observation

INTERVIEW GUIDE

- 1. Identification**
2. Learning methods from operant conditioning
3. Learning methods from classical conditioning

4. Learning methods from modeling
5. Behavioral, social and cognitive strategies

4.1.6 Data analysis

The content of the data collected was analyzed.

4.2 Site of study

A site of study according to Fonkeng, Chaffi and Bomda (2014) is a geographical and sociological place where your population of study lives. With the specificity of Cameroon that is made up of ten regions, , our study will be limited to the centre region (Yaounde) , which is the political capital of Cameroon. Within a time frame from February to April 2023. Our sample will be made up of children with Down syndrome at the L’InstitutPsychopedagogique Einstein, Yaounde. The place that will serve us for the study is L’InstitutPsychopedagogique Einstein, Yaounde, situated in the neighbourhood of Minifirm, Melen, Yaounde.

4.2.1 Description of site of study

Situated at Minifirm, near Transformer, in the sixth district of Yaounde Urban Council, l’institutpsychopedagogique Einstein is an applicative structure of Montessosicameroon Association, a non-lucrative Association founded by MmeTchawaNjonkouGiselle in the Republic of Cameroon, in the centre region on March 2001 according to 1990 law which is based on the freedom of Association in Cameroon. The centre was created for children between 5 to 18 years of Cameroonian Nationality, without distinction of sex, ethnic, religious or political group. This centre has been functioning and this is it twenty years of existence, and founder still operating.

The Institute is organized as follows;

Placed under the authority of MmeTchawaNjonkou Gisellethe activities of the centre are organized around five big administrative units.

- ☐ ☐ The general coordinator
- ☐ ☐ The administrative secretariat and financial unit
- ☐ ☐ Pedagogic animation unit

☐ ☐ Social affairs unit

☐ ☐ Extension of specialized materials and

☐ ☐ Educative groups sections

4.2.2 THE ACTIVITIES OF THE CENTRE

GENERAL COORDINATOR

She coordinates all the activities of the different cells placed under her authority. She administers and ensures the daily management of the cabinet and gives the different orientation to the different units.

4.2.3 ADMINISTRATIVE SECRETARIAT AND FUNCTIONAL UNIT

They are concerned with all the administrative and financial matters which are:

☐ ☐ The accountant of the centre

☐ ☐ Management of personnel

☐ ☐ Secretariat

4.2.4 PEDAGOGIC ANIAMTION UNIT

These concerns the in adaptation linked to the failure of the school system. In ths case, the intervention is centred on:

Re-education of the learning trouble

*Social links with the former institutions or establishment

Interviews with the family

Psychopedagogic support to the teahcers.

4.2.5 SOCIAL AFFAIRS UNIT

It concerns inadaptation cases linked to family dysfunctioning. The intervention for these cases is based on psychopedagogic care on:

☐ ☐ Social links with the institution

- ☐ ☐ Going to the field
- ☐ ☐ Group therapy
- ☐ ☐ Sensitization of social partners

4.2.6 EXTENSION OF SPECIALISED MATERIALS

It concerns the sensitization and the use of specialized materials in the care taking process and education of children and youths:

- ☐ ☐ Demonstration sections
- ☐ ☐ The conception and development of specialized materials
- ☐ ☐ The distribution of specialized materials

4.2.7 EDUCATIVE ANIMATION

It consists of an activity which targets the education of children in a creative atmosphere consisting of:

- ☐ ☐ Animation in the leisure and welcome centre
- ☐ ☐ The conception animation education plays.

4.2.8 FUNCTIONING OF THE CENTRE

The L'Institut Psychopédagogique Einstein" is a private social structure which is conformable to law number 83, is relative to the protection of handicapped children. The centre has objectives to promote the scolarisation of children with special education needs through the extension of techniques of care of youths and children with school and adaptation difficulties.

The children are generally brought to the centre by the notice board of its location or through recommendation by a person of Ministry of Social Affairs who knows about the existence of the centre, heads of establishments and friends.

Reception of patients is through a medico-psycho pedagogic consultation: social and family enquiry, psychological examination, medical consultation and the evaluation of school learning troubles. This reception is based on a systematic pluridisciplinary approach, which often leads to

a weekly case conference that unites all the experts of the centre in order to elaborate their diagnosis.

Psychomotor (lateral trouble, spatio-temporal structuration of the body schema).

- ☐ Memory troubles
- ☐ Neuro functional troubles
- ☐ Psycho- affective troubles
- ☐ Deficiency of attention and concentration troubles
- ☐ Hyper activity.

An intervention plan susceptible to modify at the end of three months offers the evolution balance of the therapy. It previews systematically a pedagogic procedure based on the re-education of school learning troubles, Psychosocial medical care, adaptation spot, are planned if necessary. Elsewh6ere for scholarised children, an evaluation balance of the course is done every term by the teacher with accord of the said establishments. Children who are taken care of are coming from varied social milieu. Needy persons benefit from a reduction even up to free care. This decision is taken from a social enquiry instituted by the social services of the centre and supported by the competent services of the Social Affairs.

4.3 Population and sample

It is important to note that data collection imposes your choice of population of study. It is a group of individuals on which research will be carried out. This group of individuals should be able to bring out objective and positive responses to the researcher's questions. Chamgagne et al (1994) paraphrased by Nounbissie. A population the entire group that you want to draw conclusions about. Whereas, a sample is the specific group that you will collect data from. The size of the sample is always less than the total size of the population. In research, a population does not always refer to people. Throughout our research, we shall work with Down syndrome children and who are in capacity building centres for empowerment and self-regulation. In this way, the population we are going to use for our scientific research are children with Down syndrome and who are in the L'InstitutePsychopedagogique Einstein for self-regulation and

motivation, and reinforcement for learning hence, becoming autonomous. As sample we have decided to take five children with Down syndrome both males and females of the said centre or institution.

4.3.1 Sampling and sampling techniques

Sampling is a technique of selecting individual members or subjects of the population to make statistical inferences from them and estimate characteristics of the whole population. We can differentiate two main types of sampling. That is; probability and non-probability sampling. In non- probability sampling, the sample is selected based non-random criteria, and not every member of the population has a chance of being selected. On the other hand, probability sampling method includes convenience sampling, voluntary response sampling, purposive sampling, snowball sampling and quota sampling.

On this note, five students both boys and girls, age five to sixteen who are undergoing empowerment, self-regulation , reinforcement and motivation through conditioning and others who have already been self-regulated were selected as research participants in this research. Using qualitative interviews and observation, this study was designed to understand and demonstrate the impact of the use of conditioning during learning, this is done through a descriptive and comparative study of the phenomenon. This is to reduce personal powerlessness and dependency, thus favouring autonomy and self-regulation. This qualitative approach (Ivan Pavlov, Bandura and Piaget have provided an in-depth examination of the process of self-regulation to learning by children with Down syndrome through conditioning.

4.3.2 Procedure and criteria of selection of participants

Our study is based on examining how conditioning facilitates self-regulation process to learning activities among children with Down syndrome at L’Institut Psychopedagogique Einstein in Yaounde. So, to act as participants of this research, you have to fulfill certain conditions that are the criteria of selection. Besides the criteria, we have a scale of selection, and this will be done following a strict procedure.

4.3.3 Criteria of selection

To be selected, our participants have to be submitted to;

- ❖ Mild mental ability
- ❖ Moderate mental ability

4.3.4 Low mental ability

We limited the search to articles in English and on articles which dealt only with conditioning, reinforcement, motivation and self-regulation and children with Down syndrome were focused on. Also, participants for this research were at L’InstitutePsychopedagogique Einstein within the age of five to sixteen, who can speak English or French and who are undergoing capacity building in various domains. This was guided by the principles of theoretical sampling (Charmaz, 2014). They mild to moderate intellectual disability and may have specific challenges with attention span, verbal memory, and expressive communication.

4.3.4 Exclusion criteria

You can be a Down syndrome child though not empowered and encouraged at L’InstitutePsychopedagogique Einstein.

4.5 Types of research; choice and justification

Being a descriptive form of research, our will be based on qualitative research methodology, using interviews and observation as data collection methods. Qualitative research is an interactive in which improved understanding to the scientific community is achieved by making new significant distinctions resulting from getting closer the phenomenon studied. This formulation is developed as a tool to help improve research designs while stressing that, a qualitative dimension is present in quantitative work. A qualitative study is defined as an inquiry process of understanding a social or human problem based on building a complete holistic picture formed with words, reporting detailed views of informants, and conducted in natural setting. (Cresswell, 1994). We chose this research method because of our desire to directly harvest responses to our questions in a natural setting which is more reliable compared to other

forms of research methods. Again, it provides an in-depth understanding of the ways people come to understand, act, and manage their day-to-day situations in particular settings.

It is important to note that research methods in research are very important because it determines its success, validity, and reliability. Coming from an interest in thorough understanding of human behavior, social scientists turn to use qualitative research aiming to accommodate a detailed account of human behavior and beliefs within the context they occur. (Rubin, 2005).

4.5.1 Data collection

The research team used four main approaches to study the process of reinforcement; an extensive literature review, interviews with some teachers, in-depth observations of kids who have undergone conditioning, in-depth biographical interviews with the proprietress of the centre, observations of kids whom reinforcement was not successful, to gain further reflections on the initial findings from the biographical interviews (de Boer, 1992; Lord, 1991).

4.5.2 Choice of technique or data collection method

An interview in qualitative research is a conversation where questions are asked to elicit information. We decided to use interview and observation as data collection method because it helps us to come in direct contact with the concerned, and at the same time, evaluate their responses for further analysis of the data. According to Kvale (1996) an interview is a conversation whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretations of the meanings of the described phenomenon. Derived from www.questionpro.com, an interview is a qualitative technique that involves asking open-end questions to converse with respondents and collect elicited data about a subject.

4.5.3 Instrument of data collection

INTERVIEW AND OBSERVATION

We are going to use an interview guide and observation methods to collect data. In a nutshell, an interview guide is a set of research questions designed to be asked as words. It has a standard format, which indicates that, the same questions are asked to the same interviewees in the same manner. It is a list containing a set of well-arranged questions that have been organised, to guide

the interviewers, researchers and investigators in collecting data or information about a particular topic or issue.

In order to collect data for this research, we are going to use the semi-structured questionnaire.

FIELD: SPECIAL NEEDS EDUCATION

SPECIALTY: MENTAL HANDICAP

4.5.4 Formula of Consent

Dear teachers,

I will like to thank you all for this great opportunity to work together. I am TETUH VIOLET ENJEL, a MATER II student in Special Needs Education, option Mental Handicap in the University of YAounde 1, Cameroon. The study I am carrying out is titled “ Learning Methods and the Development of self-regulatory strategies in children with Down syndrome”, and the main objective is to find out how reinforcement, as a conditioning process can favor or facilitates learning and the down syndrome children, which will pave the way to facilitate their learning. In this line, we shall carry out a semi-structured interview using our variables through structured questions. This will help us better understand the impact of conditioning through reinforcement during the learning amongst our population of study. If you find it convenient to be part of this study, all our discussions will be noted down on hard copy. This will enable us keep details of the discussion, so as not to forget any part of the discussion. You should know that, immediately we are done in analysis the information, it will be burn and your identity will never be made known anywhere nor to anyone. If you feel like being part of this study, you will sign below as a sign of your contentment. Thanks for your kindness.

4.6.5 Choice justification of data collection method

Interviews and observations help us explain, understand better, and explore research objects opinions, behaviors, experiences, phenomenon, etc. interview questions are often open ended so the details of the information will be collected. The reason why we decided to use interviews and observations as data collection method in our work is simply to collect detailed information on our study and because interview guides and observations needs long explanation.

4.7 Data analysis

Qualitative research and biographical analysis were used to guide our research. The interview and observations were done at the L'Institut Psychopédagogique Einstein Centre. All interviews and observations were written down and transcribed word for word and, helped by field notes. The data will be analysed using the qualitative research methods. A step by step qualitative analysis process of each candidate will be used to ensure that patterns and themes which might emerge from the data could be carefully verified. These include; transcribing the notes from the interviews, analyzing the observed phenomena as a way of identifying commonalities and differences, identifying common and variable patterns with the group, and identifying themes which link or explain the data (Miles & Huberman, 1984; Patton, 1980). We are going to carry out the content throughout our data analysis.

**CHAPTER 5: PRESENTATION, DATA ANALYSIS
AND INTERPRETATION OF RESULTS**

a. Descriptive presentation of data

Table N²: IDENTIFICATION OF CHILD/CHILDREN WITH DOWN SYNDROM

Teacher	Name of Pupil	Age	Gender	School level
Mme Lily	Kacho	6 years	Male	Pre-Nursery
Mme Isabel	OjongAyuk	15 years	Male	Level 3, class 6
Mr Ivo	SaniIvonne	14 years	Female	Level 3, class 4

Source: field work 2023

The above participants have been at the centre for about three to six years respectively, with all different experiences and different personalities. Above, we have their teachers, name of pupils, age, gender, and levels given the fact that they are being trained at the Institute. From the information above, all the children are still in school and depend completely on the centre for guidance.

5.1 INDIVIDUAL PRESENTATION OF PARTICIPANTS (SANI IVONNE)

TOTAL FOLLOW UP OF A CASE, THE PERSPECTIVE PROPOSITION OF FOLLOW UP A TEACHER AND A SPECIAL NEED EDUCATOR

We were interested in tracing out the different steps that has to be followed when a case is received in the centre, to when the perspective proposition is given concerning the case by the teacher and special need educator. The methodology used here, is the method of the centre(the Montessori method).

PRESENTATION OF THE CASE OF SANI IVONNE

SaniIvonne is a class five pupil living with biological parents, who wish to help her acquire reading skills. Sani is about fourteen years old and is in class five. She has difficulties in all the subjects. She has poor language skills and is very slow.

THE CASE OF SANI

She does not interact well with other children. She has difficulty interacting with her classmates. She does not always understand what others are saying. She has poor hand writing. By herself, she cannot produce a meaningful text. She has a lot of difficulties in Maths. Sani lives in an ordinary home with her biological parents. In this case we cancel the hypothesis of the responsibility of poor socio cultural conditions of living just-as in the general approach the teacher too will advise the parents to consult a doctor and a special need educator. Sani is about fourteen years old. She has a lot of difficulties in learning. She is very slow, she always the last to finish. An activity must always be explained to her several times. She is easily blocked in Mathematics. During break, she does not interact nor play with other children. She appears childish in her ways of doing things and interacting with other children.

APPROACH OF THE REASONING SKILLS OF A NORMAL CHILD OF FOURTEEN YEARS OF AGE

At fourteen years old, a child has reasoning capacities that permit her to integrate all learning activities in school. The reasoning faculty of a child of fourteen years according to Jean Piaget should be in the formal operational stage. The pupil has skills that can permit her to read, spell, and do mathematics and these reasoning are called “thought”. It unveils practical skills, and creativity. She makes experiments and seeks for solutions when she is blocked, she shows interest in learning.

In the case of Sani, it is just as if she is starting the learning process. She reads and writes with difficulties. Cannot solve any mathematical problems of her class level, she prefers sitting still, hardly takes part in extracurricular activities and she does not keep numbers. These difficulties impose a behavioral evaluation. She has difficulties in all the learning process. She cannot read, spell words nor solve any maths problems. She does not understand instructions. The child is an introvert (living within herself).

DETERMINING THE CONDITIONS IN WHICH THE CHILD'S DIFFICULTIES ARE FOUND.

The test observation of her behavior towards us, her classmates and the interview with the teacher reveals the difficulties of the child.

- Difficulties resulting from lack of motivation
- Secondary difficulties resulting from lack of communication and interaction
- Difficulties are also linked to her environment
- The difficulties are a specific learning difficulties.

Sani has limited interest in all activities be it curricular or extracurricular. She is an easy child. Her books reveal that she has difficulties in all the subjects. For each test, she cooperates until when it cannot go beyond her possibilities. So, the behavioral evaluation reveals that she has mental retardation.

SANI HAS MENTAL RETARDATION

Her level is comparable to that of a class two pupil. To Piagetienne tests, the conservation of numbers and quantities are not acquired. She reasons as a child of eight years.

When difficulties of acquisition of school learning result from general developmental retardation , it is necessary to question if the child will continue in an ordinary school or they will recommend her to a specialized school which is “ l'institutpsychopedagogue Einstein” to follow her up according to her level of acquisition and give her a socio-professional autonomy future.

The special need educator together with the teacher discuss about the child's educative needs so as to propose to the parents which will have to decide with the doctor.

5.1.1 Thematic analysis

Here, we shall focus on the responses from teachers during the interview and the observed attitudes of the children with Down Syndrome at the Centre, who were undergoing educative training at the L'InstitutPsychopedagogue Einstein. This is at the Centre Region precisely at Minifrim Hill, Melen.

❖ Reinforcement

Children with Down syndrome are a group of vulnerable persons in Africa in general and in Cameroon in particular. They go through stigma, marginalisation, discrimination, mental problems, which makes them to have low self-esteem, lack confidence, feel socially excluded, and frustrated. The negligence of this group of people keeps increasing, which calls for the attention of the government, NGOs, Specialised Institutions and other well-wishers. This situation at times leads to despair and frustration, making them develop behaviours that are not wanted that has consequences both to them and to the environment to which they belong. As a result of this, there is the need for behavior modification through reinforcement. Reinforcement according to Skinner is any activity or event that strengthens or increases the behavior it follows. He founded two types of reinforcement; positive and negative reinforcement, all aimed at encouraging behavior that is wanted and encouraging in the community and discouraging behavior that is not wanted.

“During our training at L’Institut Psychopédagogue Einstein, we started with the theory part , which was then followed by the practice of what was theorized. The proprietress and other teachers were encouraging to ensure I grasp what I came for, when I find difficult to understand some of the concepts of dealing with children with Down syndrome because it is not easy dealing with this set of people. There was close support and those training us were motivative and, repeated lessons until they were understood.” Says Ivonne.

“I will always punish a child when his/her behavior was not appropriate and good. I supported the children when they felt it was not going, and put more emphasis on the importance of the training, which of course is going on well” .says Teacher Ivo.

Training a child at this age is not always easy for someone who has undergone/or is undergoing trauma due to mental retardation, coupled with stigmatization, frustration, discrimination, because they are most often abandoned to themselves. When this happens they turn to develop behaviours that are not good, and trying to be like any other child in the learning

environment/society, having full mastery of his or her learning. For learning to be effective, bad behavior needs to be controlled through reinforcement, which will strengthen the input ability of the child, and will strengthen his/her personality which will help the child to cope during learning.

❖ **Punishment**

Punishment is the act or process of imposing and/or applying a sanction for an undesired behavior when conditioning towards a desired behavior during the learning process. Punishment is one of the means of eliminating bad behavior, to facilitate learning, and shaping of behavior. In Psychology, it refers to any change that occurs after a behavior that reduces the likelihood that, that behavior will occur again in future. Children with Down syndrome during learning can sometimes show unwanted behavior during learning due to their poor state of mind as a result of trauma, mental disability, which they go through. Punishment is a method of putting back a Down syndrome child on track during the learning process, and help them focus on the goals ahead of them.

“Most of the time during learning, I will exercise corvee method of punishment to those who will misbehave in class. I sometimes withdraw those who are disturbing others from concentrating during learning, then caution them separately, especially during the play-way methods of learning. This will make the child to be better and focus during learning. One day, a mate hit mate in class and never show any sign of remorse, when investigations were made, it was found out that, she actually hit the mate. I punished the child by withdrawing her, and gave some advice and warnings. She was cautioned not to do that again in future” says Mme Lilly.

“ Sani who was withdrawn from class after hitting the mate during learning, and this caused dissatisfaction to her as was observed because she really wanted to learn, but found herself hitting and disturbing the mate. She felt so bad, especially as I had to call her to other to remind her of the reason she is at the centre”. Says Mme Lilly.

At first, punishment is the act or process of imposing and/or applying a sanction for an undesired behavior. It is important to note that, punishment is likely to be ineffective in this case. This is as a result of the fact that, punishment is effective when it is applied immediately the crime is committed. When an unwanted behavior is portrayed, the teacher has to punish the concerned immediately the crime is committed.

❖ **Behavior modification**

Behavior modification is often referred as b-mod. This is a therapy technique which is based on the work of Skinner. It is a direct therapy. It deals with extinguishing an undesired behavior (by removing the reinforce) and replace it with the desired behavior by reinforcement. The behavior is removed by not reinforcing. Extinction is better than punishment for long term reduction in unwanted behavior during learning.

“At times, during the learning process, when Sani is disturbing, I ignore it the bad behavior, and this will cause her to drop the behavior at times.

Because at times, they may want attention or special care”. Says Lilly.

Some mal behaviours can be removed without stress on the part of the trainer, without the use of punishment. Behavior modification techniques may not work same for everyone. Operant conditioning through reinforcement, punishment and extinction or behavior modifications were used by teachers during the learning process to make activities professional, with the aim of making the children improve in their learning.

❖ **Retention**

Another thing needed for observational learning is the ability to remember the behavior that was learnt or witness. If the child cannot recall the behavior, there is the high probability that they will imitate that behavior.

“ I always repeat lessons over and over again for the children to understand during the learning process. I emphasis how they should pay attention to what I am saying through constant interaction, as Sani is most

of the time distracted. This will enable her to be successful in the learning process. The reason I always recall the objectives to them”. Says Ivo

It is difficult to reproduce what has been taught if the person cannot recall what was learned. This means that retention is very important in the learning process because, it permits someone to reproduce the skills acquired through imitation. This cannot be possible if the child is distracted during the learning process.

❖ **Attention**

Learning from a model entails close attention to the model and the behaviours portrayed by the model. Many factors can affect the learner’s attention, for example if the learner is sick, feeling sleepy, ill, or distracted, he/she will likely not learn something from the modeled behavior, and imitate it at a later date. According to Albert Bandura, humans pay greater attention to models that attract them, similar to them, or prestigious, and who are rewarded for their behavior.

“Throughout the learning process, I use real objects that attract, and also model like them who have made it in life, especially those with their same conditions to motivate children focus on learning. They will see that they too can achieve what their model has achieved through focusing and paying attention during the learning process.” Says Ivo

A learner cannot focus and learn if he/she is distracted with factors like sleep, illness, fidgeting, because learning needs attention for someone to retain the skills needed. Therefore, for a child to properly learn, he/she has to keep aside distractions, and put more attention in the learning process.

❖ **Reproduction**

It is the mental and physical ability of the learner to be able to learn a behavior through copying of that behavior by observation.

“I used to demonstrate during the learning process what I want the children to do, and I ask them to do same especially during feast days

which are referred to as activities day. They imitate what we demonstrate to them. We were always with them pushing them ahead without discrimination”. Says Lilly.

Learning is done observing the model perform an action, then, we copy or imitate the person. Learning is a continuous process and can be achieved at any time through observation or other forms of retention, attention etc. observational learning involves motivation. Meaning that, if the learner does not have any reason to imitate the behavior, no attention, retention, or reproduction will overcome the lack of motivation. Observational learning is a method of learning that consist of observing and modeling or imitating another person’s behavior, attitudes, or emotional expressions. Individuals learn from others. It is based on this that, the American Psychologist, stressed the fact that, individuals will learn from a behavior rather than imitate it. He emphasized that four conditions were necessary in any form observation and modeling behavior; attention, retention, reproduction, and motivation.

❖ **Encouragement**

Encouragement is another factor that can facilitate learning. Encouragement describes the positive impact our words can have on someone’s behavior and self-efficacy. When learners are encouraged, they can learn and master a task, they will do the task. When a learner is supported, it goes a long way to supporting her to believe in herself. On the other hand, when a learner is told that, he/she does not have the skills needed to carry out a task, it demoralizes them, and they easily give up.

“During the learning process, when children are discouraged, I would encourage and support them so that, they can achieve the goal or the task fixed for them. I always encourage them to be strong no matter the challenge that comes their way in doing a task.” Says Isabel.

“During learning at L’InstitutPsychopedagogue Einstein, we pay so much attention to help learners do the different errands given them. We also always encourage them through motivative words when they accomplish a task. This will help boost their self-esteem.” Says Lilly

From the above, we can see that, encouragement is very important in the learning process, during reinforcement process to facilitate learning, motivation spirit and help the learner to be more efficient as they learn when in a learning environment. It is a theory and also a social cognitive construct theory. Self-efficacy theory makes us to understand that learners will attempt things that they believe they can do very well, and will try to avoid only things they believe they will fail or will not be able to accomplish. Learners with a high sense of efficacy believe that they can do tasks that are difficult. Learners see these things to be done as challenges to be mastered, not something to be avoided.

❖ **Motivation**

It is a condition that activates and sustains behavior towards a goal. Motivation is a process of interaction between the learner and the environment which is marked by selection, initiation, increase, or persistence of goal-directed behavior. It is the driving force that encourages individuals to actively engage in the learning process in order to achieve their desired goals. Motivation is the process that initiates, guides, and maintains a goal oriented behaviours. It is what makes you act. In Psychology, reinforcement is means increasing a behavior. Reinforcement can be positive or negative which increases the likelihood of a behaviors response. According to homework.study.com, reinforcement is a tendency to behave in a certain way due to an external reward as a result of internal motivational desire to perform an action. Motivation may exist without any external reward. When a learner is followed up, encouraged, given some help in the process of learning, this will in a way boost their ability to learner harder.

“teaching children with Down syndrome is not an easy task especially as they are mentally retarded. We always encourage and motivate them through praises, clapping, a pat-on-the back etc. we appreciate the work they do, we break work into smaller bits for easy understanding of the children. At times we use play therapy during learning, we appreciate them with toys, we use music therapy just to motivate them to learn. When they put in little efforts, we recognised them. We give them positive attitude and plenty of encouragement to inspire them to stay motivated to learn and persevere in the process of learning. We encourage a health self-image and foster confidence by nurturing self-directed learning. By

self-directed learning, we allow them to be responsible for certain aspects of the learning.” Says Ivo.

Keeping track of their progress, setting goals, and working towards them, prioritizing different aspects of their studies, are important skills for a child to develop. With more responsibility, comes pride in achievement and a boost in self -esteem and confidence. Choose lesson topics that are already of interest to the child. Explain why a particular task is worth doing and allow them a measure of choice in how or what they study. Plan the day such that fun activities and used to break up challenging tasks.

In conclusion, children with Down syndrome remain vulnerable to poor learning if they are not reinforced, motivated to learn to acquire the desired skills. It is therefore, very important to shape their behavior towards learning using different learning methods which will allow them to be self- motivated.

**CHAPTER 6: DATA INTERPRETATION, DISCUSSION OF RESULTS AND
SUGGESTIONS**

INTRODUCTION

This study was undertaken in order to investigate the effect of learning methods and the development of self-regulatory strategies in children with Down syndrome in Yaounde Sub-division in the Centre Region of Cameroon. The chapter will dwell on the implications, interpretations, recommendations, limitations and suggestions for further research works.

6.1 Interpretation of results

Although people with Down syndrome experience learning difficulties that lead to delay in many areas of development, not all areas are affected equally. Some of the specific learning difficulties that characterize many children with Down syndrome include; hearing and vision, fine motor skill impairment due to low muscle tone, weak auditory memory. Most children with Down syndrome have an intelligent quotient that fall in the mild to moderate range of intellectual disability. It is important to note that children with Down syndrome usually develop at a different rate than their peers.

Victims of Down syndrome rendered vulnerable by trisomy 21, go through mental difficulties in the area of learning. After undergoing some educational training they still find it difficult to integrate in the society. At this point, they need to be reinforced, encouraged, motivated through conditioning, which is learning that shapes behavior leading to self-efficacy. In Cameroon, many children with Down syndrome are not well fed and supported educationally by the family. Many are marginalized, stigmatized, and discriminated against. In some cases they may be exposed to poor learning conditions such as lack of schooling, illiteracy, begging on the streets, pedophilia and low standards of living.

Conditioning as a method of learning, is a function by which our nervous system changes in relation to stimuli in the environment, which leads to changing our response to behavior and permits us to function well in our environment. The process starts in our nervous system in response to stimuli from the environment. Neural pathways strengthen, pruned, activated or rerouted. All of these causes changes in the way we response in our behavior. Therefore,

conditioning which is a learning process, has been spearheaded by three authors which include; A Russian Psychologist Pavlov who did an experiment through his dog, and brought out classical conditioning, Skinner conducted an experiment on rats through operant conditioning in a process called Skinner box, and Albert Bandura dealt on observational learning/conditioning who tested his theory through his famous Bobo-Doll experiment.

In this study, we have taken into consideration some characteristics of our target population that is perception, attention, and memory. The essence here is to give meaning to different results obtained during verifications of objectives. Since it is a scientific study, our objectives goes thus; Learning methods can affect the perception, attention and memory of children with Down syndrome through the play-way, project and modeling learning methods. This was broken down into three specific objectives as follows;(SO.1) Examining how the play-way method favors learning through accompaniment process in children with Down syndrome through operant conditioning.(SO.2). Understanding how project learning helps in facilitating accompaniment skills in learning which will lead to self-regulation, hence facilitating attention in children with Down syndrome. (SO.3)Investigating how modeling facilitates the accompaniment process in learning, which further affects the memory of children with Down syndrome.

Being a mental case, it is important to note that children with Down syndrome are vulnerable children, and therefore, needs attention. They are traumatised by circumstances due to their nature and so, they tend to behave in ways that are unwanted during the learning process. As a result of this, there is the need to develop self-regulatory strategies during the learning process that could help them acquire the skills needed to achieve the desired goals through reinforcement, motivation, encouragement, all with the aims of making them intellectually able and efficient in the classroom, thus mental inclusion. From the data obtained from the field, it is clear that, children with Down syndrome can be reinforced, motivated, encouraged successfully in the learning process through conditioning, classical and observational learning, but can be more achieved through operant conditioning because it has a very big impact on the learner. Through operant conditioning when used in conjunction with reinforcement, behavior modification, punishment, children with Down syndrome are being encourage, motivated, strengthened. This is because, after undergoing stigmatization, discrimination, mental isolation,

they find it difficult to cope with learning situations. Fear response from a classical point of view, also helps to shape behavior and enhances self-efficacy to some after acquiring some learning skills.

6.2 Theoretical synthesis

Behavioral theory according to Watson in Psychology, is an approach that combines philosophy, methods and theory. The primary shelter of behaviorism according to Watson, Skinner, and others in Psychology is that Psychology should concern itself with the events that can be observed in the mind. The theory of behaviorism stresses that behavior that is reinforced tends to be strengthened that same behavior. Behavior that is followed by punishment is suppressed, and behavior followed by the removal of a negative stimulus also tends to increase in strength, immediate and consistent reinforcement of strengthens that behavior more rapidly. Rewards that are specific to and desired by the learner are more powerful than general or routine rewards. From the above, it can be seen that they are all powerful tools that help in shaping and transforming learning behaviors to suit the learning standards and strengthen the learners ability to stay focus and firm during the learning process. This will enable the learner to develop resilience, self-esteem, self - confidence, motivation, and is reinforced in the learning process.

According to the behavioral psychologist B.F Skinner, a person internal needs and drives, are not important areas of concern because their current behaviors follow the law of effect and are based on the consequences of behaviors. According to Watson, in his article titled “ Psychology as a behaviorist view it” behaviorism is a branch of science that base its findings on experimental research using only observable data. One of the goals of behaviorism is to see how behavior can be altered or manipulated over time, and to understand how certain behaviors can develop as a result of consequences of conditioning to stimuli outside the learner. Key idea in the reinforcement theory is that, positive reinforcement with rewards reinforces desired behaviors. While negative reinforcement involves the removal of aversive stimuli to reinforce that target behavior.

Jean Piaget was interested in thought, cognition, introspection and other internal consciousness. He figured out how people's minds develop and how they acquire language. Piaget's theory says that knowledge isn't something people just passively absorb. According to Jean Piaget knowledge is actively constructed. Cognitive learning theory is different from another theory called behaviorist theory. Behaviorists focus on outwards behaviors and responses, but the cognitive learning theory focuses on what is happening in the learner's mind, helping us understand how our thoughts and mental processes affect our behaviors. The cognitive learning theory according to Jean Piaget relies on people digesting information to produce a specific behavior which include processes like organizing, interpreting, categorizing, attention, observing and forming generalizations. Piaget challenged the notion that children are merely miniature versions of adults, and theorise that children possess distinct thinking and communication styles. Cognition pertains to the mental procedure of acquiring and preserving information. This involves the capacity to comprehend via thinking, firsthand encounters, and perception. It involves active and enduring form of learning which is highly interactive, involving learners in diverse activities that optimise brain efficiency, facilitating the acquisition of new knowledge.

Cognitive behavioral theory suggests that individuals' behavior is directly influenced by their self-concepts, which can be shaped by external or internal factors, regardless of whether they are positive or negative. It delves into how negative thoughts specifically impact human behavior; the self, the world/environment and the future. All of these will lead to observational learning, reproduction, self-efficacy, emotional coping and self-regulatory capacity. The cognitive learning theory is three dimensions; dual coding, cognitive load and multimedia learning. Dual coding uses different types of stimuli to help a learner remember things better. In the classroom, teachers use visuals like pictures, diagrams that go straight into the working memory of the child and words. In 1988, John Sweller in his paper called "Cognitive Load Theory" talks on how much information our working memory can handle at a given time. Studies have shown that our minds process visual and sound differently. The cognitive theory of multimedia learning is about using different media in teaching to make it more effective. Learners understand and remember the stuff way better. He also emphasized that cognition deals with cognitive learning strategies which help learners dive deep into the information they encounter. When learners grasp the concept, they are more adept at transferring and applying the knowledge to new and different

scenarios. It fosters deeper understanding that sticks around in a learner's long term memory, ensuring that he concepts become firmly ingrained. These strategies used by teachers include; repetition, real-world examples, and quizzes, assessments, and flashcards.

Piaget also hypothesis in relation to reinforcement that, cognitive learning focuses on understanding something logically, meaning that you have to reason to get the right result. Conditioning through a learning condition and reinforcement teaches by making choose pleasure over pain, which can also be used to enforce unsound judgment. It deals with reciprocal determinism which explains how a person, their environment and their behavior all influence and interact with one another. He equally considers reinforcement as a theory that predicts that people with already developed opinions will selectively attend to and cognitively incorporate information that supports their own views, which deals with selective exposure, selective perception and selective retention. It is about thinking about thinking or learning how to learn. According to Valamis.com, cognitive learning theory is an active style of learning that focuses on helping you learn how to maximize your brain's potentials. This makes it easier for new knowledge to be connected to existing ideas hence deepening your memory and retention capacity. It all about more effective use of the brain.

It focuses less on what you are learning and focuses more on how you are learning. By understanding how to learn, learners can confidently approach new tasks while also boosting their comprehension and problem-solving skills. It is on this note that, Edward thorndike (19911) in his book” The law of effect” states that behaviors followed by a reward or reinforcement are more likely to occur in the future, whereas behaviors followed by punishment are less likely in the future. Given the fact that children with Down syndrome face discrimination, stigmatization, and isolation, they find it difficult developing self-regulatory strategies to gain control over their learning, and mastering every part of learning. This has drawn the attention of the government through the ministry of social affairs, NGOs, and capacity building centres/institutions to see into how they can help this mentally vulnerable ones in the learning process. Reinforcement is all about supporting, following up and encouraging the learner to gain control over the learning process, and be open to learn new skills that will allow them better learn well.

For Bandura, academic achievements, motivation, and learning all contribute to self-efficacy (Pajares, 1996,2004; Schunk, 1991). Albert Bandura's social learning theory suggests that observation and modeling play a primary role in how and why people learn. Learning according to Bandura can occur simply by observing others' behavior. He explains in his 1977 book *Social Learning Theory*, "most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and later on, this coded information serves as a guide for action". It must be noted that, verbal encouragement as a means of motivation help to boost the self-efficacy in children with Down syndrome during the learning process. According to Bandura,(19977, 1986, 1997) self-efficacy refers to an individual's belief in his or her capacity to execute behaviours necessary to produce specific performance attainments. Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and social environment. These cognitive self-evaluations influence all manner of human experience, including the goals for which people strive, the amount of energy expended toward goal achievement, and likelihood of attaining particular levels of behavioral performance. The above psychological, psycho-social and psychoanalytic theories permitted us to better verify our hypotheses.

6.3 Interpretation of results based on research questions.

6.3.1 Interpretation of results in relation to research question 1

The results were in line with the Piagian cognitive theory, and the Watson theory which approves the fact that, conditioning through a learning condition and reinforcement teaches by making the learner choose pleasure over pain, which can also be used to enforce unsound judgment. It deals with reciprocal determinism which explains how a person, their environment and their behavior all influence and interact with one another. This favours the learning process to the acquisition of knowledge because the mental ability, behavior of children with Down syndrome are being shaped, which makes it easier for the intake of skills for their intellectual and social integration.

6.3.2 Interpretation of results in relation to research question 2

The results gathered from the field, confirmed Skinner's theory. It approves that conditioning which is done through operant conditioning, with respect to reinforcement, motivation, punishment and modeling during the learning facilitates the acquisition of knowledge. This will go a long way to effect the perception of children with Down syndrome, which facilitates the acquisition of knowledge during the learning process.

6.3.3 Interpretation of results in relation to research question 3

The result goes in line with the theory of Albert Bandura (1901-1994) on observational learning or modeling. It showed that children with Down syndrome can also learn from others. It showed that children imitate each other because they observe the actions of others and copy them, hence facilitating the learning process. It showed that learners can educate themselves by directly observing the behavior of others, and following the consequences of using those behaviors. Attention is prerequisite, and it suggests that a child can not only learn by observation. The result also goes in line with the theory by showing that modeling plays a primary role in how and why children with Down syndrome learn.

6.4 Interpretation of results in relation to the link between the objectives and theories

From our SO.1, it shows that operant conditioning influences the process of learning among children with Down syndrome through reinforcement. From empirical research we saw that much is still to be done by stakeholders, the government through ministries, NGOs to make sure capacity building in children with Down syndrome in institutions help them integrate the learning process effectively and efficiently. Since most of these programs are not achieving their full aims, it calls for a need to change the method of implementation which is good through operant conditioning, using reinforcement, punishment and modeling.

Bearing in mind that children with Down syndrome are classified as vulnerable children that need special care and treatment due to their low level of mental ability, they go through stigmatization, discrimination, which plays a negative experience on them especially in the community. This makes some of them to practice unneeded behaviors that do not favours learning. This saves as a reason for operant conditioning to be used during the acquisition of knowledge during the learning process. This will help shape their behaviors during the learning process in the classroom or at home. It is clear that the hypothesis above has a link with the modeling theory of Watson, which portrays that, when shaping behavior that is observed through reinforcement, punishment and modification. Here behavior that is not wanted is extinguished and good behavior is reinforced positively.

In SO.2, classical conditioning plays a vital role in the learning process in children with Down syndrome. From the above objective, which was about understanding how project learning helps in facilitating accompaniment skills in learning which will lead to self-regulation, hence facilitating attention in children with Down syndrome, we can deduce that classical conditioning through associative learning by pairing a neutral stimulus with unconditioned and conditioned stimuli have a part to play in the learning process. It showed that learning was at time on involuntary behaviours, using associations with neutral stimuli to evoke a specific involuntary response.

In our SO.3, observational conditioning has an impact during the learning process in children with Down syndrome. We support the fact that children with Down syndrome can learn through observation or modeling which dwell on attention, retention, reproduction, and motivation respectively through encouraging learning in the children with Down syndrome. For a child to be able to carry out a task in learning, the should be able to pay attention, retain what is being taught, reproduce what was taught with time, and be motivated and be motivated by it either through intrinsic or extrinsic motivation during the learning process which will lead to the acquisition of the skills being taught. The above shows the link between observational theory Albert Bandura (1925-2021) and the SO.3, which is all about learning by observing the character or behavior of a role model. It posits that, individuals can learn novel response via observation of

key others' behaviors. It involves learning by watching others acquire responses through classical or operant conditioning.

6.5 Discussion

This work was done under the topic “Learning Methods and the Development of self-regulatory strategies in children with down syndrome”. The high level of illiteracy of children with down is alarming, and is a concern. By the end of 2022, children with Down syndrome hardly acquired full time education in Cameroon. They were kept at home due to their low mental abilities. Those that are taken to educative centres, have little abilities to acquire the needed skills. The number of children with Down syndrome keeps increasing in Africa as a whole, and in Cameroon in particular. It is in this light that global fund and COP-2020, emphasise on the fact Cameroon is one of the 13 countries in Africa with high prevalence children with Down syndrome. Some children with Down syndrome continue to live abject mental problems, isolation, abandonment, stigmatization, etc all this causing low self-esteem, lack of ability to get knowledge, lack ability to learn even when reinforced, encouraged, and lack ability to cooperate with others. Sub –Sahara Africa is the most severely affected accounting for more than 80% of the children with Down syndrome.

This research work portrays that, children with down syndrome are still a burden to the school/institutions and the community as a whole. According to the centre for disease control and prevention, approximately one in every 775 babies. Down syndrome is the leading cause of genetically defined intellectual disability and congenital birth defects worldwide. A large number of children diagnosed with down syndrome are posing an enormous socioeconomic burden. According to the National Institute of Health, children with down syndrome are variously affected by cognitive impairment. They face stigma, discrimination, exploitation, and social limitations continue to be some of the challenges they face. These experiences have negative repercussions on them as they access the learning environment both psychologically, emotionally, mentally just to name a few. In this case, conditioning is a good tool used in shaping unwanted behavior and other therapies that can be of help and through sensitisation.

6.6 Difficulties encountered

Every research that is scientific must go with challenges or difficulties during the process. As in other cases of research we encountered the problem of limited finance, limited time and documentaries, but thanks to the internet that has brought everything to the palms of each individual.

6.6.1 Financial difficulties

One of the basic problems during research is financial. For research to be effectively done, enough funds are needed, which was not the case with our study to make our work easier. Going to the field for data collection entails a lot of finances, due to distance to be covered. In addition doing research online, printing documents and photocopying the needed documents, journals, articles, books are all at a cost which was not easy.

6.6.2 Documentary difficulties

Difficulties in documentation means there were not enough documents to carry out research. On the part of Down syndrome, very little or nothing has been written, especially as Cameroon is concerned. This made our work even more difficult because it was as if, we are the first group of researchers to research on Down syndrome cases in Cameroon. There were no documents to review, articles, books, etc, especially important documents that were so much related to our area of research.

6.6.3 Language difficulties

Language is the principal method of human communication, consisting words used in structured and conventional ways and conveyed by speech, writing, or gestures. For communication to be effective both parties must understand the language of communication. But this was not actually the complete case with us, because there was some level of difficulty in understanding due to differences in language. But thanks to the bilingual nature of our supervisor and translation apps.

6.6.4 Shortage of time

Limitations of the Study

By limitations here, I mean those factors or issues which probed up during the study and constituted constraints or challenges. Due to time constraint, the sample of the study was comparatively limited. Given enough time the researcher would have loved to sample all schools in Yaounde II Sub – Division and possibly include other respondents like the parents and secondary schools. This was not done but the researcher considered the teachers and pupils to be the best representatives of all education stake holders and thus limited the sample to teachers and pupils. The student researcher also limited the research design to the purposive and the sampling technique to the cluster. This was particularly done in most of the schools as most of the teachers were not willing to participate due to the present situation.

6.7 Perspectives

The aim of perspective is to see the future on the learning process through conditioning/reinforcement in children with Down syndrome could be one of the studies in future. This is because previous studies on children with Down syndrome were focused of providing inclusive classrooms without taking into consideration the mental ability of children with Down syndrome. Even some children with down syndrome in the past were only imparted skills, no one cared to see what is being done with the skills there after, if at the skills were well assimilated. Much consideration has not yet been given to their behavioral attitude. This calls for a need for reinforcement during the learning process among children with Down syndrome. In this regard to suggest for the future, we shall have a closer look at the theoretical perspective, methodology and mental respectively.

6.7.1 Theoretical perspectives

Our theoretical perspective is in line with our studies and recommendations are geared towards the impact of conditioning during the learning process on children with Down syndrome, and how they can develop self-regulatory strategies during the learning process to better their mental

abilities. Therefore, for effective learning to take place, the mental state, behavioral state of children with Down syndrome should be taken into consideration by utilizing various learning methods to shape their behaviors to permit the latter to be mentally or psychologically be able to acquire the learning skills needed to help them cope in life. Studies could also be done to see how this group of children can be included in a normal classroom.

6.7.2 Methodological perspectives

Qualitative method was used to carry out this study, which targeted study population at Einstein Psychopedagogic Institute, Yaounde. This research was carried on mental and educational levels. In our educative centres and schools, children with Down syndrome are being taught in ways that to some extent are not efficient. We urge future researchers to carry out research on descriptive research on this topic and bring out the quality and quantity in the research.

6.7.3 Mental perspectives

Mental follow up of children with Down syndrome can help them a lot given the traumas they go through. They are discriminated against, stigmatized, excluded from most of the learning activities. At times, they are humiliated in the community in which they live. They go through a lot from when they start reasoning a little. This call for the need for teaching/ learning methods that help them gain some skills that will help cope in the school environment and the community as a whole. This will make them to be motivated to learn, and will self-confidence to better integrate in the learning process. Based on the fact that it is a study that deals with mental ability, this has the vision of seeing children with Down syndrome being mentally fit in the learning process despite their genetic make-up. It will also sensitize the community on the ills perpetuated against children with Down syndrome.

6.8 Recommendations

After bringing out our results, it is important to make some recommendations/suggestions to facilitate the learning of children with Down syndrome during the learning process. This study was limited to investigating learning methods and the development of self-regulatory strategies in children with Down Syndrome in Yaounde III sub-Division.

Further research could be undertaken in other Sub – Divisions in Cameroon on the same topic or on other related topics.

Financial support is very important in the learning process as support materials are needed for the children with Down syndrome to meet up their learning needs in Cameroon. Projects should well managed, classrooms should be handled by teachers with expertise knowledge in special needs education is very essential in the future. In addition, they should include educating the parents on the need to know some of the learning strategies, especially as children with Down syndrome are concerned. Educational policies especially policies on inclusion should be well applied. The researcher believes that it is but necessary to strive hard to implement inclusive education as one of the best and fastest means to reach inclusive societies.

❖ **To the state**

I wish to commend that Law No. 002/2010 of April 2010 was a good law for inclusion and I therefore recommend that provisions of that law as stipulated in sections 24,25,26,27,28 and 29 be put into effect. That is it is also the duty of the state to sensitize the masses on the ills of exclusion and its related concepts and so, I recommend also the organization of many seminars on inclusion in general and inclusive education in particular. The government should also provide allowances for teacher training and research and as well permit teachers to go for inservice training which help them acquire skills and strategies in inclusive education. I also advocate that many teacher training institutions be authorized and opened with better programmes to train stake holders on how to handle children with special needs especially children with Down syndrome. The government should also allocate more funds and lobby for more funds and inclusive resources from NGOs and international organization. The government should encourage interested researchers in the domain for innovations. Teachers in teacher training colleges should be well trained on special needs education so that, they will be able to handle children with special needs in the field.

❖ **To the funders**

The funders should finance Special needs projects that will help children with down syndrome integrate well in the learning process.

❖ **To the media**

The media should also take the challenge of educating the masses. And if possible, sanctions should be meted on defaulters of inclusive principles. Sensitizing programs should be created so that the community could be aware of the needs of children with Down syndrome. This will prevent the community from being another agent of handicapping the already handicapped children. The community should also be sensitized against the ills of discrimination, stigmatization, and exclusion of children with down syndrome.

❖ **To the Non-Governmental Organisations (NGOs)**

NGOs should organize more projects that will help assist children/people with Down syndrome integrate the learning community well through financial or psychological assistance. NGOs should send qualified staff to remote areas where the knowledge on how to handle children with Down syndrome is limited. This will help limit the rate of trauma on the latter.

❖ **To the International organization**

Financial and technical assistance could be given by them to all the initiatives that are aimed at helping all handicap children, including children with Down syndrome. This will also go a long way to help them in their learning needs.

❖ **To research institutions**

Research institutions should reinforce research while putting more stress on programs that help children with Down syndrome to learn well, make learning effective which will lead to their inclusion in the learning process. Results from the field should be reviewed to ensure accountability in the information gathered.

❖ **To parents of Down syndrome children**

That disability is not punishment. Neither is it a curse or a spell or demon that needs some juju power or charm or even religious spirituality to cast it out. They should love and care for all their children and send all to school no matter how different the children maybe. They all belong to the state and all have the right to education. Parents should also seek for information as to the provisions made for by the laws for their children with special needs.

❖ **To the community**

They should avoid discriminatory practices that will further traumatise and stigmatise the vulnerable ones especially children with Down syndrome.

Summary of the study

This research study was based on “Learning methods and the development of self-regulatory strategies in children with Down syndrome; case study children with Down syndrome at Einstein Pschopedagogic Institute, Yaounde. At the end of this work, it is important to give recap of our research problem and its objectives to be attained. This study was carried out to investigate “Learning methods and the development of self-regulatory strategies in children with Down syndrome; case study children with Down syndrome at Einstein Pschopedagogic Institute, Yaounde III, in the Centre Region of Cameroon”. It was carried out in a special need institute in Yaounde III a Sub – Division in Mfoudi Division of the Centre Region of Cameroon. In a more detailed manner, the study set out;

To find out how conditioning through operant conditioning affects learning through accompaniment process, so as to facilitate perception of children with Down syndrome. To determine how classical conditioning can help in facilitating accompaniment skills in learning that contribute to proper learning which will capture the attention of children with down syndrome. To investigate the extent to which observant conditioning can facilitate the accompaniment process in learning which will affect the memory of children with Down syndrome.

To this effect, despite the fact that teachers put in much efforts in teaching children with Down syndrome, the government's efforts, NGOs to make sure children with Down syndrome integrate the learning environment, we still found many children with Down syndrome find it difficult to access the learning various learning methods, thereby finding it difficult to develop self-regulatory strategies that will permit to learn efficiently and effectively. They cannot cope with the various learning methods, they do not value the different strategies used to enhance learning or they feel stigmatized, traumatized or discriminated against.

This made it clear that the general research question "How does learning methods facilitate self-regulatory strategies in children with Down Syndrome"? From the above general question, we had the objectives of this study as how accompaniment/reinforcement to learning can lead to the acquisition of knowledge among children with down syndrome, is done through conditioning, or to examine the impact of conditioning in the reinforcement/accompaniment process to learning in children with down syndrome. This gave rise to the general hypothesis "Learning methods can affect the perception, attention and memory of children with Down syndrome.

The different fields of research gave us room to describe the different variables of the study. Besides, we were able to explain some key concepts, and presented a literature review which lay emphasis on reinforcement of children with Down syndrome across the world and in Cameroon in particular, reinforcement, motivation accompaniment, encouragement etc and mental vulnerability of children with Down syndrome. Our theories were based on behaviorism (behavioral theory of Watson 1913), Cognitive theory (Jean Piaget, 1986), social theory, the reinforcement theory (Skinner, 1963) etc.

We then went ahead to collect data using the semi- directive interview and observation on children with Down syndrome on EisnsteinPsychopedagogicInstitute in the centre region of Cameroon. The interview was administered to three teachers and intentional unstructured observation done on five pupils at the institute. Data was analysed using the content; which allowed us to settle for the hypothesis. From the data analysis, we have concluded that, for effective learning through learning strategies by children with Down syndrome, conditioning through reinforcement should be used during any level of learning using any learning strategy.

This will permit them gain mastery of what is being taught, and cope with their mental abilities through capacity building centres.

All the theories made us meet our general objective of the study through which were to explain how accompaniment/reinforcement to learning can lead to the acquisition of knowledge among children with Down syndrome through conditioning, or to examine the impact of conditioning in the reinforcement/accompaniment process to learning in children with Down syndrome. All our theories were justified in the field during study because they took into consideration thoughts, feelings etc. The child with Down syndrome can also depend on the friends help during the learning process, if they are not followed up closely, they may not gain the required skills needed during the learning process. Also, learning greatly differs between individuals; this makes it difficult for researchers to admit/access. To this end, we suggest to future researchers that this area could be put into consideration during future scientific investigations for effectiveness in the field.

GENERAL CONCLUSION

Entitled "Learning methods and the development of self-regulatory strategies in children with Down syndrome: the case of children with Down syndrome at the Einstein Pedagogic institute, Yaounde ", our study was approached under the rubric of special education, mental handicap, mental abilities and counseling. We examined the question of the development of self-regulatory strategies in the learning process in children with Down Syndrome. We focused on learning strategies which have significant influence on learning; the play way, project learning and modeling to have an impact on the learning of children with Down syndrome. We also saw that, previous work on learning were focused on remote methods of teaching which made it difficult for children with Down syndrome to grasp the concept of what was being thought, without however establishing a link with learning methods in children with Down syndrome.

This is why the question of how does learning methods facilitate the development of self-regulatory strategies in children with Down syndrome in the process of learning remains in all human situations. This why Kolb &Whishaw(2014) defines learning as a relatively permanent change in behavior that occurs due to past experience, essentially knowledge, and Mazur (2013: p.6) defines learning as a process of change that occurs as a result of an individual's experience. The process where knowledge is created through the transformation of experience that requires resilience on the part of the learner. Learning on the part of children with Down syndrome requires visual aids (pictures, flash cards, diagrams, and other visual aids to illustrate concepts and reinforce learning), hands-on-activities (tactile experiences like building blocks, play dough, puzzles, and manipulatives to help them grasp concepts), multisensory experiences (combine sight, sound, and touch to enhance understanding and retention of information), repetitive practice (exposing them to information through drills, games,, and consistent routines), positive reinforcement (by providing praise and rewards to motivate and encourage participation), simplified language, individualized instructions (tailoring learning activities to each child's specific learning needs and abilities and strong emphasis on visual cues as they are primarily visual learners, while incorporating real-life objects can also be highly effective. This will enable them to be coping with their situation.

Being aware of the fact that they are mentally backwards in the learning process, places them in fear in the process of learning so as not to fall below the expectations. They need to be surrounded by educators, experts and professionals, to accompany them in the teaching/learning process. In short, being confronted with a learning/mental disability, requires learning support. It is against this backdrop that we posed ourselves the following research question:

How do learning methods facilitate the development of self-regulatory strategies in children with Down syndrome? The problem of this study was for learning in the process of self-regulation. The aim of this study was to understand, apprehend and explain how learning methods can lead to self-regulation in children with Down syndrome as they undergo the process of learning. The objective of this study was obtained using observation and semi structured interview questions. This method was chosen for its ability to provide an in-depth analysis of phenomena in their context. Qualitative research is the type of research we carry out studies on human phenomena in order to understand and explain them. Following our inclusion and exclusion criteria, we obtained three participants. They were three children with Down syndrome and three teachers at the Einstein Psycho-Pedagogic Institute, Yaounde.

We interviewed each of the teachers, and observed the behaviors of the selected kids. The content-analysis technique used in the interviews focused on identifying those development strategies that could arise as a result of innovative learning methods, and was used to analyze the results. The results showed that, children with Down syndrome go through mental difficulty in learning. After undergoing some educational training, they still find it difficult to integrate the society. Results showed that, they need reinforcement, encouragement, motivation, which will shape their behavior leading to self – efficacy. It also showed that they are not well fed and lack educational support from the family because of lack of technical know-how. This leads to marginalization, stigmatization, and discrimination against them. In some cases, they are exposed to poor learning conditions due to the lack of expertise knowledge from the teachers.

The results have been interpreted through the behavioral, social and cognitive theories, and the learning model. In the learning process, the behavioral theory envisages observable behaviors, and response to external stimuli by the learner, and the aims which are to understand and influencing learners' behaviours through the strategies of reinforcing positive actions and

decrease negative ones, ultimately enhancing overall learning. The social theory envisages that individuals learn by observing others, and imitating the behaviors of others, particularly role models, are influenced by the consequences of those actions, meaning they are more likely to replicate positively reinforced behavior. The cognitive theory emphasizes that effective learning occurs when individuals actively process information by connecting new knowledge to existing understanding, enhancing comprehension, problem-solving skills, and promoting deeper learning through meaningful connection, rather than simply memorizing facts; learners are encouraged to engage with material, reflect on their thoughts processes, and apply new concepts to real-world situations.

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Appendixes

Appendix1: Interview guide

In order to collect data for this study, we are going to use the semi-structured interview and observation check list.

FIELD: SPECIAL EDUCATION (EDS)

SPECIALTY: MENTAL HANDICAP OR DISABILITY

TOPIC

Learning Methods and The Development of Self-Regulatory Strategies In Children with Down syndrome

Presented by

Tetuh Violet Enjei

Matricule: 21V3570

Professor BaninjelJoachim

Appendix 2: Letter of consent

Dear teachers/pupils,

I am **Tetuh Violet Enjei**, a Masters II student, matriculated: 21V3570, in Special Education, option; Mental Handicap at the University of Yaounde 1, Cameroon. I will like to thank you all for giving me this opportunity for us to work together. The research am carrying out is entitled: **“Learning methods and the development of self-regulatory strategies in children with Down syndrome”**, and the main objective is to explain how reinforcement/accompaniment to learning in knowledge acquisition among children with Down syndrome is done through conditioning, therefore, facilitating their mental integration. We will carry out an interview and observation using our variables through structured questions. This will better help us to understand the impact of classical and operant conditioning during our acquisition of skills amongst our population.

Response to these questions will be treated as confidential and used for academic purpose only. Confidentiality in your response will be highly respected. Your honesty and truthfulness in answering the questions will be highly appreciated.

Appendix 3: Research authorization

REPUBLIQUE DU CAMEROUN ***** Paix - Travail - Patrie ***** UNIVERSITE DE YAOUNDE I ***** DÉPARTEMENT D'EDUCATION SPECIALISEE		REPUBLIC OF CAMEROON ***** Peace - Work - Fatherland ***** THE UNIVERSITY OF YAOUNDE I ***** DEPARTMENT OF SPECIAL EDUCATION
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Le Doyen		
The Dean	bis	
N° <u>696</u>/23/UY1/VDSSE		

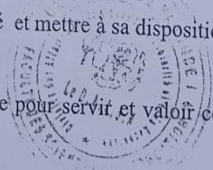
AUTORISATION DE RECHERCHE

Je soussigné, **Professeur Bela Cyrille Bienvenu**, Doyen de la Faculté des Sciences de l'Éducation de l'Université de Yaoundé I, certifie que l'étudiante **TETUH Violet Enjei**, Matricule **21V3570**, est inscrite en Master II à la Faculté des Sciences de l'Éducation, Département de Éducation Spécialisée, **Spécialité: Handicap Mental**.

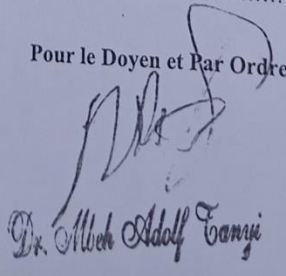
L'intéressée doit effectuer des travaux de recherche en vue de la préparation de son diplôme de Master. Elle travaille sous la direction du Dr **BANINJEL Joachim**. Son sujet est intitulé: « **Learning methods and the development of self-regulatory strategies in children with down syndrome** »

Je vous saurai gré de bien vouloir la recevoir pour la recherché et mettre à sa disposition toutes les informations susceptibles de l'aider dans son travail.

En foi de quoi, cette autorisation de recherche lui est délivrée pour servir et valoir ce que de droit.


Fait à Yaoundé, le **060223**

Pour le Doyen et Par Ordre


Dr. Michel Adolphe Tanyi

LIST OF TABLES

TABLE 1: The synoptic Table

TABLE 2: Identification of Children with Down Syndrome