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Study summary

This study aimed to investigate the effectiveness of the multi-sensory room in reducing the range of unwanted behaviors and developing some social communication skills in a sample of three children diagnosed with autism spectrum disorder who receive rehabilitation and education services in an early intervention unit in Abu Dhabi Emirates in the United Arab Emirates. The AB-B reverse test, which included four phases lasting every 14 days, was designed. The first phase identified a baseline and recorded all the social behaviors and skills identified for the study. The first phase of treatment began when sensory therapy sessions were introduced using a multi-sensory room for these children, which lasted for forty-five minutes a day. Children were allowed to use the multi-sensory room and then in the third phase the therapy sessions were stopped using the sensory room and follow-up recording the frequency of behaviors and the selected social skill set. In the last phase, the sensory therapy session for the sample children was re-established and the recording of behaviors and skills was followed. The study found that there were statistically significant differences in children's average behaviours and social skills after they were enrolled in the sensory therapy program using a multi-sensory room. A decrease in the frequency of unwanted behaviour and a rise in social communication skills were observed in members of the sample during the fifty-six-day study period.

Keywords: Autism, Multi-Sensory Treatment Room, Social Skills, Behavioral Skills,

Introduction:

In the past 10 years attention has begun to be paid to the sensory aspects of children and to the development of their sensory capacities. Many research has indicated the importance of developing the sensory aspects of children from early childhood and their impact on the child's overall developmental level, academic and motor development, and the development of language skills. Given the importance of the sensory aspect was included in most formal and informal developmental evaluations and programmes such as an amateur model of early education and many other developmental programmes in larger education. Sensory skills are one of the main stones in the child's development and healthy development. Through different sensory devices, the child acquires sensory information about his/her environment and about himself/herself. Through it, the child communicates with the surrounding environment and the child can identify, perceive and classify objects. Sensory skills are distributed in seven basic senses, five of which are known by all: hearing, sight, smell, taste and touch. Most are absent from the sense of balance and perception of the body in a vacuum or what is known as the sense of motion. There is no consensus among different fields of science such as neuroscience and behavioral psychology on the number of senses and types, where the senses and types and the number of them vary from one field to another. As a medical term, sensors are defined as a group of specialized devices, each of which contains a set of sensory cells specialized in the perception and reception of a particular type of sensation and then transmitted to specialized centers in the human brain for analysis and interpretation of these inputs (Stock, Kranowitz, & Carol, 2005). For example, an infant uses a sense of balance to transmit the body's position from sleeping on the abdomen to the heart of the body and then lying aside and uses the sense of motion to appreciate after things about him and capture them and then uses the sense of

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touch to touch things and determine their texture and then smell and taste to determine what they are and what they are (Baron-Cohen, Ashwin, Ashwin, Ashwin, olassi & oli 2009.
Therefore, it is of the utmost importance for the child's development and the development of all the basic developmental skills he has to be able to receive all sensory thrills and then transfer them to the specialized centres with each sense of their specialized brain position and analysis. But if a child is unable to do so or has difficulty receiving and classifying sensory triggers and excluding what is not important to pay attention to sensory triggers of interest, then what is known as sensory integration disorder appears. Sensory integration disorder is defined as "failure to analyze sensory triggers that reach humans from multiple sensory organs - the auditory, visual, tasting, olfactory and vestibular organs responsible for balance and the deep sensory system responsible for motion sensations (Ayres, 1972). In sensory integration disorder, the problem is not to receive the sexes but to analyze and classify them in the human brain. For example, when sitting in the classroom there are many audio thrills that a child receives via the audio system and when they arrive at the hearing centers in the brain, this area is able to analyze and perceive all these audio thrills and then select the hearing thrill of utmost importance and neglect other audio thrills. But in the event of a disturbance in the analysis and processing of that information, the child is unable to focus and pay attention to the teacher for a simple reason, namely the inability to separate the teacher's voice from other audio thrills. As a natural consequence, the child is unable to cope and behavioral and academic problems arise. Some studies indicate that more than 90% of children with autism suffer from sensory integration disorder (Kranowitz & Miller, 2006), and in the diagnostic manual and The fifth statistician has developed sensory integration disorder and the difficulty of processing sensory information as a basic item and symptoms exhibited by an autistic child. Sensory integration disorder has become a symptom of a child's diagnosis of autism (American Psychiatric Association, 2013).
In recent years, there has been an increase in the use and design of multi-sensory rooms in the centres of people of determination who suffer from autism spectrum disorder. The multi-sensory room is a sensory environment that stimulates the senses and is based on the promotion of different senses by exposing the child to a range of sensory thrills which include different lights, different sounds, layers, frequencies, many aromatic aromas that stimulate the olfactory nerve, equilibrium thrills such as non-straight floor, soft texture, and many touches that will stimulate the sensors to receive these excitations and hermal skills. The idea is to expose the child to the resourcefulness of these thrills in a controlled environment that will increase these sensory experiences and create a reference record for each sensory excitement that helps the child increase his or her ability to pay attention to this excitement.
As we know, the United Arab Emirates seeks to be the first in the fields of innovation and excellence in various fields of human sciences to serve as a beacon for the entire world and a beacon throughout the universe that benefits from its innovation and achievements worldwide. So as people of determination, we must make an effort to be one of the leading countries in the field of personnel service.
People of determination and work to not only capture the latest global programs but also research them to develop them and measure their effectiveness and impact on the development of our children of determination.

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Study Problem

The problem of the study is identified in the following key question:
• What is the effectiveness of using a multi-sensory room in reducing the range of unwanted behaviors and developing a range of social skills.
This question has a series of sub-questions:
1. Do statistically significant differences exist at the level (0.1) between the average frequency of behaviors in the children of the study sample before and after the application of the therapeutic program using the multi-sensory room
2. Are there statistically significant differences at 0.05 between the average frequency of social skills in the children of the study sample before, during and after the application of the therapeutic program using the multi-sensory room

Study Objectives

The study's importance lies in:
Provide specialists and people of determination with a program that uses multi-sensory room therapy that will develop children's basic sensory skills that contribute to their developmental development.
2. Lack of previous studies - to the best of the researchers' knowledge - in Arabic that speak of the multi-sensory room and its effectiveness in reducing undesirable behaviors and developing social communication skills
3. Assist sample children by developing a treatment program using a multi-sensory room, which means a diversity and a new addition in therapeutic and educational intervention options.
Enriching the Early Intervention Unit through various therapeutic methods, which increases the expertise of teachers and staff of the Unit and is reflected in the Unit's service level.
Enabling decision makers in the State concerned with the care and rehabilitation of people of determination to decide on the inclusion of sensory treatment in general and multi-sensory room treatment in rehabilitation and care centres for people of determination.
6. The study is a new addition to Arab studies. As mentioned, the researcher has not limited any similar study in the field of sensory therapy. The study is also unique in its curriculum, where the researcher used the reverse design B- B- B- and is a rare curriculum used in educational research. This contributes to the dissemination of this curriculum and its increased use of its advantages, including measuring effectiveness in a variety of ways before, during, after and then through therapeutic programs.

Study Terms
Autism: Autism is defined as a neurodevelopmental disorder in human beings that severely, moderately or slightly affects human basic skills, including: communication and language skills, both expressive and verbal, social communication skills, the ability to imagine and the existence of restrictive and frequent behavioral and sensory patterns. The Fifth Diagnostic and Statistical Manual details the criteria for diagnosing children with autism disorder, setting many criteria and classifying them according to their grades into three levels ranging from severe to minor (American Psychiatric Association, 2013). The fifth edition of the Diagnostic and Statistical Manual has

witnessed many changes and revisions in the diagnosis of autism disorder. The fifth manual also eliminated the old classifications. Subcategories that fell under the term autism spectrum, including

autism disorder, Asperger's syndrome, childhood breakup disorder, unspecified overall developmental disorders, RHD, were folded under the same term as autism spectrum disorder.
• Multi-sensory room: also known as "Snowslen" or controlled multi-sensory environment. There is no authorized translation of this room. Some are called "sensory excitement room" or "multi-sensory room". Some refer to it by the original name "Snozlin". It is a sensory room designed in the Netherlands in the 1970s that contains many different sensory thrills and includes visual, auditory, tactile and olfactory thrills (Lancioni, 2002). The multi-sensory room aims to Stimulating all senses, it contains a large amount of tools, devices and toys that simultaneously excite a number of senses such as seats made of special materials and fabrics that help to relax as well as plastic tubes filled with brightly colored air bubbles and fibre-light wires that are highly versatile to stimulate your sense of vision. These rooms also have special tools that bring out vapour, beautiful scents and varied fragrances that help to relax and stimulate your sense of smell.

-B -A-B reverse design: One of the methods of scientific research in the field of behavioral and clinical psychology, which includes four phases, including: the baseline line determination phase and then the first treatment phase and then the second baseline phase and finally the second treatment phase (Heppner, 2007). Reverse design is an effective and comprehensive way of studying behavioral changes in study samples, offering a comprehensive view of behaviors during the four phases. The reverse design is easy to implement and easy to observe behavioral changes in the sample.

Sensory profile: an official assessment used to assess a child's sensory abilities from 3 to 10 years of age. This assessment is presented through a range of questions to measure a child's response to the range of visual, auditory, tasteful, tactile, motor and social skills and the child's behaviour in an environment rich in sensory effects (e.g. classroom). This offers Assessment numbers so that the student classifies that he has a sensory response less than normal or a sensory response

Theoretical framework of the study

Autism spectrum disorder is one of the most serious and common developmental disorders worldwide. In the last 10 years, care authorities for persons with disabilities have begun to raise the alarm. It has been noted that the number of children diagnosed with autism is increasing alarmingly (Suleiman, 2004). In the United States of America, it is estimated that of every 88 children, one has autism spectrum disorder (Hussam al-Din, 2016). A child with autism spectrum disorder suffers from a lack of social communication skills, expression of feelings, lack of daily life skills and inability to rely on oneself to perform those skills (Qandeel, 2000). This leads to complete deficiencies in all life activities and the child's inability to cope in the habitual school environment. At that stage, the child is obliged to be able to listen to orders, understand simple learning and interact with peers, which the child diagnosed with autism spectrum disorder cannot perform.
The descriptions and names of this disturbance are numerous, including those who shed their subjectivity, those who call it subjective psychosis and references in the Arab State of Egypt, those who call it otistic. In some medical Arab books, there are so-called "schizophrenia" and many

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others. In this study, we chose the term autism spectrum disorder (ASD), which is abbreviated as "Autism Spectrum".Disorder "translates literally as autism spectrum disorder, and the researcher has chosen this term for several reasons, the most important of which is the substantial modifications of

the Diagnostic and Statistical Manual V, in which many characteristics have been modified to diagnose the child with autism spectrum disorder. As mentioned in the definitions and introduction. The fifth version of the Diagnostic and Statistical Manual of Autism and its Spectrums is presented in a completely different way than in the fourth version of the Manual, where the most important items are that the child arrives at the age of three until diagnosed with autism spectrum disorder (American Psychiatric Association, 2013). Today, measurement, diagnostic and clinical psychologist can diagnose children with autism spectrum disorder under the age of three. This is a very important step, as it is not secret to any specialist in the field of persons with disabilities that children with autism spectrum disorder exhibit many symptoms in their first year of life. Even the absence of eye contact in the child during the first months can be observed during the infancy science (Ornoy, Weinstein-Fudim, & Ergaz, 2015). The step of eliminating the age limit for diagnosing a child with autism spectrum disorder is critical and workers in the early intervention sector must take care of it and work to change the early intervention system (Miller, 2013). Children under two and a half years of age are usually not received in comprehensive assessment units in many government and private centres in the UAE. But after changes in the diagnostic manual, these units must lower the age of assessment to be from the first year of the child (Wakefield, 2013). Teachers and specialists in early intervention units must also develop their skills and update their information regarding the developmental stages of children's development from year to year, so that they are the teacher or specialist In these units are able to handle this new age group professionally (Welch, Steven, Klassen, & Borisova, 2013)

The term autism goes back to the Greek word Oates Autos, meaning "self", which is the abstract characterization of children with autism disorder, since a child with autism spectrum disorder does not show a desire or interest in communicating with close people in his or her surroundings (Jalabi, 2005). There are many definitions of autism spectrum disorder, including: "A state of mental disorder affecting children, where it is noted that they are not inclined to other children as a natural network, They are characterized by social behavioural disorder, emotion, mindfulness and inability to belong to others. And they have a disorder of cognition which leads to incomprehension or ability to communicate, learn or participate in educational activities (Jordan, 2007) (Baza, 2003). Ismail Badr (1997) defines autism as "an emotional disorder in social relations with others, resulting from the inability to understand emotional expressions, especially in their expression of face, or in language, and affecting social relationships with the appearance of certain stereotypical behavioral observations (Badr, 1997).

A child with autism spectrum disorder exhibits many symptoms that directly affect the child's level of performance and create a near total deficiency in their daily functions. One of the most important of these symptoms is the stereotypical behaviour displayed by these children. The stereotypes shown by children with autism spectrum disorder are acute, periodically frequent and uninterrupted compared to their regular peers or those with other disabilities. In a study comparing the number and frequency of stereotypical behaviours, 185 adults diagnosed with autism spectrum disorder were compared with another group of adults with fatty disabilities of 1,060. When analyzing the

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results, 75% of the spectrum with autism spectrum disorder showed a set of stereotypical behaviors, while only 7% of the subjects showed stereotypical behaviors. It has been observed that the repetition of stereotypical behaviour of the sample of people with autism disorder has been frequent and orderly and has reached above for behaviour every two minutes (Jawhar, 2005).

As a response to these behaviors, behavioral modification programs have begun to specialize in behaviors exhibited by children with autism spectrum disorder. Many behavioral modification programs have emerged and social communication skills have been developed. These programs followed classic patterns in behavioral therapy principles such as conditioning, reinforcement, dumping, etc. But by applying behavioral abuse programs, we show that these programs are effective in making a child with autism spectrum disorder able to reduce these behaviors in a conscious voluntary manner (Al-Khatib, 1993). But when a child feels upset or stressed or wants something and is unable to express it, these behaviors come back and appear again. Many of these programmes fail if these behaviours are only responsive to a child's sensory disorders (Mohammed, 2002). As mentioned, many behavioral problems in children of the autism spectrum arise from disorders in their sensory integration.
The theory of sensory integration is based on the fact that all of an individual's behaviors and actions are reactive to his perception of the sensory triggers he receives from his surroundings (Walbam, 2014). That is, all of an individual's actions are reactions to what he receives through his senses to achieve his internal balance (Tomchek, 2007). For example, the child is able to sit for a long time as a result of stabilizing his internal balance and feeling balanced, But if there is an imbalance in the analysis of the sensory information the child receives from the deep sensory receptors found in the joints and ligaments, Then the child feels unbalanced and the need to modify the position of the body during sitting, which distracts the child's concentration and instead of listening to the teacher or parents, the most attention is paid to modifying the position of the body to achieve internal balance (Green, 2010).

As mentioned, the classification of sensory devices varies from one field of science to another, but in all, there are seven basic senses from which an individual draws information in the environment, recognizes and interacts with variables and objects around it to achieve internal balance. These include Miley sensory devices

1- Visual System: the sensory system responsible for receiving and modifying visual thrills and then processing them and finally realizing them. The optical reception center is located in the occipital lobe of the human cerebral cortex. It is clear to us that the visual device is not limited to seeing objects and people but has multiple functions and is both the ability to focus on a particular object or person and to neglect the rest of the visual thrills (Bundy, 2002). For example, in the classroom, the child needs this device to be able to see the teacher and look at the teaching tool used to develop a particular skill that has been identified in the individual plan and neglect the rest of the visual thrills (Baranek, 2006). If the child suffers from a sensory-visual system disorder, she is unable to determine what she is aware of and focused on and what other visual thrills should be neglected. This is evident in children with autism spectrum disorder and poor visual communication

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with people around them is evidence of the inability of the visual system to identify the appropriate visual thrill and their persistence given many other powerful sensory triggers such as high lights or graphics in the classroom is evidence of the inability to separate

Unimportant Thrills (Kratz, 2009). Some children with autism spectrum disorder also show symptoms of high sensitivity to lights, avoiding some children from high lights and showing discomfort in case of elevated lighting in their environment. This behaviour is interpreted according to the theory of sensory integration that a child receives lighting through the visual system in a different way from a peer as the receptor has a high sensitivity which makes him hurt by these lights (Ayres, 1972) (Bundy, 2002) (Flanagan, 2009). For this reason, some children with autism spectrum disorder show behaviors that are described as aggressive and may only be a reaction to their sensitivity from the high lights. The teacher mingles the cause of the child's behavior and begins using behavioral modification methods that do not yield results because the problem lies not with behavior but with hidden reasons under this behavior.

2- Auditory system: The system responsible for the analysis and receipt of audio information is located from hearing organs, which include the ear, the reservoir and the auditory nerve. The hearing system is located in the first cortical fibrosis in the anterior brain lobe (Pickles, 2012). The audio system analyzes the sounds and oscillations received by the hearing organs and filters out what is important and neglects what is not important and then recognizes these important sounds and analyses them to form an appropriate response to these sounds. A large group of children with autism spectrum disorder suffer from a lack of reception and analysis of audio information. So many children of the autism spectrum show an unresponsiveness when calling their names which some confuse with the conduct of not listening to orders and therefore intervening in behavioral therapy methods is not effective. What is seen from the child is not a behaviour but a disturbance in the analysis of information via the audio system (Bundy, 2002) (Fava & Strauss, 2010) Focusing and listening to orders in the environment with different voices, the teacher resorts to reinstatement for more than one time, due to the inability of the child with autism spectrum to filter information and select instructor or service provider orders.

3- Olfactory system: The olfactory system is located on the lower side of the brain and is responsible for receiving odors, distinguishing them and filtering back odors. When problems arise in the sensory olfactory system, the child is unable to discern odors or the child may feel distressed when the olfactory system is highly sensitive. As a result of the child's inability to accompany autism spectrum disorder, some children feel uncomfortable in receiving strong aromatics or a range of odors in a confined environment.

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5- Gustatory system: The device responsible for analysing information on the taste of foodstuffs received through taste buds on the surface of the tongue. The tasting device is located in the lateral incision (brutal pain) of the brain. The tasting device determines the taste of the substances and distinguishes the taste. When this device is disturbed, the child is unable to determine the taste of the substances or suffers from high sensitivity when eating stinging foods (Christy, 2007) (Green, 2010). Many children's attitudes to autism spectrum disorder can be explained by sensory integration disorder in the taste system. Many children show a desire to eat only one specific food and reject many foods.

6- Vestibular system: The organ responsible for balance and perception of the location of the body in the surrounding vacuum. Vestibular receptors are located in the shell in the inner ear. The vestibular system is present in the cerebellum (Highstein, 2004). The vestibular system provides information to the brain about the balance of the body and its whereabouts. By realizing a place and after things about it and the amount of movement required to reach these things in the environment (Brandt, 2003). When a vestibular system disorder occurs, a person is unable to balance rapidly, avoiding rapid motor activities and cannot sit on the swing, for example, because of his extreme fear of losing balance as there is difficulty in realizing the location of the body and modifying the body's position to ensure balance and non-fall.

7- Proprioception: The system responsible for understanding the relationship of body parts with each other and where body parts are located in a vacuum. Its receptors are deep in ligaments, muscles and joints. The human being realizes the whereabouts of his body parts and adjusts their position to achieve stability. For example, when this organ is disturbed, the human person is unable to sit for long periods as he does not realize where the feet and back exist and needs to change the body's posture continuously until he gets that information. Many children with autism spectrum disorder show these symptoms. We see many children sit for short periods and then leave the seat, including those who are not able to shake the body as an objective change of the back and foot posture, to ask for this deep sensation and to help realize the position of the body parts.

So it is possible that a wide range of behaviors and disorders in social communication skills in children with autism spectrum are only deficiencies in their sensory integration. Therefore, sensory therapy should be introduced in the educational and therapeutic process so that we help them to regulate their sensory inputs to analyze them correctly and to help realize and classify them and then respond to them in a natural way. The idea of sensory therapy is to provide different sensory organs with sensory expertise in an orderly manner, thereby enabling the child to deal with these sensory data in an effective manner and to develop analytical and cognitive skills to achieve internal balance and to form a natural response to his or her surroundings (Ayres, 1972). One such sensory therapeutic method is sensory therapy using a multi-sensory room.

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Although the multi-sensory room was initially designed as a sensory environment for use in nursing homes for adults with severe mental disabilities and those with "Alzheimer's" dementia. This chamber has proved effective in reducing aggressive behaviors and behaviors that are classified as self-harm. Multi-sensory room therapy is an optional free treatment as a person has full freedom to explore what they want and choose the sensory thrills they want to try (Fowler, 2006). A person can experience the desired sensory feelings so that they can create a specific sensory experience and experience that helps them to regulate their sensory integration and develop the skills of organizing that sensory information, which helps them to identify, classify, analyze and perceive that information.

The idea of a multi-sensory room, the so-called "Snowslen", began in the early 1970s by therapists from the Netherlands and means "relaxation room" in German. The cost of a multi-sensory room varies from a few thousand dollars to a sum of 200 thousand United States dollars, such as that in Whittington Hall in the United Kingdom. Most multi-sensory rooms have audio, visual, olfactory, tactile and vestibular thrills in a soft, risk-free and nerve-friendly environment. It leaves a person free to choose what sensory thrills he or she desires without forcing him or her to impose any excitement by the therapist or service provider. The multi-sensory room aims to expose the person to thrills he or she desires, helping him or her to organize his or her multiple senses.

Although there are many behavioral modification methods and reductions of uneven behaviors such as cognitive behavioral therapy, traditional conditioning, dumping behavioral therapy, and booster behavioral therapy. However, difficulty has been noted in applying these methods, owing to several factors, most important of which are the weak experience of people of determination, the length of time required and the difficulty in applying these procedures on the ground. Behavioural modification programs require the creation of a coherent response in all different environments of the child, such as the school environment, the classroom environment and the home. Using a multi-sensory room is easy to apply and general compared to classic behavior modification methods. Many studies have indicated that the multi-sensory room has a positive effect in reducing aggressive and uneven behaviors. A study of 100 children with severe and moderate mental disabilities - which compared the children's behaviour with that of the sensory room to that of the schoolyard, There is a sharp and statistically significant decrease in non-suite behaviors when children are in the multi-sensory room compared to other environments such as the schoolyard (Shapiro, Parush, Green, & Roth, 1997).

In another study by Leonardo Fava, entitled:
(Multi-sensory rooms: Comparing effects of the Snoezelen and the Stimulus Preference environment on the behavior of adults with profound mental retardation).
The study aimed to measure the effectiveness of using the sensory chamber and the catalytic environment to reduce the degree of confusion, lack of attention, concentration and pre-behavioral abilities of mental disability patients and autism spectrum disorder. The sample included 27 patients who each received 20 treatment sessions using the multisensory room. The researcher found a decrease in unfavorable behaviors and reduced confusion in people with autism spectrum disorder, and increased cooperative capacity for short-term intellectual disability patients (Fava & Strauss, 2010). There are also many research that have been interested in the multi-sensory effect of the room in developing focus and attention skills, but most of this research has not addressed the chamber's multi-sensory effectiveness in developing focus skills or reducing unwanted behaviors in

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children with a determination at the early intervention stage. Although the multi-sensory room has become one of the pillars of occupational therapy programmes in most special education centres and medical rehabilitation centres, its effectiveness has not been proven by solid scientific research to help decision makers decide whether or not to find such a room. The researcher therefore carried out this modest study as the first step in researching more deeply the effectiveness of the multisensory room and initiating the design of therapeutic programs using this room and introducing them into behavioral modification programs in children with autism spectrum disorder, ensuring that the therapeutic and pedagogical process is inclusive of all developmental aspects in children.

Study curriculum

Sample
A sample study was taken from children enrolled in the Abu Dhabi Rehabilitation and Care Centre for People of Determination, who are in the Early Intervention Department of the Centre. Three children were selected for this study. These children were nominated by their teachers in the Early Intervention Unit who frequently exhibit unwanted behaviors and suffer from apparent deficiencies in social communication skills and who were evaluated with formal sensory assessments. The ethical aspects of scientific research have been taken into account. The parents' consent has been obtained for these students in their participation in this research and the approval of the research has been obtained from the responsible department of the Zayed Higher Institution for Humanitarian Care.

Rashid, age 4 and 3 months. Regular Rashid at the Early Intervention Unit about a year ago. Rashid was diagnosed with moderate to severe autism last year. Rashid suffers from sensory problems, where sensory assessment indicates sensory problems in the tactile system where Rashid refuses to play with sand or small objects of size and avoids touching rough touches. In the balance side, Rashid shows many behaviors such as excess movement, lack of attention and choice of violent movements that are not in the public safety. Rashid also shows an inability to control himself as he tends to show unregulated movements involuntarily. He is a lot of touch to things placed on the table without asking him and without the quality of the need or reason why he does those behaviors. Rashid loves powerful kinetic games such as swing rides and aggressive movement which shows that his vestibular system is classified as sub-sensory, so Rashid needs violent sensory thrills so he can get sensory input.

Dana, a 5-year-old regular student in the Early Intervention Unit three years ago, was diagnosed at the age of three with moderate autism. Dana does not take any kind of medication before or during the study. Dana has been observed with many sensory disorders, lost the teacher's benefit that Dana is always touching things sticky texture, much moving during the individual training class and showing refusal and unacceptability during group therapy sessions. In the behavioral aspect Dana shows many borderline behaviors such as hysterical crying when refusing to give her what she desires, throwing herself on the floor and starting screaming continuously for prolonged periods of

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between ten and fifteen minutes. Dana's behavioral problems are exacerbated during group therapy sessions where there is an urgent need for a teacher to help Dana sit her down and to urge her to interact with other peers during group therapy sessions. Sensory Profile-short form, Winnie Dunn, 1992) was applied to the applicant. The results showed sensory disorders on the tactile, auditory, vestibular side and balance device.

Hamid - age 4 and 7 months, Hamid was diagnosed with moderate autism with visual impairment. Hamid has been in the Early Intervention Department for two years. Hamid observed many stereotypical behaviors such as flapping hands, inability to sit during the training session and not showing any social behaviors or trying to play with peers. Hamid refuses to listen to orders and meets any order in tears and refuses to obey him. Hamid has a good auditory excellence as he is able to distinguish the voices of people around him in his social midst such as his brothers and most family members who live close to him.

The multi-sensory room used to apply the search is a total area of 160 square meters. The floor of the room is fully covered with 20 centimetres from the ground. The multi-sensory room has many specialized sensory thrills including dim lighting and a specially designed light projector for sensory rooms that displays many special cylinders. The room also has several audio thrills. The sensory room features a ball pool, a flat swing and a cylindrical other. The room also has long water pipes that pump water through a clear tube with a diameter of 30 cm. During the movement of water, lighting changes inside this tube to give visual nutrition aimed at increasing visual contact with the children's immobilizers

Targeted Behaviors

A personal interview was conducted with a group of teachers and asked about the kinds of uneven behaviors shown by the three students. Through the interview, 4 unbounded behaviour were identified, including beatings, assault, throwing tools and means off the table, attempting to escape the training session and touching existing educational tools or means without a clear reason or purpose. These behaviors that are nominated and targeted because they directly affect the level of performance of children and reduce their usefulness and hamper the ability to focus and achieve the goals set in each student's training and educational plan. 3 social behaviors have also been identified, including eye contact, responsiveness when calling a child's name and listening to simple commands. A training session was then held for the participating female teachers in order to define each behavior and determine how to record views in the form specially designed for research. Prior to the research, the researcher recorded the behaviors to be independently monitored to calculate the coefficient of authenticity. Therefore, the researcher recorded the frequency of pre-social behaviors and skills in the selected sample through 12 random visits with 3 visits for each phase of the research. Each visit was of 45 minutes' duration for observation with a training quota. When calculating the correlation coefficient of overlapping classification, the score was 0.93, which indicates high-content stability.

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Social Behaviors/Skills	Definition of conduct	Children who show this behavior
Beatings or physical assault	Any complete or incomplete attempt to infringe the body or body part on a colleague or caregiver in the classroom or in the early intervention unit	all children
physical	Any complete or incomplete attempt to throw an instruction or anything off the table	all children
Throw things off the table.	The child's attempt to touch anything on the table didn't ask him.	all children
Touching things on the table for no reason	Any attempt by the child includes doing off the chair or trying to get out and leave the classroom	all children
4. Attempt to escape during class class Social Skills	Consider not less than 5 seconds for a caregiver when handling an educational medium	all children
Visual communication with service provider	When calling the child his name, the student responds from the first attempt	all children
Responding to the caregiver when calling the child's name out of 10 attempts		all children
Listening to Simple Order Sit down. Come on, no. Out of 10 attempts.	When calling the child his name, the student responds from the first attempt	all children

Study Design and Procedure

A-B-AB reverse design was selected, which includes four phases, namely the first baseline phase, followed by the first treatment phase, and then the second baseline phase and finally the second treatment phase. Each of the four phases lasted 14 days. The first 14 days set a baseline and recorded all the social behaviors and skills identified for study. The first stage of treatment began, and treatment sessions were introduced using a multi-sensory room for these students, which lasted for 45 minutes a day. Children were allowed to use the multi-sensory room. Therapeutic session dates were changed using the sensory room randomly as it was in the morning and afternoon. During this period, students' attitudes and social skills were monitored and recorded. And then we stopped the sensory therapy sessions for 14 days and the social behaviors and skills continued to be recorded. In the last phase, we restored sensory therapy sessions using the multi-sensory room again and with the same time frequency, in conjunction with daily recording of all the social behaviors and skills to be researched.

Results

After collecting the study data and then processing them and analyzing them statistically for the three children (Rashid, Hamid and Dana) using the statistical analysis program (Excel). Calculation of the computational medium of all four behaviors (assaulting colleagues or service provider, throwing things off the table, touching things that are on the table for no reason, trying to escape during class quota) The three skills of each student are (eye contact with the provider, responding to the provider when calling his name, listening to simple orders) Thus, comparisons are made between the computational average of behaviors according to the four phases of A-B-A-B for each case. Comparisons are also made between the computational averages of the three skills and thus the identification of differences of statistical connotations using the Excel statistical programme through the single variance between the sample elements. Table 2 shows the computational averages of each student in the behavioral and social spheres.

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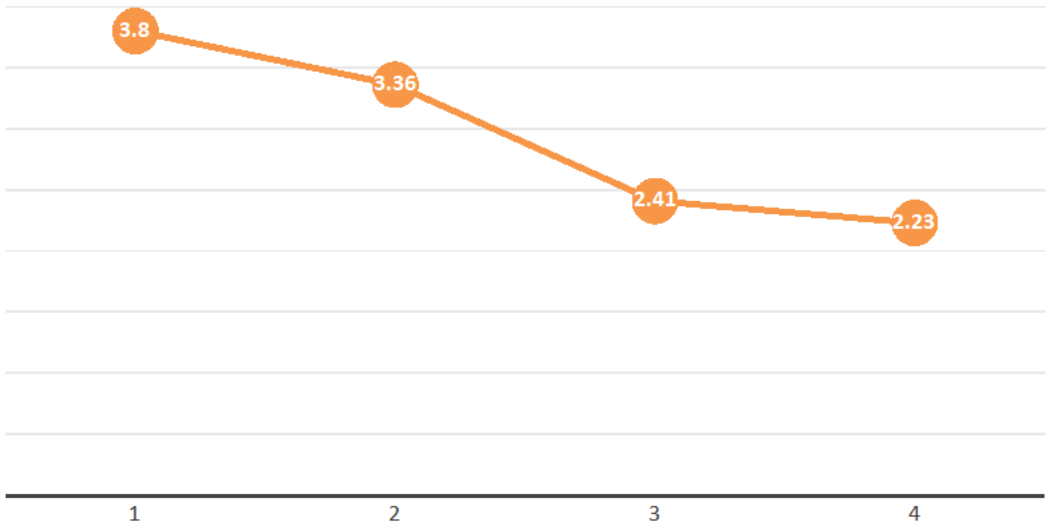

The average behaviour of Rashid during the four periods

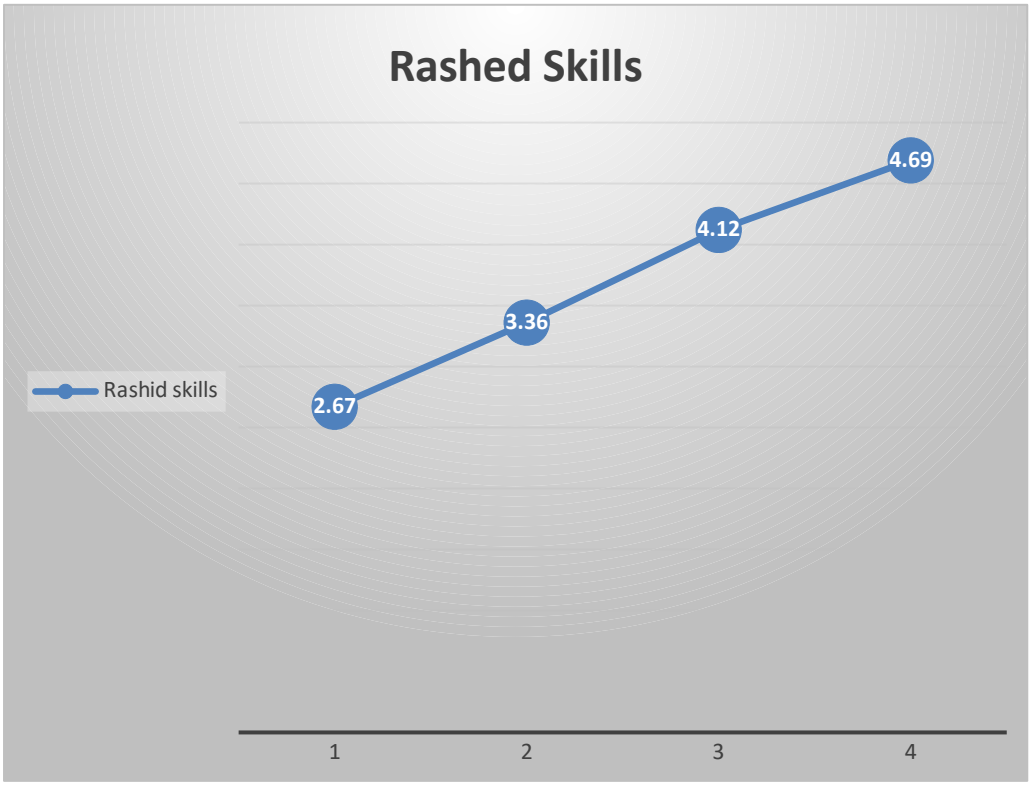

Illustration 1: Change in adult behaviors during different periods of treatment

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Dana

Dana's behaviors decreased significantly as after analysis of behavioral registration we showed a decrease in the average of the four negative behaviors from 2.18 to 1.3 at a decrease of 60%, which is slightly higher than Rashid. However, the rate of improvement in the acquisition of the skills selected was 31%, which means a marked development in Dana's abilities in this regard. But to a lesser degree, Rashid's skills have improved. Illustration (3) shows Dana's behavioural reduction level and illustration (4) indicates the level of development in social skills

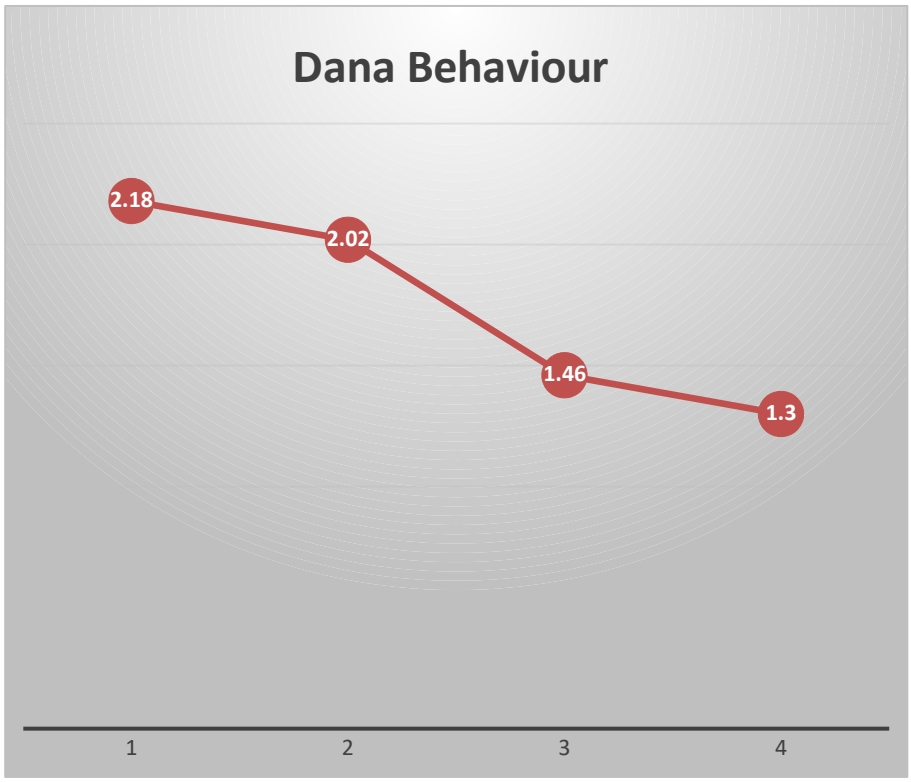

Figure 4 Dana's average behaviors per stage during study

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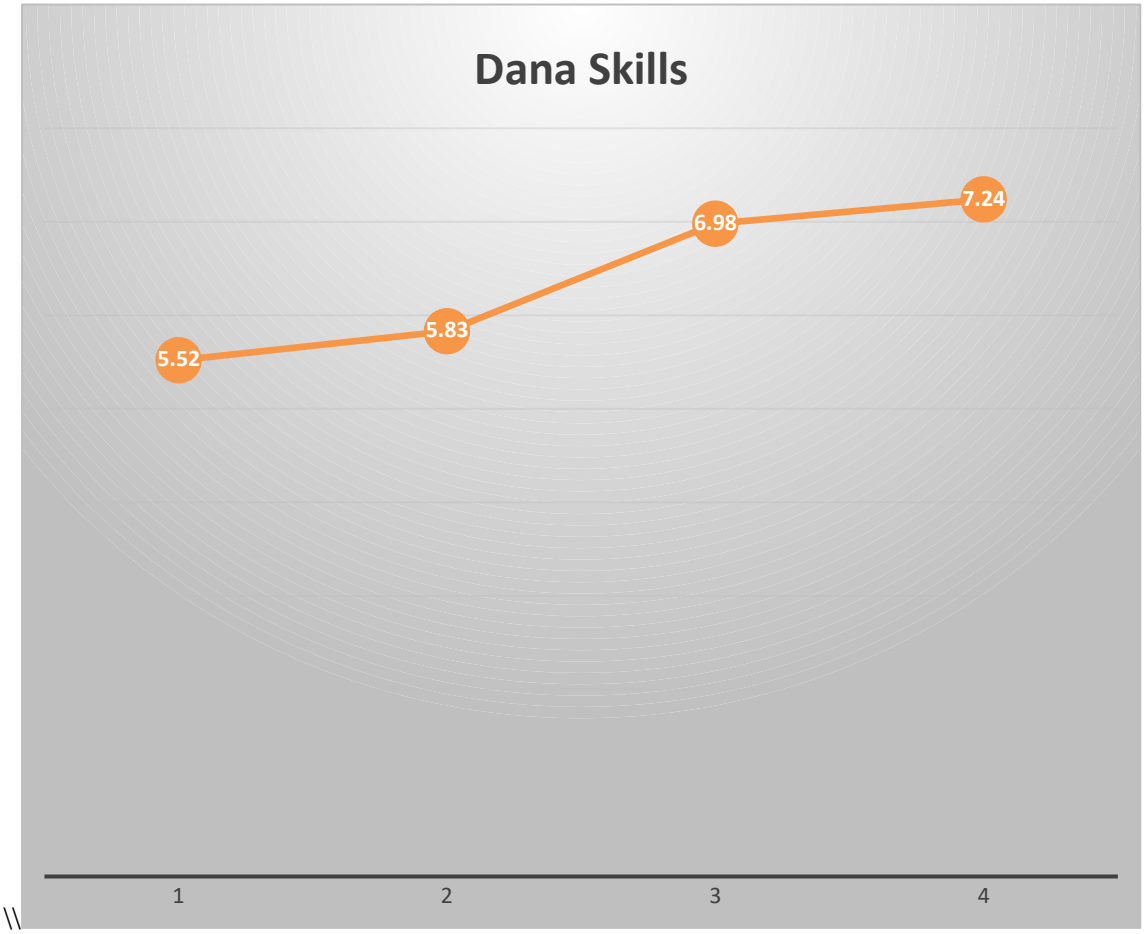

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Figure 5 Dana Social Skills Intermediate During School Stages

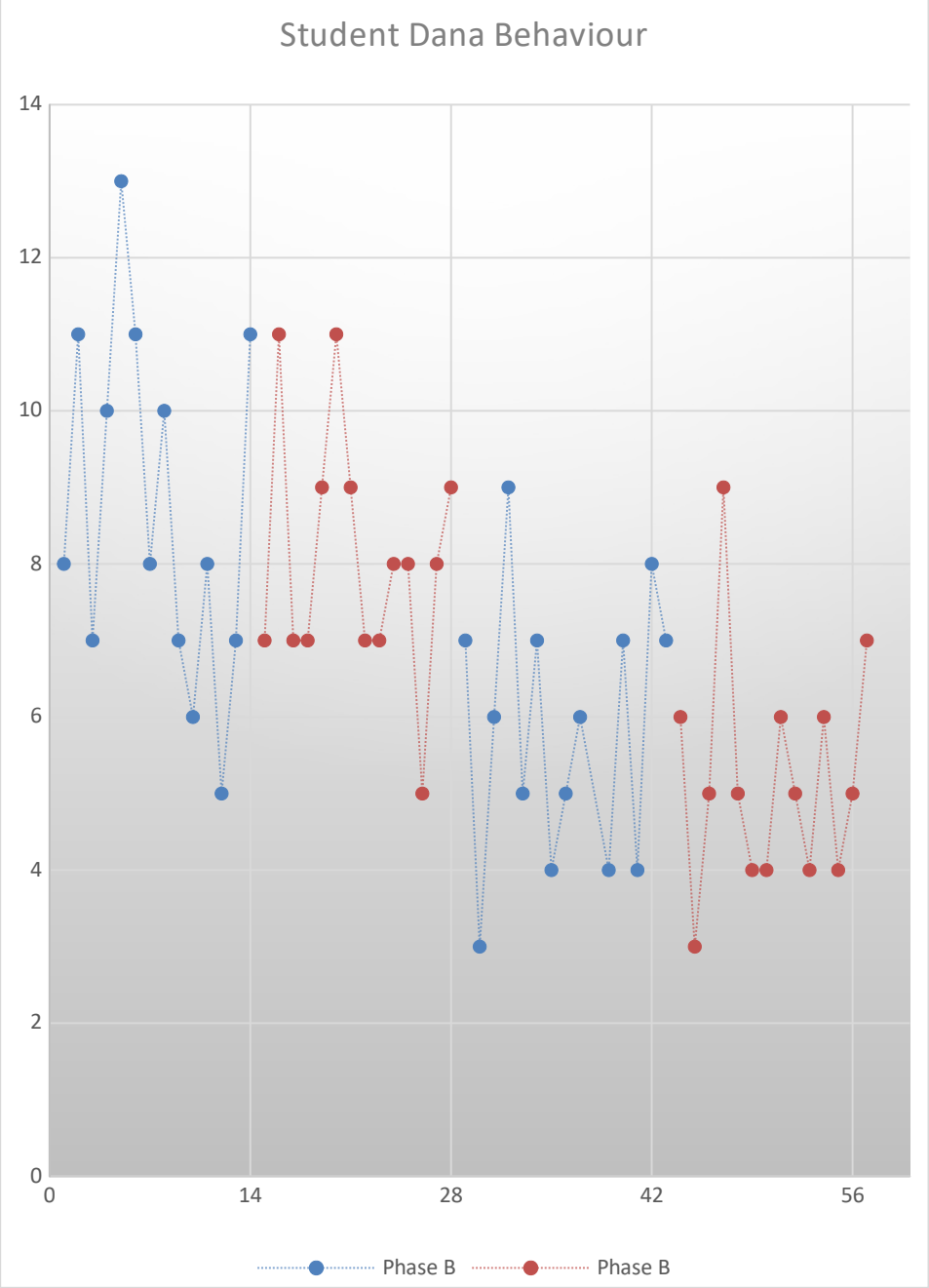

Illustration 3: Dana's behaviors during the four study periods

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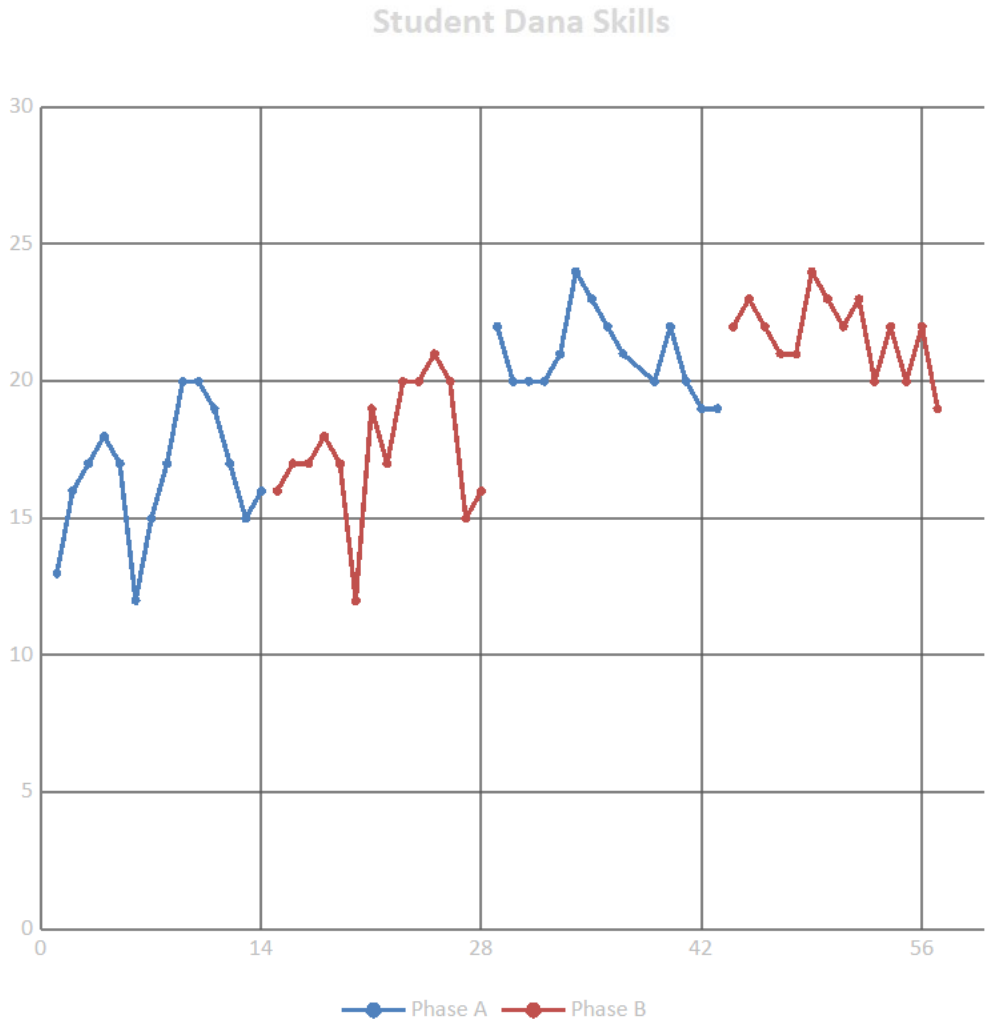

Illustration 4: Dana's social skills during the school stages

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Hamid

In relation to Hamid's results, the average decline in his four negative behaviors was from 2.86 to 1,88 at a rate of 66%. In contrast, the rate of improvement in the acquisition of the three social skills selected was 29%, which means a marked development in Benid's abilities in this regard, but generally less than the development of the rest of the study. It is not surprising where Hamid, as we mentioned, suffers from visual impairment as well as autism spectrum disorder which makes it more difficult for him to socialize. However, as illustrated in illustration 5, Hamid's behaviors have decreased noticeably, showing that many of these behaviors were due to his sensory integration disorder as indicated by his sensory assessment. Illustration 6 shows Hamid's level of social skills development.

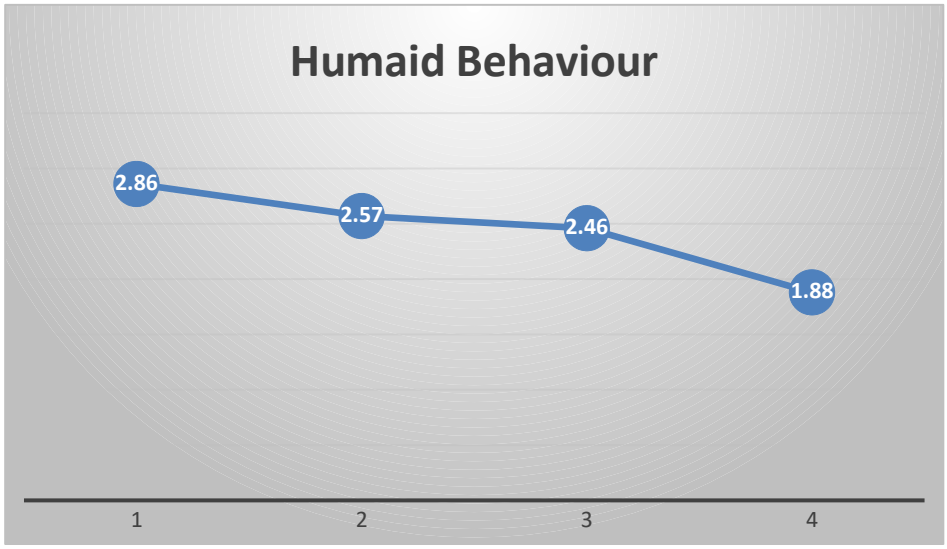

Figure 6 Benign behavior averages during the four stages of study

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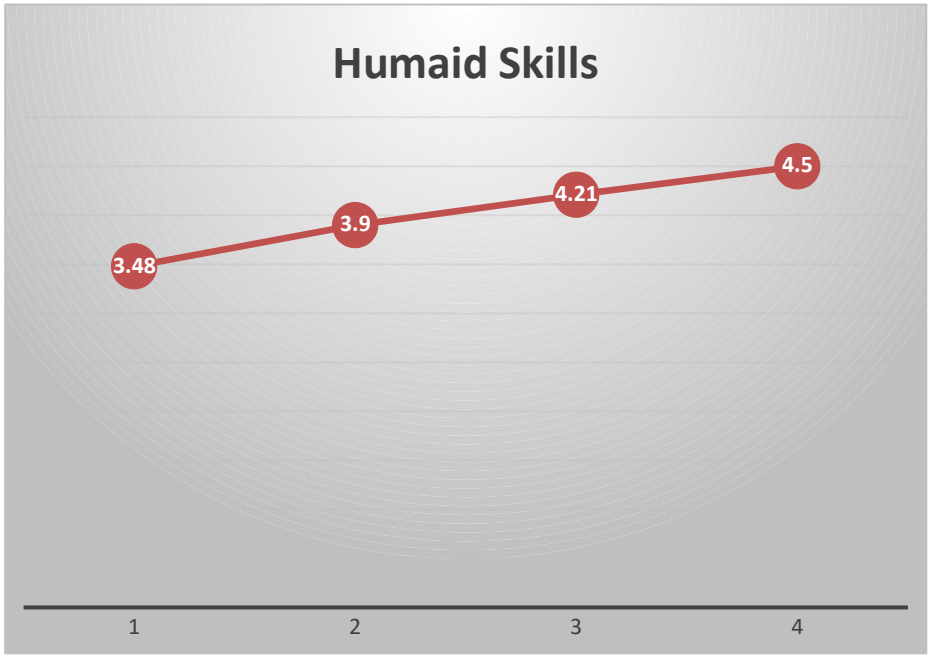

Figure 7 Hamid's social skills averages during the four stages of study

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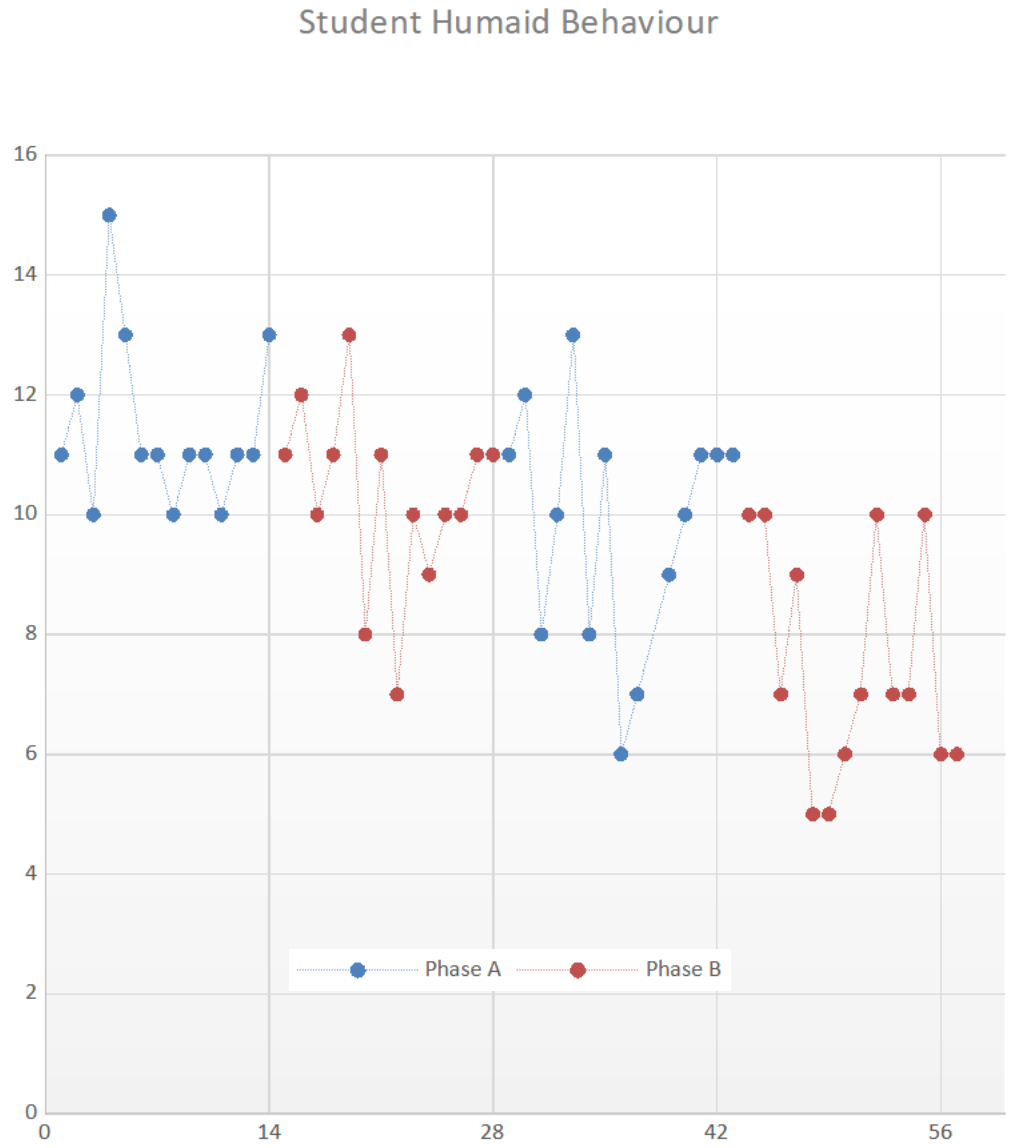

Illustration 5 benign behaviors during the four stages of the study

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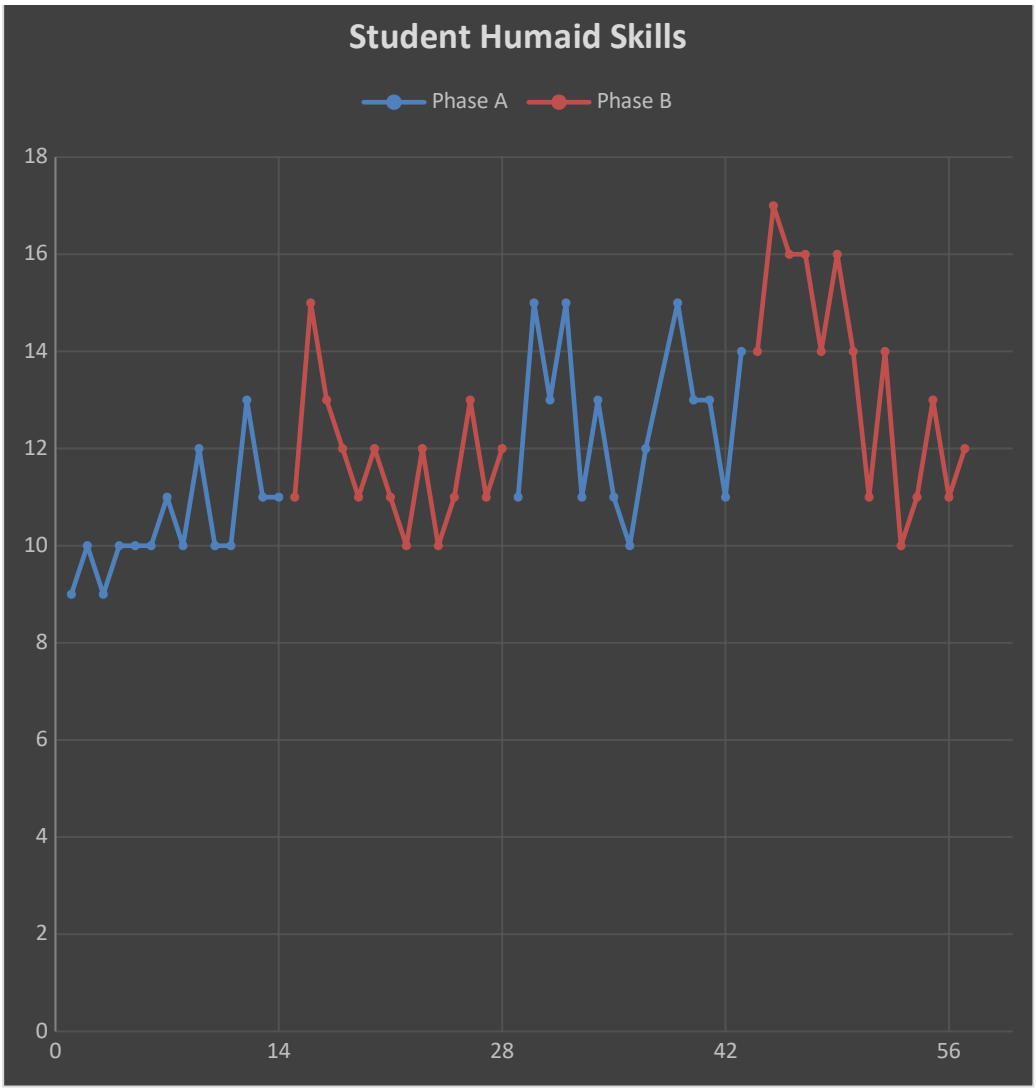

Illustration 6 social skills of the student Hamid during the four stages of study

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Discussion of outcomes

Our results also show that the three children decreased their unwanted behaviors by rates ranging from 50 to 70% during the study period. The three children also showed a marked improvement in social communication skills. The improvement began dramatically in schoolchildren during the first stage of treatment as behaviors began to decline and their social skills evolved. Behaviors continued to decline and social skills improved significantly during the second baseline period, during which children did not receive sensory therapy sessions using a multi-sensory room. But by careful analysis we show a slight rise in the level of unwanted behaviors at the second baseline stage compared to their levels at the first and second treatment stage. Which can be an indication of the effectiveness of the sensory chamber in the short term and not in the long term.
What has emerged in this study is tangible evidence that many behaviors and challenges shown by children with autism spectrum disorder are from a sensory source and not a group of behaviors shown in children for lack of understanding of what is right and what is wrong. This is illustrated by the decrease in the behaviour of the three children starting from the first stages of sensory therapy, where this significant decrease was observed, which exceeded 50%. This demonstrates the importance of developing sensory aspects in children with autism disorder and the need to give greater attention to the sensory aspect. As we see in many training programs in early intervention units, the educational and rehabilitation process is based on the principles of behaviour modification and the conduct is governed by its results. With enhancement and punishment, it decreases or increases behaviour, which may lead to neglect of the sensory aspect that has a significant impact on the level of children's behaviors and social skills.

We also noted that each student's response to the treatment using the sensory room varied in grade and at the time of improvement. It was also noted that Rashid responded to the sensory treatment significantly during the first stage of treatment and showed stability in the second baseline phase and the second phase of treatment. Dana and Hamid's gradual improvement continued during the four periods.
It is worth mentioning that this study was a good opportunity for teachers and people who contributed to see the concept of sensory therapy in general and treatment using a room that is particularly multi sensory. During and after school, it was noted that some teachers tended to spend the first 10 minutes of their individual sessions and group sessions stimulating different senses in children. One teacher even made a sensory angle for children. The autism spectrum has a set of different touches and how big it contains cork to give children a set of sensory effects that will increase their focus and develop their cognitive skills and listening skills.

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Limits of study

There are a range of factors affecting the study, including that the sample selected was only three children. In all, each child's response was different, and perhaps if the sample had increased or been replaced with other children, the results would have been different. Also, despite the methods and ethics of scientific research during this study, there were many attitudes that occurred during the study period, including the refusal of Dana to spend the entire session in the sensory room several times, including also an adult disease during the second baseline period. There is also the sensory response of each student and the degree of sensory disorder he has and any sensory device he needs to feed back more than others. The sensory room includes many sensory thrills, but the predominance of sensory-visual and tactile metastases was more than auditory, vestibular and twisting. Most unwanted behaviors and social skills were also recorded during group sessions in the Early Intervention Unit and were not recorded in other environments such as home or in public, making research confined to the Early Intervention Unit environment and cannot be disseminated in other settings in children.
But conversely, behavioral problems and trying to reduce them remain the most complex problems in autism children, as there are many factors that affect the behaviors of children with autism disorder. One of these students shows this behaviour as a reaction to my lack of access and expressive language skills. The child resorts to violence and unwanted behaviour as a means of expressing his or her wishes or discomfort (Zarigat, 2004). There are other behaviours in which children react to parents' mistaken actions with autism children and punish them for some of the stereotypical behavior they exhibit. Parents overreact without understanding the specificity of what they suffer and what difficulties they face during social interaction (Speech, 2005) (Shami, 2004). As for behaviors that emerge as a result of a disturbance in sensory integration, many sources have indicated a correlation between sensory integration disorder and an undesirable set of behaviors. The degree of disorder in sensory integration is measured across a range of items describing the child's condition, for example in the official sensory assessment (Sensory Profile-short form, Winnie Dunn, 1992).

All items in different sensory areas are mentioned for behaviors, for example: the child is unable to sit for long periods, the child is unable to assess the risks and make movements and reactions without giving importance to personal safety. The child does not show any response when calling out to him. All these descriptions are behavioral items that have been instructed to disturb the child's sensory integration. It is therefore of the utmost importance that the teacher or service provider in the early intervention units be able to distinguish between the behavior of the child as an expression of anxiety, boredom or disinterest and the behavioral problems of sensory reference.

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