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The Development of a Sensory Integration Room for Individuals with Developmental Disabilities

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The Development of a Sensory Integration Room for Individuals

with Developmental Disabilities

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ABSTRACT

Current literature has identified that there is an increasing population of individuals experiencing sensory integration dysfunction. The current literature tends to focus on the use of sensory integration therapy for the use of treating sensory integration dysfunction with children. There has been a gap in the research on the effectiveness on the use of sensory integration therapy in adults experiencing sensory integration dysfunction.

An extensive review of current literature regarding sensory integration dysfunction and the use of sensory integration therapy was conducted and through this information a sensory room protocol was developed. This sensory room protocol includes: guidelines for use, forms for documentation of results, equipment to be used in the sensory room, blueprint for suggested layout of the room, and a projected budget for the cost of the project.
CHAPTER I
INTRODUCTION

Ideally, the senses work together (Sensory Integration International, 2006). Sensory integration is a person’s ability to take in the senses that are occurring around the environment (various smells, lights, sounds) and incorporate these senses to determine what is going on, location, etc. Most people have no difficulties integrating a wide variety of senses; it occurs naturally. However, there are some people who experience a great deal of difficulty and exude a great deal of effort in order to make sense of what is occurring around them (Sensory Integration International). This is also known as sensory integration dysfunction, and it is a disorder in which the ability to receive, filter, and react appropriately to sensory input (movement, touch, hearing, etc.) is lacking (Davies, 2005).

In sensory integration dysfunction, the input is ‘sensed’ normally, but processed abnormally, meaning that there aren’t deficits in the person’s ability to receive sensory input, however problems arise when the individual is required to organize and make sense of the incoming information (Wikipedia, 2006). Individuals experiencing sensory integration dysfunction may react in ways that are either: sensory avoidant/defensive, or sensory seeking (Davies, 2005). The sensory avoidant/defensive individual may feel overwhelmed in the presence of touch, lights, movement, etc. The sensory seeking individual may look for
additional sensory input through behaviors like: crashing, head banging, less reactive to pain, etc.

Current research has proposed that sensory integrative therapy is a technique that can be used to resolve or reduce these kinds of behaviors. Green, et al. (2003) identified that, during a 1992 research study, 40% of the individuals with learning disabilities demonstrated behaviors of sensory integration dysfunction. While it has been noted that sensory integration dysfunction is a common problem, there is a lack of research on the prevalence of the dysfunction, diagnostic tools, and effective intervention strategies (Davies, 2005).

The purpose of this scholarly project is to develop a sensory integration room for adults with developmental disabilities, who experience sensory integration dysfunction. The sensory integration room is a place where individuals can go that will provide proper sensory stimulation input (either: calming, desensitizing, or alerting) that will enable the person to function more appropriately in their place of learning or work.

The Ecological Model of Human Performance was applied to this project because this model strives to adapt the environment around the client so that the client is better able to complete tasks and increase their ability to perform in daily life activities, whether it is learning or work. The Sensory Integration Frame of Reference was utilized as well, primarily due to the client’s needs for a treatment plan that focuses on the significance of sensory performance and the integration of sensory processing to allow for adaptive reactions.
The scholarly project includes: sensory integration room training, a protocol for use of the sensory room, documentation forms, blueprint for suggested layout of the room, and a proposed budget for equipping the room. It is the developers' hopes that this room will provide its patrons with a sensory satisfying experience that benefits their daily lives, as well as provide opportunities for further research on the topic of sensory integration rooms and adults with developmental disabilities.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

In this chapter, there will be a review of the current literature regarding the use of sensory integration as a form of intervention with individuals living with developmental disabilities (i.e., mental retardation, pervasive developmental disorders, etc.). The Ecology of Human Performance Model (EHPM) guides the process of sensory integration through its strong focus on context (Dunn, Brown, & Youngstrom, 2003). Since context provides individuals with opportunities to receive sensory input, it seems logical that this model would be used along with the Sensory Integration Frame of Reference to guide the development of a sensory room for individuals with developmental disabilities. Sensory integration has been used as an intervention approach with individuals diagnosed with various development disabilities. This literature review will define sensory integration and the occupational therapist's role in this intervention strategy. It will also describe the populations that are suitable for sensory integration intervention, and treatment strategies that can be used. The efficacy and functional outcomes of sensory integration will also be illustrated.

Sensory Integration Deficits

The sensory integration frame of reference has been used with a variety of populations who experience difficulties in sensory processing. Ayres, one of the
first sensory integration researchers, describes the purpose of sensory integration
as detecting, assimilating, organizing and using “sensory information to allow an
individual to interact effectively with the environment in daily activities at home,
school, and other settings” (Roley, Clark, Bissell, & Brayman, 2003, p. 653). In
the occupational therapy setting, some of the populations that benefit from the use
of treatments focusing on the relief of sensory integration dysfunction may
include: children and adults with autism, individuals with mental retardation, and
adults with profound handicaps who experience sensory processing problems
(Smith, Press, Koenig, & Kinnealey, 2005). While research in sensory integration
has been primarily conducted with children, results have indicated that these
techniques are also effective for adults with sensory processing deficits (Smith, et
al.).

Regardless of the population, researchers, Roley, et al. (2003), report that
sensory integration intervention is designed to “improve the client’s desired and
expected participation through techniques and procedures aimed at the client, the
activity, and the environment” (p. 652). Evaluations in sensory integration
examine and analyze the sensory demands of activities, the motor demands of
activities and the cognitive demands of activities, as well as the physical
environment, the social environment, and the individual’s skills and patterns
(Roley, et al.).

Sensory integration has multiple purposes and various effects on the
populations that it is used for. Sensory input increases a person’s ability to engage
in functional activities, such as: paying attention, sitting and reading, holding a
pen to write, etc. [American Occupational Therapy Association (AOTA), 1997]. AOTA focuses on the versatile intervention strategy by emphasizing that sensorimotor development is multifaceted including the ability to function appropriately in multisensory environments, discriminate sensory information appropriately, and execute activities that require attention, fine motor capabilities, and postural control through body awareness, coordination, and stamina.

Approximately 15% of children experience some difficulty with sensory integration. This can interfere with the child’s learning and cause behavioral problems (Stepp-Gilbert, 1988). Sensory integration was initially designed for children with learning disabilities. However, the intervention strategies have been effective in treating the developmentally disabled population (Schaaf & Miller, 2005). Subtle signs of sensory integrative dysfunction can be identified as early as the first day of life and continue through the lifespan. Some of these signs of sensory integration dysfunction may include: the individual is easily startled, has difficulty consoling self, demonstrates a failure to explore, dislikes baths, etc. (Stepp-Gilbert).

Sensory integrative dysfunction may also be seen through signs of the child or adult engaging in self injurious or self stimulating behaviors. These types of behaviors are described as, “repetitive bodily movement, which serves no apparent purpose in the external environment” (Smith, et. al., 2005, p. 418). According to Reisman (1993), “self injurious behavior is the most prevalent and serious maladaptive behavior in institutionalized persons with mental retardation” (p. 403). Self injurious and self stimulating behaviors are thought to arise in
persons with multiple handicaps due to the fact that their ability to explore the environment is more limited (Smith, et. al.).

Reisman (1993) stated that self injurious and self stimulating behaviors, also known as sensory seeking, are considered to be related to sensory integrative dysfunction and these behaviors repeatedly fulfill sensory needs. Through the use of sensory integration intervention/treatment, the individuals with sensory integrative dysfunction are better able to organize the sensory input that they are receiving and thus are able to better focus and accomplish educational and vocational goals (Roley, et al., 2003). Sensory integration is also fundamental to the individual’s ability to engage in play and sustain interaction (Case-Smith & Bryan, 1999). An individual can interact purposefully when optimal levels of arousal, attention and orientation in the environment are attained. It is then that the individual is able to achieve that homeostasis that is necessary in order for the individual to focus, receive incoming sensory input and respond in an appropriate way (Case-Smith & Bryan).

Role of the Occupational Therapist

AOTA (1997) recognizes that a sensorimotor performance deficit may be the cause of a demonstrated difficulty in executing “perceptual, motor, and cognitive activities in the school environment” (p. 861). In order to compensate for these deficits an occupational therapist (or assistant) completes tasks such as: making environmental modifications, adapting the task, and by having the student participate in therapeutic activities (AOTA). AOTA emphasizes sensory integrative techniques should be used only by occupational therapy personnel and
also states that sensory integration activities may be used with or without the
accompaniment of other forms of intervention.

Populations

A common disorder with sensory deficits is a category known as pervasive
developmental disorders (PDD). This is characterized by a group of disorders
that include delays in the development of socialization and communication
(Nemours Foundation, 1995).

Pervasive developmental disorders are associated with deficits in sensory
functioning and involve a wide variety of repetitive and self-stimulating behaviors
such as body rocking, unusual object manipulation, focused interests, and
typically demonstrate deficits in the areas of language, social skills, play skills,
praxis, cognitive abilities, and attention. In addition, they often exhibit sensory
processing difficulties and stereotypic motor patterns and behavior (Case-Smith &
Miller, 1999 p. 506). Fertel-Daly, Bedell, and Hinojosa (2001) found that
children with PDD often engage in self-stimulated behaviors and stereotypical
behaviors, such as rocking, spinning, arm flapping, twirling, tapping, and
squinting. These behaviors interfere with the individual’s ability to attend to a
task, which is imperative for new learning.

“Autism is the most well-known PDD. First identified about 50 years ago,
autism is estimated to occur in one or two out of every 1,000 people.
Approximately 400,000 people in the United States have autistic spectrum
disorders,” (Nemours Foundation, 1995, para. 9). Autism (a developmental brain
disorder characterized by impaired social interaction and communication skills, and a limited range of activities and interests) is the most characteristic and best studied PDD. Repetitive play skills and limited social skills are generally evident. Unusual responses to sensory information, such as loud noises and lights, are also common. Symptoms may include problems with using and understanding language; difficulty relating to people, objects, and events; unusual play with toys and other objects; difficulty with changes in routine or familiar surroundings, and repetitive body movements or behavior patterns. “Children with autism spectrum disorders typically demonstrated dysfunction in perceptual and sensory processing, as well as in communication and neurological functioning, resulting in a variety of functional skill limitations in communication, social interaction, behavioral regulation, and play” (Watling, Deitz, Kanny & McLaughlin, 1999 p. 498). Case-Smith and Bryan (1999) reported that young children with autism or PDD also have problems when it comes to relationships with others. These disorders affect their communication abilities with peers and adults and also their ability to engage effectively in play experiences. Many of these children interact in a rigid manner displaying mechanical and idiosyncratic tendencies. “Disturbances in sensory modulation are the primary symptoms of autism and that disturbances in social relating, communication, and language are consequences of difficulty in modulation of sensory input therefore explaining the engagement in perseverance or stereotyped movements” (Case-Smith & Bryan, p. 490).

Watling, Dietz, and White (2001) studied the sensory-based behaviors of children with autism. A group comparison design was used. The sample
consisted of 40 children with autism or pervasive development delay and 40 children without any known disabilities. Each child without autism was matched with a child with autism. The authors found that 67.6% of the children with autism displayed more frequent sensory behaviors than any of the children without autism. Overall, the children with autism tended to have scores lower than the children without autism on all factors of the Sensory Profile. Factors considered included: sensory seeking, emotionally reactive, low endurance/tone, poor registration, oral sensitivity, inattention/distractibility, fine motor/perceptual, and other. The areas which were significantly lower (50%) included sensory seeking, emotionally reactive, and other. This suggests that these three factors may be helpful in discriminating between children with and without autism in the 3-year-old to 6-year-old range (Watling et al.).

Treatment Strategies

Currently there is not a cure for PDD. There have been several different kinds of interventions recommended by those who have experience dealing with these disorders. “There are data to indicate that the best intervention for autism/PDD is early intensive intervention that utilizes behavioral methods and speech and language therapy to remediate specific deficits” (Yale Developmental Disabilities Clinic, n.d., 8th FAQ). This section will focus on sensory integration as a way of treatment for individuals with PDD.

There have been studies conducted describing various treatment approaches for individuals with PDD. Watling et al. (1999) described current patterns of practice identified by occupational therapists when interacting with
children with autism spectrum disorders. Occupational therapists who have experience in providing services to children with autism were surveyed to determine common practice patterns. Sensory integration was the most common technique used by 99% of the occupational therapists professionals.

Fertel-Daly et al. (2001) studied the effects of using a weighted vest to increase attention and decrease self-stimulatory behaviors in preschool children with pervasive developmental disorders. Self-stimulatory behaviors were defined as a variety of responses, such as rocking, spinning objects, twirling, arm flapping, gazing, tapping, hand biting, flicking ears, crossing eyes, rolling eyes, squinting, or repetitive and monotonous vocalizations. There were also fine motor activities that were recorded such as scribbling and imitating crayon strokes, building with blocks, imitating block patterns, putting pegs into a pegboard, stringing beads, snipping with scissors, and pointing to objects. Individuals appeared to be less distracted and demonstrated fewer self-stimulatory behaviors while wearing the weighted vest. The subjects also demonstrated an increase in the duration of focused attention while wearing the vests.

VandenBurg (2001) investigated the efficacy of a weighted vest on a child's on task behavior. There were 4 children selected for the study who had been diagnosed as having ADHD by a physician or scored high on the hyperactivity and attention scale. The children ranged from 5 years, 9 months to 6 years, 10 months. Weighted vests were worn during the intervention phase. A significant increase in on-task behavior was demonstrated in the students when the weighted vests were used during the intervention phase. This further supports
the effectiveness of using weighted vests on children with attention difficulties in order to increase on task behavior. The use of a weighted vest caused a significant increase in the participant’s on-task behavior, therefore conveying the significance of sensory stimulation.

Reisman (1993) designed a case study using sensory integration to decrease self injurious behaviors. The 41 year old subject displayed two prevalent self injurious behaviors. These included hitting her face with her hands and digging her fingernails into body tissue. The subject was assessed by an occupational therapist in order to determine the exact type of sensory input she required. The results determined that rhythmical vestibular stimulation, proprioceptive input, tactile input, and joint compression were calming for this individual. The findings in this study were found to be significant. The subject was noted to smile, laugh aloud, imitate sounds and maintain eye contact, which was not observed in the baseline phase of the study. She was able to be place in a foster care setting after therapy.

Bumin and Kayihan (2001) studied the effectiveness of sensory integrative therapy being provided in a group setting or one on one. The results show that both group and individual treatments have a measurable effect that was consistently greater than the control group.

Smith et al. (2005) formulated a summary of characteristics of sensory integration treatment, this included: “active participation by the individual being treated, client directed activity, treatment that is individualized, activities that are purposeful and require an adaptive response, an emphasis on sensory stimulation,
treatment based on improving underlying neurological processing, and organization and treatment provided by a therapist trained in sensory integration” (p. 420). Tactile, vestibular, and kinesthetic senses were the three most involved senses when it came to sensory processing deficits.

Linderman and Stewart (1998) found that children are better able to reach and uphold their appropriate, adaptive forms of behaving when their sensory requirements are met. These sensory requirements are able to be met through the use of sensory integration intervention.

The effects of sensory integration in adults are beginning to be documented in the literature. However, there is limited information on the relationship between sensory integration and adults. Pfeiffer and Kinnealey (2003) studied “the relationship between sensory defensiveness and anxiety and to determine if treatment of sensory defensiveness reduces both sensory defensiveness and anxiety” (p. 177). All of the subjects were professionals who resided in the northeastern United States. Through the analysis of the assessments Pfeiffer and Kinnealey found that there is a positive correlation between sensory defensiveness and anxiety. It was also identified that there was a significant decrease in sensory defensiveness and anxiety after 4 weeks of self-treatment of sensory defensiveness.

Ottenbacher (1983) noted a relationship between vestibular and proprioceptive systems to the regulation of muscle tone and postural reflex functions. Ottenbacher found the vestibular stimulation that “accompanies most tactile and contact experiences is the most important form of stimulation” (p.
339). Through multiple conducted studies it was identified that many children who experience developmental disabilities with dysfunction in the vestibular system demonstrate abnormal tone in their muscles. Ottenbacher also identified that vestibular stimulation contributed to “improved motor skills, reflex integration, and enhanced verbalization” (p. 340). Ottenbacher concluded that the review of literature suggests that “vestibular stimulation provided as supplemental environmental enrichment can enhance arousal level, visual exploratory behavior, motor development, and reflex integration” (p. 341).

Efficacy of Treatment

There has been multiple research studies conducted that measure the efficacy of sensory integration with specific populations. The following is an overview of what type of research is being done and an overview of the impacts sensory integrative therapy has with various populations.

Current research has shown promising impacts of sensory integration intervention on individuals experiencing sensory integrative dysfunction. One of the desirable outcomes of sensory integrative therapy includes an increase in the participant’s social interactions. Sensory integration interventions are often associated with an increase in an individual’s social interactions (Case-Smith & Bryan, 1999; Case-Smith & Miller, 1999; Linderman & Stewart, 1998).

Case-Smith and Miller (1999) noted that sensory integration problems were often seen in children and these children demonstrated difficulties in sensory modulation, tactile function, vestibular function, and body awareness. Therapists, through the use of sensory integration, frequently addressed the sensory problems
that the children experienced (Case-Smith & Miller). Case-Smith and Miller also sought to find relationships between the use of sensory integration and the difficulties that the children experienced in sensory modulation. The research revealed was that there was a low, but significant relationship between the use of sensory integrative therapy and the improvements of the child involved’s social skills (Case-Smith & Miller).

Linderman and Stewart (1998) provided participants with various types of sensory integration equipment during treatment sessions such as: small trampoline, therapy pillows, trapeze bar, platform swing, body socks, bounce pad, child size table and chairs, and many manipulative toys and activities. The therapists used this equipment in a client-centered format, in which the child was able to choose what he/she wanted to engage in. Significant gains in social interaction through the use of sensory integration activities were demonstrated (Linderman & Stewart). The gains included increased tolerance to touch associated with social interaction and the increased ability to sustain and initiate conversation.

Another desirable outcome of the use of sensory integrative interventions includes an increase in the child/adult’s abilities to behave in a functional manner. Case-Smith and Miller’s (1999) research analyzed the relationship between displayed functional behaviors and the use of sensory integration interventions. What they found was that there was a moderate relationship with sensory integration and improvement in the child’s ability to integrate the various senses.
around him/her. Linderman and Stewart (1998) found similar increases in 
engagement in functional behaviors.

Case-Smith and Bryan (1999) wanted to understand what influences 
sensory integration would have on five preschool children with autism. The 
researchers were hypothesizing that through the use of sensory integration, the 
child’s ability to ‘engage’ would increase. Researchers defined engagement as 
“the amount of time a child attends to materials, interacts with peers and adults, or 
otherwise remains involved with his or her environment in a developmentally and 
contextually appropriate manner” (Case-Smith & Bryan, p. 492). The study 
included researching the relationships between the use of sensory integration and 
the resulting increase or decrease in participation of mastery and non-mastery 
play, non-engaged behaviors, and interaction with peers and adults. The 
researchers discovered a significant relationship between sensory integration and 
improvements in mastery play, imaginative play and engagement of play 
increased 40% for 3/5 individuals, 2/3 demonstrated no mastery play at baseline, 
and all but one of the participants demonstrated a significant decrease in non-
engaged behaviors.

Some of the possible frustrations that can arise while implementing a 
sensory integration intervention is the desire to know: is this effective, when does 
it become effective, and are the results permanent? A study completed by Smith, 
et al. (2005) aims to answer the above questions through a research study that 
demonstrates the “effects of sensory integration intervention and a control 
intervention on self-stimulating and self-injurious behaviors in children and
adolescents with severe and profound pervasive developmental disorders and mental retardation” (p. 418). The researchers compared sensory integration intervention vs. tabletop activities intervention strategies and discovered that the type of intervention used has no effect on the subjects’ behaviors 15 minutes before intervention and 15 minutes after intervention (Smith, et al.). However, 1 hour after the interventions were administered sensory integration proved to have a lower frequency of self-injurious and self-stimulating behaviors (Smith, et al.).

A case-study completed by Stagnitti, Raison, and Ryan (1999) demonstrates that the effects of sensory integration may need to be maintained through the ongoing use of sensory integration activities. The subject in this study was treated through sensory summation techniques focusing in on the tactile system; intervention strategies such as brushing, and joint compressions were utilized. The subject in the case study demonstrated signs of improvement in sensory integration functioning. The newly developed, positive behaviors needed continued sensory integration treatment sessions in order to maintain their presence.

Researchers interviewed parents regarding their perspective on the use of sensory integration interventions with their child (Cohn, 2000). The participants, whose children had received sensory integration, reported that their children used this input and were able to participate in new activities. Parents also indicated the children were now able to independently dress themselves after receiving sensory integration treatment. Play was another area in which parents mentioned a great deal of change; one participant mentioned that her daughter made tremendous
advances in this area and was now able to keep up with children his age stating that “She was finally able to participate on the playground. She was able to do the monkey bars for the first time. She was just so happy...the first time she could ride a bike...was so meaningful for her because she was probably a year behind the other kids” (Cohn, p. 289).

Conclusion

Sensory integration has been shown to be effective in increasing social interactions and decreasing self injurious behaviors. The majority of literature addresses children. Additional information is needed documenting the effects of sensory with adults diagnosed with PDD. The purpose of this project is to design a sensory room; Chapter III will describe the methodology used in designing the sensory room.
CHAPTER III

METHODOLOGY

Sensory integration dysfunction is when an individual experiences difficulties with processing sensory stimuli received from the environment. Difficulties occur through the processing of the following senses: touch, taste, hearing, smell, sight, body positioning, and movement (Wikipedia, 2006).

The product was designed to address sensory integrative dysfunctions through the use of a sensory room. This room will provide individuals with sensory based treatment in order to address individualized processing dysfunctions, whether it is from one of the five senses, or a proprioceptive issue. Sensory integration therapy is designed to facilitate a more normal response to sensory information. With the assistance from an occupational therapist, individuals with sensory integrative dysfunction will be assessed and given treatment plans based upon their sensory needs. Sensory integration treatment has been discussed throughout the literature review and results have shown it to be an effective method of treatment when working with individuals with sensory difficulties.

An initial needs assessment was conducted at a day program for developmentally disabled adults. The results of the needs assessment indicated that there were individuals with sensory integration dysfunction, and that these problems had not been addressed using extensive sensory integrative therapy.
The authors completed an extensive review of the literature. Based on the literature review findings and consultation with the staff at the day program, a protocol including: background information, assessment procedures, contraindications, and guidelines for implementation were developed. Also included in the protocol were a suggested blue print and equipment list for the facility. Chapter IV provides an overview of the protocol. The complete protocol, blueprint, and suggested equipment are found in the appendices.
CHAPTER IV
PRODUCT
Occupational Therapy Sensory Room Program

Introduction

The purpose of the sensory room is to provide individuals with developmental disabilities with an opportunity to organize sensory input and increase abilities to function in a more socially appropriate way. Based on an extensive review of the literature, and consultation with a practicing occupational therapist, a sensory room blueprint and protocol for implementing sensory activities with adults with developmental disabilities were developed. The sensory room is simplistic, yet allows many of the suggested activities to be implemented. The sensory room and its suggested activities focus on assisting individuals to engage in activities that will help regulate sensory input, whether it is too much or too little.

Sensory integration intervention strategies are used to treat disruptions in sensory processing. The protocol for the sensory room is designed to use provided guidelines and activities with clients when either sensory avoidance or sensory seeking behaviors are demonstrated.

The Product

The sensory room product consists of: a blueprint for suggested arrangement of furniture/sensory integration equipment, guidelines for the
occupational therapist to use in evaluating clients and determining specific intervention strategies, suggested activities to use within the environment to address client needs, and contraindications and precautions. The product provides instructions to the occupational therapist with suggested evaluation tools and step-by-step instructions for direct care staff to utilize while working with specific clients.

The sensory room is a place where individuals who are experiencing either sensory avoidance or sensory seeking behaviors can go to reorganize themselves and receive the input that they require in order to function adequately. The room is simple and can provide its patrons with either a stimulating environment or with a calming environment that is conducive to the individual’s ability to take in progressive amounts sensory input.

Sensory room blueprint and sensory integration intervention strategy protocol can be found in appendix A. The protocol includes step by step instruction for activities to use for specific behaviors and forms for documentation of the behaviors, sensory integration activities utilized, and the client’s reactions to the activities.
CHAPTER V
SUMMARY

The sensory room developed for this scholarly project was designed to facilitate sensory processing techniques for adults with sensory integration dysfunctions. A program protocol was developed to include: guidelines for implementation, documentation forms for usage and behaviors seen, a blueprint of the suggested layout of the sensory room, and the equipment usage and estimated budget has been incorporated into the protocol.

Once an individualized treatment plan has been established by a licensed occupational therapist, the sensory room can be utilized by the staff members. Information regarding effectiveness of the sensory integration treatment has been discussed throughout the literature review. It is recommended that the developed sensory integration protocol be used with only those who are deemed appropriate through a sensory profile evaluation, administered by a registered occupational therapist (Dunn, 2005). Once the individual is deemed appropriate for sensory integration treatment, the staff members are able to follow the set up protocol for implementation of the treatment. The protocol is organized by types of behaviors and treatment suggestions to lessen the severity of those behaviors.

This program has been developed for use by developmentally disabled adults recognized as having sensory integration dysfunction by an occupational
therapist. The room can be used by the staff members and has been set up in a manner that is easily comprehensible to non-therapist personnel.

Sensory integration treatment is continuously being researched and modified and the developed sensory room has the flexibility to incorporate additional equipment. It is suggested that the occupational therapist be involved in collaborating with the staff to continuously assure that the protocols are being followed properly and the treatment strategies are matching the client’s sensory needs.

Research has shown the effectiveness of sensory integration and processing strategies with children, however the largest limitation of this scholarly project is the lack of research on the use and benefits of these approaches with adults. Additional information is needed to document the effectiveness of sensory rooms with adults. Forms are included in the protocol for use of documenting outcomes of individual clients using the room.
REFERENCES


APPENDIX A

SENSORY ROOM
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SENSORY ROOM

Background Information

The purpose of this manual is to provide guidelines and background information in the use of the sensory room with individuals experiencing sensory integration dysfunctions. The following manual describes, in detail, the protocol that should be used for your clients experiencing sensory processing dysfunction. A client that is suspected to be experiencing sensory integration dysfunction will demonstrate behaviors that are sensory seeking (teeth grinding, hitting, rocking, etc.) or sensory avoidant (removing clothing, avoiding eye contact, etc.). If a client is suspected to be experiencing some of the signs of sensory integration dysfunction the occupational therapist must be contacted before any of the following instructions are followed. The occupational therapist will make the determination as to whether the client is appropriate to use the sensory room and its associated activities. Once the occupational therapist determines whether or not the client is appropriate, it is the direct care staff’s responsibility to engage the client in sensory integration activities in the proper manner.

The next few sections will provide caregivers with an idea of: the theory behind the sensory integration room, the process that is used for leading the protocol, and the training process for use of the sensory room. In addition, step-by-step directions as to how to implement all of the activities surrounding the created sensory room are provided for staff. The step-by-step directions will not
only inform staff members of when it is appropriate to use the equipment or treatment strategies, it will provide them with information on how to perform specific techniques with their clients.
Theory Behind the Sensory Room

The sensory room and its protocol for use has been developed based upon using the Ecology of Human Performance Model (EHPM) (Dunn, Brown, & Youngstrom, 2003) and the Sensory Integration Frame of Reference (Nelson, & Jepson-Thomas, 2003). The EHPM Model focuses primarily on context (environment), which is the foundation of the sensory room. EHPM centers on the physical environment, including its social, cultural, and time factors, which all influence behavior. The sensory room deals with all aspects related to the physical constructs and what types of equipment are used in order to influence behavior. The context supports performance and shapes the meaning. The tasks that the individuals carry out during the program influence the outcomes, therefore increasing behaviors and decreasing the unwanted/negative behaviors. The environment itself, along with the equipment, will stimulate the individuals to assist them in developing the skills needed for increased function and independence skills. The environment, in this setting, means everything for the client.

The basic steps for applying this model are listed below and have been applied according to this project:

1. Prioritize the individual’s/population’s wants and needs:

   Through an extensive review of literature and collaboration with the practicing therapist, a need for a sensory room was determined.
2. Analyze prioritized tasks:

   Based on the identification needs of the clients and taking into consideration safety needs, selected equipment was suggested for the sensory room.

3. Evaluate performance:

   The following tools were suggested and a process for guiding the evaluation process was developed. The tools included are the equipment that will be incorporated into the sensory room.

4. Evaluate the contexts

   The context is important when incorporating these activities and guidelines of usage are provided according to behavior displayed.

5. Evaluate the person/population variables:

   Reactions and responses to the type of strategy used will be documented accordingly with the documentation provided. See documentation handouts provided.

6. Develop goals and choose intervention strategies for identified priorities:

   The goals of each individual client are to be developed by the occupational therapist based on evaluation outcomes; the goals will focus on the types of sensory input the client seeks. Upon determination of these aspects, intervention strategies are carried out accordingly.
7. Evaluate the person/task/context and select achievable goals and reasonable intervention strategies:

Evaluations will be completed by the occupational therapist continuously and this can be done through review of documentation. Therefore, client goals are subject to change based upon responses to treatment.

Within the use of this model the Sensory Integration Frame of Reference will be utilized. Through the use of this frame of reference the treatment plan will focus on the significance of sensory performance and the integration of sensory processing to allow for adaptive reactions. Sensory integration techniques help the individual sort out, process, and make sense of sensory input information such as movement, positioning, touch, hearing, seeing, tasting, and smell. Through the use of sensory integration, the individual can develop and utilize methods that encourage tolerance of sensory input, or demonstrate control over reactions to the sensory input.
IMPLEMENTATION OF THE PROTOCOL

Evaluations

Evaluations for determination of participation in the sensory room program will be completed by the company’s contracted occupational therapist. It is recommended that the occupational therapist utilize the Sensory Profile Measure (Dunn, 2005) to evaluate each client. The Sensory Profile is available for infants/toddlers and for adolescents/adults. The infants/toddlers evaluation is a 36 item questionnaire for caregivers, which measures the child’s response to sensory events during daily life. The adolescent/adult Sensory Profile is a 60 item self reporting questionnaire that measures individual responses to sensory events during daily life. The results of the assessment will conclude what types of sensory stimulation the client seeks or needs. The occupational therapist will receive a score from the assessment. This score will reflect the individuals’ response to sensory input across the sensory systems and assist the therapist in guiding the treatment planning process.

Treatment Plan

Once it has been determined whether the client is appropriate to use the sensory room, a treatment plan will be created for the client. The treatment plan will contain goals that will be reached by one year. Each year the clients will be re-evaluated using the Sensory Profile, and new treatment plans and goals will be formulated. Through this process, the client’s progress can be measured and new goals can be met. The treatment plan will be created by the client’s occupational
therapist and will be carried out by the client’s direct care staff. Each treatment plan will be specific to the individual client’s sensory needs and will contain treatment interventions available through the created sensory room protocol.

Behaviors Indicating Sensory Processing Issues and Techniques Commonly Used

Common indicators that an individual’s sensory processing system needs assistance include silliness, giddiness, noise making, and aimless running or pacing. These behaviors may escalate into repetitive stereotypic behaviors and self-injurious behaviors. Sometimes the individual will simply close down. Behaviors evident of this include sleepiness, passiveness, or self-absorbed behaviors (behaving as if they are ignoring people or things around them). The following techniques are used for individuals with sensory defensiveness behaviors or sensory seeking behaviors. There are three categories associated with decreasing or increasing behavior patterns. They are calming techniques, organizing techniques, and altering techniques. Below is a description of these techniques (Yack, Sutton, & Aquilla, 2002).

Calming techniques are those strategies that are used for individuals who are anxious. Anxiety can present itself in many forms. Some examples of an individual experiencing anxiety may include hand flapping, biting, a negative reaction to touch, etc. Calming techniques, when used properly, will help relax the nervous system of the individual and relieve them from the sensory-overloading situation (Yack, et al., 2002).

Organizing techniques are those strategies that can assist individuals who are either over stimulated or under stimulated, enabling them to become focused
and attentive. The individuals who may be in need of some of these techniques may be showing signs of also needing alerting or calming techniques as well (Yack, et al., 2002).

Alerting techniques are strategies that assist individuals who are under-reactive to sensory input, passive, or lethargic become more focused and attentive. These techniques should not however be used if an individual is in a close down mode (when an individual is responding to stimuli defensively). These techniques should be monitored in order to prevent over stimulation (Yack, et al., 2002).

The following is a list of commonly seen behaviors, why they are being displayed, and what types of activities may be useful to address the behavior. However, please note that separate training is provided for techniques such as joint compression, deep pressure massage, progressive muscle relaxation, and brushing. This training will be provided during general orientation or during the employment process.
Sensory-Seeking

The following is information regarding sensory-seeking behaviors, why they occur, and what types of activities may be beneficial for the individuals.

<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities * (Provided in the Sensory Room)</th>
</tr>
</thead>
</table>
| Biting/teeth grinding | Maybe experiencing sensory defensiveness to another sense | Calming activities such as:  
  - Deep pressure massage  
  - Backrub using a comfort touch  
  - Joint compressions (with prior training from OT)  
  - * Snuggling in a bean bag chair  
  - Blanket wrap (neutral warmth)  
  - Slow rocking or swaying  
  - Neoprene vest  
  - * Weighted vest/blanket  
  - Lavender, vanilla, banana, or other soothing smells  
  - * Quiet area  
  - * Fidgets  
  - Progressive muscle relaxation  
  - * White noise or quiet music with a steady beat  

Oral motor activities such as:  
  - Blowing bubbles  
  - Harmonica  
  - Whistling  
  - * Vibrator (small-vibro tube) |
<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities</th>
</tr>
</thead>
</table>
| Running, spinning, or other gross movement behaviors | Individual is seeking strong vestibular and/or proprioceptive input | Gross motor activities such as:  
  - Walking  
  - Running, skipping, hopping  
  - Dancing, marching to music  
  - Bowling  
  - Hoop games  
  - Big ball games  
  - Swimming  
  - Frisbee  
  - Bike riding  

Proprioceptive Activities such as:  
  - Stair climbing  
  - Pulling/pushing weighted cart  
  - Catching/throwing heavy ball, bean bag  
  - Kicking soccer ball, big ball  
  - Carrying heavy items-groceries  
  - Big ball activities  
  - Pulling apart resistant toys such as legos/snap toys  
  - Pounding/rolling-play doh, clay, snapping beads  
  - Joint compressions (with prior training from OT)  
  - Heavy exercise-push-ups, sit-ups  
  - Pushing-against a wall, hands together  
  - *Vibration (vibro-tube)  
  - Massage  
  - *Wearing weighted ves/blanket |
| Behaviors Displayed | Why this behavior is being displayed | Beneficial Activities
* (Provided in the Sensory Room) |
|---------------------|--------------------------------------|----------------------------------|
| Crashing, bumping, clinging, | Seeking proprioceptive, vestibular and/or deep-pressure touch input | Proprioceptive activities such as:
  - Stair climbing
  - Pulling/pushing weighted cart
  - Catching/throwing heavy ball, bean bag
  - Kicking soccer ball, big ball
  - Carrying heavy items
  - Big ball activities
  - Pulling apart resistant toys such as legos
  - Joint compressions (with prior training from OT)
  - Heavy exercise-push-ups, sit-ups
  - Pushing-against a wall, hands together
  - *Vibration (vibro-tube)
  - Massage
  - *Wearing weighted vest/blanket

Vestibular activities: such as:
  - Rocking
  - Outdoor play
  - Walking, running, swimming
<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitting, slapping, pinching, squeezing, grabbing, pulling</td>
<td>The hand may be more sensitive to touch compared to other body parts</td>
<td>o  Hand massage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Press hands together</td>
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<tr>
<td></td>
<td></td>
<td>o  Push hard on top of desk/table</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  *Fidgets (things to keep hands occupied)</td>
</tr>
<tr>
<td>Playing with Saliva</td>
<td>Provides tactile input to the mouth, fingers, and the area that the saliva was placed</td>
<td>Oral strategies such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Blow bubbles</td>
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<tr>
<td></td>
<td></td>
<td>o  Blow toys</td>
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<tr>
<td></td>
<td></td>
<td>o  Harmonica</td>
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<tr>
<td></td>
<td></td>
<td>o  Whistling</td>
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<tr>
<td></td>
<td></td>
<td>o  *Vibrator (vibro-tube)</td>
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<tr>
<td></td>
<td></td>
<td>Tactile activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Brushing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Massage/back rubs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Tactile adventure bins with cornmeal, oatmeal, water, sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  *Painting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  *Feelie items-interactive tactile wall</td>
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<tr>
<td></td>
<td></td>
<td>o  *Tactile Games</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  *Sticky Walls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  *Fantastic finger brushes</td>
</tr>
<tr>
<td>Flapping- flinging arms in the air as if they are attempting to fly</td>
<td>Provides proprioceptive sensation to muscles and joints. May be a sign of sensory overload. This can be a sign of either over or under stimulation</td>
<td>o  Wall push-ups</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Jumps with hands held</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Climbing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Tangle toys</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organizing activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Sucking a hard candy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Vibration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Chewing/blowing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o  Adding rhythm to activity</td>
</tr>
<tr>
<td>Behaviors Displayed</td>
<td>Why this behavior is being displayed</td>
<td>Beneficial Activities <em>(Provided in the Sensory Room)</em></td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Perservative engagement** | Individuals may be fixed in certain movements associated with poor body awareness and coordination. | **Gross motor activities such as:**  
○ Walking  
○ Running, skipping, hopping  
○ Dancing, marching to music  
○ Playing ball  
○ Bowling  
○ Hoop games  
○ Big ball games  
○ Swimming  
○ Frisbee  
**Fine motor activities such as:**  
○ Squeeze toys  
○ Puzzles  
○ Coins  
○ Bubblewrap for popping  
○ Computers  
○ Peg games  
○ *Two handed building games/toys*  
○ Playing cards  
○ Dominos  
○ Beading  
○ *Adult Sorting Boards* |
| **Smelling Behaviors** | Low sensitivity to smells and seeks out strong smells, the individual may need to get close in order to smell |  
○ Smelly box  
○ Develop a cleaning chore that allows for those smells  
○ Create a spray bottle with colored water, adding an enjoyable scent |
<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities</th>
</tr>
</thead>
</table>
| Masturbation        | This provides strong tactile stimulation that the individual can tolerate (feedback is stronger in genitals). It is also provides a rhythmic motion that may be calming | Calming Activities such as:  
  - deep pressure/weighted clothes  
  Tactile Activities such as:  
  - Brushing  
  - Massage/back rubs  
  - Tactile adventure bins-cornmeal, oatmeal, water, sand  
  - Treasure hunt-hide objects in playdoh, around room  
  - *Feelie items-interactive tactile wall  
  - *Tactile Games  
  - *Sticky Walls  
  - *Fantastic finger brushes  
  - Alternative seating arrangements |
| Pica-eating non-edible objects | Provides strong tactile and proprioceptive input for those who may not register sensation, may also transmit vibration to the jaw, stimulating the vestibular system | Vestibular Activities such as:  
  - Rocking  
  - Outdoor play  
  - Walking, running, swimming  
  Proprioceptive Activities such as:  
  - Vibrating toys for mouth  
  - Give them something crunchy for oral stimulation |
<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities * (Provided in the Sensory Room)</th>
</tr>
</thead>
</table>
| Passive, lethargic behavior (appear tired, slow behavior, quiet) | The individual is under stimulated and needs activities that will help them become more focused and attentive | Alerting activities such as:  
  o Bright lighting and fresh cool air  
  o *Bubble Light  
  o *Infinity Light Show  
  o *Bubble Column  
  o *Slim line Projector  
  o *Shadow Play  
  o Drinking ice water or carbonated drink  
  o *Loud, fast, alerting music  
  o Cause and effect toys with sounds and lights  
  o *Visually stimulated rooms |
Sensory-Avoidant

The following is information regarding sensory-avoidant behaviors, why they occur, and what types of activities may be beneficial for the individuals displaying them.

<table>
<thead>
<tr>
<th>Behaviors Displayed</th>
<th>Why this behavior is being displayed</th>
<th>Beneficial Activities (*Included in the Sensory Room)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes off clothing</td>
<td>Clothes are causing uncomfortable tactile input to the skin</td>
<td>Calming activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Brushing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Massage/back rubs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Tactile adventure bins-cornmeal, oatmeal, water, sand</td>
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<tr>
<td></td>
<td></td>
<td>o *Fantastic Finger Brushes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o *Feelie items-interactive tactile wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Soft clothing</td>
</tr>
<tr>
<td>Avoids eye contact</td>
<td>Looking directly is more stressful than peripheral vision; processing visual and auditory input may be hard to do at the same time</td>
<td>Calming activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Brushing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Massage/back rubs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Tactile adventure bins-cornmeal, oatmeal, water, sand</td>
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<tr>
<td></td>
<td></td>
<td>o *Fantastic Finger Brushes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o *Feelie items-interactive tactile wall</td>
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<tr>
<td></td>
<td>Desensitize techniques-</td>
<td>Have the client look at their eyes in a mirror (maintaining focus), and once they become comfortable with that then they can focus on another individual’s eyes</td>
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<tr>
<td></td>
<td></td>
<td>Teach about body positions that indicate listening</td>
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<tr>
<td>Behaviors Displayed</td>
<td>Why this behavior is being displayed</td>
<td>Beneficial Activities</td>
</tr>
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<td>----------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Avoids car rides, swings, or any imposed movement</td>
<td>The sensation is frightening or overwhelming to the individual</td>
<td>Calming activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Brushing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Massage/back rubs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Tactile adventure bins-cornmeal, oatmeal, water, sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o *Fantastic Finger Brushes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o *Feelie items-interactive tactile wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Warn them about upcoming movement</td>
</tr>
<tr>
<td>Avoids handling sensory material</td>
<td>Tactile defensiveness to the materials</td>
<td>Calming tactile activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Brushing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Massage/back rubs</td>
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<tr>
<td></td>
<td></td>
<td>o Tactile adventure bins-cornmeal, oatmeal, water, sand</td>
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<td></td>
<td>o *Fantastic Finger Brushes</td>
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<td>o *Fantastik</td>
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<td></td>
<td></td>
<td>o *Feelie items-interactive tactile wall</td>
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<td></td>
<td></td>
<td>o Sticky walls</td>
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<tr>
<td></td>
<td></td>
<td>o Boinggoing</td>
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<td></td>
<td></td>
<td>o Tactile games</td>
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<tr>
<td></td>
<td></td>
<td>o Deep pressure touch when doing tactile play</td>
</tr>
<tr>
<td>Behaviors Displayed</td>
<td>Why this behavior is being displayed</td>
<td>Beneficial Activities</td>
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</tr>
</tbody>
</table>
| Limited use of hands for grasping | Tactile defensiveness; poor proprioceptive functioning | Calming activities such as: 
  o Brushing 
  o Massage/back rubs 
  o Tactile adventure bins-conmeal, oatmeal, water, sand 
  o *Fantastic Finger Brushes 
  o *Fantastik 
  o *Feelie items-interactive tactile wall 
  o Sticky walls 
  o Boinggoing 
  o Tactile games 
  o Use of hands in function such as opening doors, and grasping small objects |
| Auditory sensitivity | Sensitivity to sound | o Help them express when they feel over-stimulated 
  o Use of walkman 
  o Earplugs 
  o Chewing gum 
  o Fidget toys 
  Relaxation activities such as: 
  o *Calming Music 
  o Deep breathing 
  o Squeeze balls 
  o *Forest Rain Drops CD 
  o *Dual sound screen |
Contraindications

It is important to take into consideration contraindications prior to starting any types of interventions. Please read over the contraindications for each section prior to starting any therapy interventions with the client as certain side effects may occur.

(The following information was adapted from The Sensory Processing Disorder Resource Center).

Tactile

An individual with tactile defensiveness should never be forced to touch anything they do not want to, as this will cause further anxiety and avoidance. They should be encouraged and explained what it is they are being introduced to in a safe, non-threatening way. It is not uncommon for an individual with tactile defensiveness to become aggressive if they are touched; therefore, being aware of this reaction is important in understanding their behaviors. If the individual is fearful of materials, introduce them in a non threatening manner, such as putting objects in the material before having them touch it with their hands. Also encouraging fun ways to play with materials will lead to better tolerance of different textures.

Proprioceptive

As a result of proprioceptive dysfunction the individual may become emotionally insecure. The individual may avoid trying anything new. They may also lack self confidence and self esteem. If an individual is fearful of vibration tools, let them turn the tool on and off first, or watch you do it. When the
individual is ready they can do it themselves. Never use the vibrator on the stomach and always stop if the individual looks uncomfortable.

**Vestibular**

It is very important to note that vestibular stimulation can have a significant impact on the nervous system. All of the movements need to be monitored carefully; therefore it is not recommended to engage the individuals in vestibular movement unless supervised by an occupational therapist. Signs of vestibular overload include:

- Excessive yawning, hiccupping, or sighing
- Irregular breathing
- Color change
- Sweating
- Motor agitation
- Increased anxiety
- Pupil dilation
- Changes in sleep/wake patterns
- Significant changes in arousal level (falling asleep or giddiness)

If the individual shows any signs of distress, stop immediately and determine the cause of the reaction. It is also important to note this, which can be done through the documentation that has been provided. The occupational therapist should also be notified in a situation that produces negative outcomes.
Guidelines for Implementation of Sensory Room

Once you have identified the behavior of the client, you will need to refer back to the individual’s sensory assessment that was conducted by the occupational therapist. After you have determined the behavior, and looked at the needs of the client, you can then look at the options for what types of stimuli the individual may be seeking. When you have determined the sensory input needed, you can then gradually introduce the client to a specific technique or activity classified underneath that category. For example, if an individual is exhibiting hitting and slapping behaviors you can look under those behaviors to determine the need for input the client may be seeking. You will then want to review the individual’s sensory treatment plan developed by the occupational therapist to ensure that you have made an accurate observation. If your observation correlates with the treatment plan, you can then determine what type of technique or activity would be beneficial for the individual. Therefore if the client is exhibiting this behavior of hitting and slapping, you then may want to have them press their hands together, or on the surface of a desktop. Once you have determined the activity, introduce it to the individual slowly during the process. You must also familiarize yourself with possible contraindications prior to starting any activity sessions.
Timing of activities

The activities should be introduced slowly, especially if it is new to the individual. Once the activity being used has been established, the individual is introduced to it in a non-threatening manner. Involvement in activities should consist of 5-10 minutes to begin, and increasing time as the individual allows. The involvement in one activity should not consist longer than 30 minutes or when the individual appears to have had enough. Signs of this may include behaviors associated with hyper or hypo sensitive behaviors, which are listed below.
SIGNS OF DYSFUNCTION

Signs of tactile dysfunction

(The following information was adapted from The Sensory Processing Disorder Resource Center, n.d.).

_Hypersensitive_

Refuses or avoids messy play, resists light touch, dislikes any type of physical contact such as kisses or hugs, becomes bothered by rough clothes or seams in socks, and refuses baths or showers.

_Hyposensitive_

Unaware that face and hands are dirty, constantly touching anything and everything in sight, may be self abusive/display self injurious behaviors, interacts rough with other individuals, oblivious to pain and may even take pleasure in experiencing pain.

Signs of vestibular dysfunction

_Hypersensitive_

Avoids circumstances where moving is involved, such as car rides; may be afraid of falling or walking on an uneven surface, and may shun away from rapid, sudden movements.

_Hyposensitive_

Loves movement and may display a need for it, movement may be spinning, or anything fast; has a hard time sitting still, constant moving such as shaking legs; thrill seeker and loves adventure, does not appear to become dizzy and is usually appeared to have a lot of energy.
Signs of proprioceptive dysfunction

_Hypersensitive_

Does not understand where body is in space, clumsy, bumps into things frequently, appears uncoordinated when moving.

_Hyposensitive_

Frequently jumping, crashing, and stomping, loves hard touch, likes tight clothing, likes to get rowdy, and may even become aggressive at times with others.

Signs of auditory dysfunction

_Hypersensitive_

Holds hands over ears when encountering loud noises, becomes distracted by sounds that are often unnoticed by others, fearful of things such as hair dryers, toilets flushing, and vacuums; may refuse to go into loud, public places.

_Hyposensitive_

Can be unresponsive to verbal cues, loves loud things such as music and places; likes to make noise and be loud, may use the word "what" on several occasions, may not notice where sounds come from.

Signs of oral dysfunction

_Hypersensitive_

Fussy eater and prefers specific foods, does not eat a variety of foods, may gag on certain textures of food, may have difficulty with chewing, swallowing, sucking; fears going to the dentist, does not like toothpaste or brushing their teeth.
Hyposensitive

May like to lick, chew, suck on, or taste inedible objects, loves foods that have intense flavor, can drool excessively at times, chews on pencils, pens or own shirt.

Signs of olfactory dysfunction

Hypersensitive

Disturbed or disgusted by cooking, bathroom and/or perfume smells, may avoid places due to smells associated with them, may refuse to go places because of the way it smells, decides on foods based on how they smell, can notice a smell that others may not.

Hyposensitive

The individual may not notice odors that are ghastly or toxic, smelling behaviors may be initiated when first introduced to something, they also may not be able to identify smells

Signs of visual dysfunction

Hypersensitive

Bright lights are bothersome, may also become bothered by sunlight, can become distracted by visual stimuli, may become overly stimulated in bright rooms.

Hyposensitive

May display trouble when trying to control eye movements and tracking objects, may mix up letters with each other, may not see the whole picture due to focusing on smaller objects, may loose place when reading.
Guidelines Hypersensitive Individuals

(The following information was adapted from The Sensory Processing Disorder Resource Center, n.d.).

When the individual over reacts to a certain stimulus, these are the guidelines you want to take in order to introduce them to the stimulus that is causing the reaction.

- Slow and/or gradual introduction to sensory stimuli
- Do not force individual to move, taste, touch things which cause a significant fearful reaction
- Let the individual know what you are going to do ahead of time and while you are engaging in treatment.
- Give the individual time when interacting; allow them to experience things when they are ready. Do encourage engagement and creatively find a way to get them to do become involved.
- Relay to the individual that you accept what they are feeling and can understand their responses.
- Be patient with them, allow for extra time during each intervention and ask the individual what is making them feel anxious, sad, angry etc. Give them some words to use in order to express their feelings and emotions.
Guidelines for Hyposensitive Individuals

(The following information was adapted from The Sensory Processing Disorder Resource Center, n.d.).

When the individual is appearing lethargic, or passive, these are some guidelines to use to increase the clients alertness, in order to stimulate them into performing appropriate behaviors.

- Give the individual a sense of body awareness by having them do heavy work/input
- Remind individual to do what their body needs to do, but remember to do this safely. Help them understand their own sensory needs
- Use as much deep pressure and heavy work as needed and tolerated
- Give the individual more opportunities to experience
- Have the individual complete tasks in sitting, kneeling, standing, lying on stomach propped on elbows, etc.

Tips/Strategies

(The following information was adapted from The Sensory Processing Disorder Resource Center, n.d.).

- Remember that visual information is often better than verbal information
- Minimize visual clutter
- Incorporate sensory activities into the day so that the individuals nervous system can be kept in a calm state
- Allow for self-soothing behaviors
- Investigate the use of weighted blankets during the day
o Build movement into the daily schedule

o Time is often needed to switch from taking in information and the ability to express new learning

o Use a calm and consistent tone with the individuals

o Provide a quiet place where the individual can go relax or refocus- sensory room

o Keep rules consistent

o Use communication and visual aids to enable understanding

o Make new learning as concrete as possible

o Use humor, it works wonders

o Use timers to signal end of activity

o Find out successful strategies and make note of them

o Allow for choices, but not too many

o Communicate daily between caregivers, therapists, or anyone else involved
### ABC Data Form

<table>
<thead>
<tr>
<th>Date/Time Initials</th>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequence (Technique Used)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Sensory Integration Documentation

<table>
<thead>
<tr>
<th>CLIENT NAME</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date/Time Intitials</th>
<th>Behavior</th>
<th>Technique Utilized (Length of Utilization)</th>
<th>Immediate Reaction</th>
<th>Reaction (1 Hour Later)</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI Equipment</td>
<td>Used for:</td>
<td>Storage</td>
<td>Size</td>
<td>Approximate Cost</td>
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<tr>
<td>------------------------------</td>
<td>------------------------------------------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Panel Screen</td>
<td>Blocking View of Cabinets; Projection Screen</td>
<td>See Blueprint</td>
<td>5' - 6' Long</td>
<td>189.95</td>
</tr>
<tr>
<td>Bubble Light</td>
<td>Visual Stimulation</td>
<td>Cabinet</td>
<td>1' 7&quot; Diameter</td>
<td>19.99</td>
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<tr>
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<td>Visual Stimulation</td>
<td>Cabinet</td>
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<td>Visual Stimulation</td>
<td>Cabinet</td>
<td>1' - 2' Diameter x 5' Tall</td>
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<tr>
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<td>Fantastik</td>
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<td>Tactile Stimulation/Proprioceptive Input</td>
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<td>6 - 1 1/2 pound weights</td>
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**Total**                      |                                                |                  |                          | 3978.62           |

| Additional Items:             | Size                                           |                  |                          |                  |
| Coffee Table/Desk             | 2' x 4'                                        |                  |                          |                  |
| End Table                     | 2' diameter                                    |                  |                          |                  |
| Cabinets x 2                  | 2' x 3' x <10'                                 |                  |                          |                  |
| Paint                         |                                                |                  |                          |                  |
REFERENCES


