

Sensory interaction in sensory integration therapy



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Sensory integration is an important consideration when working with children with Sensory Processing Disorder or sensory processing problems. In order to help this kind of children we need to understand their sensory problems especially touch, vision and hearing and try to use the knowledge and the technologies that we had to develop their sensory interaction like the normal children. This paper begins with the concept of sensory interaction and also the concept of sensory integration. Then, this paper discuss about the sensory interaction in the sensory integration therapy. Next is will be about the effectiveness of applying sensory interaction in the sensory integration therapy. Finally, a little bit discussion about the new technology for sensory interaction.

1. 0 INTRODUCTION

The sensory integration term was appeared in the literature more than thirty years ago (Ayres, 1972). Since that, controversy continues to swirl around both the theory and its application. Sensory integration theory was widely used by occupational therapists in order to guide their practice with children with a variety of development disorders especially learning difficulties. Both therapists and parents believe that sensory integration therapy is effective and it makes significant difference to the lives of these children. However, critics questioned the existence of disorders in sensory integration and point to the growing research evidence that demonstrates a lack of treatment efficacy (Gresham et al, 1999). The new technologies are expanding the possibilities for multi sensory interactions to support children with learning difficulties in schools. Findings from a qualitative classroom study show the potential of tangible technologies to enhance these children's experiences

by providing a variety of modes of representation, physical engagement and hands on exploration. They also present an effective foundation for investigating how tangible interaction can help to structure exploratory learning (Falcao & Price, 2010).

2. 0 CONCEPT OF SENSORY INTERACTION

Every time we make an action, our brain receives a large amount of sensory information about both the environment and our own bodies. All this information is used to constantly update our model of world and act accordingly. Sensory motor coordination literally the coordination of our sensory and motor systems, that allows us to create rational representation of our own bodies. When this coordination is disrupted, our ability to interact with the environment is reduced. The lack of sensory feedback means our sensory interaction is not going right (Arieta et al, 2010).

3. 0 CONCEPT OF SENSORY INTEGRATION

Naturally, senses in our body work together. Each sense works with the others to figure a composite picture of which we are physically, what is going on around us and where we are. Sensory integration is the critical function of the brain that responsible to figure out this composite picture (Ayres, 1972). In the other words, sensory integration is how we organize sensory information from our bodies and the environment to do some activities like move, play and learn. An effective sensory integration occurs automatically for most of us without effort and unconsciously. It is a process occurring that enables us to make sense of our world by receiving, registering, modulating,

organizing and interpreting information that comes to our brains from our senses.

We typically think of five senses which are vision, hearing, smell, taste and touch. These are the senses that give us information about the world around us and how we are interacting with the environment. Furthermore, there are some internal senses that tell us about the position of different parts of our bodies, how our bodies are moving and also our position in space and in relation to gravity. Sensory integration develops in the course of ordinary childhood activities for the most children. Motor planning ability is a natural outcome of the process to adapt to incoming sensations.

Though, there are people that the process is inefficient, demanding effort and attention with no guaranty of accuracy. Some children, sensory integration does not develop efficiently as it should. When the progression is disordered, it causes the problems for them in learning, development or behavior. An American occupational therapist, Jean Ayres and others has been done much work to try to understand the process, to understand what happens when the information is not integrated properly and to develop treatment methods to help children who face problems in this area (Reynolds, 2010).

4. 0 SENSORY INTERACTION IN SENSORY INTEGRATION THERAPY

If the children are experiencing a sensory integration dysfunction, we must find the solution how can we treat the problem of this. One of the methods is sensory integration therapy. Sensory integration therapy is a treatment approach, originally developed by Jean Ayres that aims to provide the child

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with graded sensory experiences. During the therapy, it is an activity that requires child to give an adaptive response to the challenge. The therapy usually carried out by an occupational therapist that has training and expertise in sensory integration. Sensory integration therapy is an active therapy. The child must be motivated by and engaged in the activities. Therefore, play is the best medium of choice.

The most effective sensory integration therapies are the Wilbarger Protocol and therapeutic holding that use the concept of sensory interaction.

Wilbarger was developed the method that promote the use of a specific type of sensory input to reduce hypersensitivity. The Wilbarger Protocol describes three kinds of touch practiced as part of therapy which are brushing, joint compression and weight. Therapist use their hands to apply deep pressure to some parts of the body, followed by the application of a soft brush to the skin and end by the application of a heavy weight like weighted blanket. This treatment is practiced every couple of hours for several minutes for as long as one year. The studies have proven that these kinds of touch therapy can help treat disorders such as mental disorder, depressive and anxiety disorder (Vaucelle et al, 2009).

The other persons that were found a method to treat sensory integration are William and Shellenberger (1999). They developed a program that combines a cognitive-behavioral approach with sensory integration to help children to learn to control their behavior. These approaches are designed to help children function to the best of their ability given their sensory interaction capabilities as different to trying to change their original neurological functioning. The innovative program developed by William and

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Shellenberger, describes an innovative way that supports children, teachers, parents and therapists to choose suitable strategies to change or maintain states of awareness. Children learn what they can do before a spelling test or homework time to attain an optimal condition of alertness for their tasks. Teachers learn what they can do when their adult nervous systems are in low alert condition and their students are in a high alert condition. For parents, they learn what they can do to help their child's nervous system change from a high alert condition to a more appropriate low condition at bedtime.

The activities typically involve the use of large pieces of equipment like big rolls and balls, trampolines, swinging hammock which provide intense proprioceptive, vestibular and tactile experiences. Proprioceptive processing is about the sensitivity of joint and body movement and position of the body in space. Proprioceptive problem slows down the processing of visual hand feedback (Balslev et al, 2007). Vestibular is about to detect the motion and also tied to tone, posture and attention. Tactile processing involved the receptors located in our skin and it plays a role in emotional response. Huss (1997) was said, the studies have proven that without appropriate touch and handling, the baby will not develop normally.

Using sensory integration therapy, the child is encouraged to explore the equipment and the therapist sets up the activities and the environment to challenge the child to use his or her sensory input to organize an adaptive response and reaction. This form of sensory integration therapy is now referred to as classical sensory integration therapy (Parham & Mailloux, 2005). It usually involves one to one direct involvement in an environment

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that has a variety of particular equipment. Occupational therapists may use other forms of involvement which are based on sensory integration theory, but which differ from the classical methods. For instance, some therapist use a sensory integration framework to help explain children's behavior or to cooperate with parents and school personnel to adapt the child's environment in ways that will facilitate the child's ability to participate. This approach may include modifications to the child's clothing, altering room configurations, noise or light levels or experimenting with food textures.

5. 0 THE EFFECTIVENESS OF APPLYING SENSORY INTERACTION IN SENSORY INTEGRATION THERAPY

A number of research studies have been done over past thirty years to investigate whether sensory integration therapy is effective with children and adults (Daems, 1994). The majority of studies has focused on the application of classical sensory integration therapy with children with learning disabilities and has aimed at improving motor skills, academic performance, behavioral performance and/or sensory and perceptual skills.

Children with learning difficulties perform significantly below standard, due to a permanent condition acquired from birth or early childhood. In the United Kingdom, they represent the largest group of children with special educational needs. So, they need the recommended teaching strategies which are visual (sight), auditory (sense of hearing) and kinaesthetic (sensory organ) approach, with the aid of resource materials, practical, concrete example to illustrate explanations and organizing cooperative learning groups. The advent of new technologies of sensory interaction like

virtual reality environments and tangibles is increasing the possibilities for supporting learning strategies for children with special educational needs and improve learning of them. As relatively latest educational resources, Information and Communication Technology (ICT) resources have brought the benefits of dynamic visualizations and interactivity to the classroom, along with self-paced learning activities (Falcao & Price, 2010).

Over past few years, the research has focused on the children with autism spectrum disorders and issues related to sensory processing problems. Autism spectrum disorder detected when a person having social interaction, verbal and nonverbal communication and repetitive behaviors or interest. In addition, they will often have unusual responses to sensory experiences like certain sounds or the way objects look. Recently, the studies using single subject research designs have shown some positive effects that resulted from efforts to decrease the child's hyper-responsiveness to sensory input through classical sensory integration therapy and deep pressure techniques. Sensory integration literature continues to be produced and studies conducted primarily in the field of occupational therapy. the articles from (Olson & Moulton, 2004), research reviews from (Mulligan, 2003) and case reports from (Kinnealey, 1998) and anecdotal parents reports support the idea that behavioral changes can result from the use of sensory integration therapy (Pollock, 2006). The changes that have been reported like increased commitment, more goal directed play, enhanced self patterns, reduced anxiety and increased patience.

6. 0 NEW TECHNOLOGY FOR SENSORY INTERACTION

The new technologies have been used and apply in order to help the children that have sensory processing difficulties and cause the trouble in their activities. For instance, Monroe Road Elementary School was implementing sensory tools in each classroom. Mrs. Henry, the president of Henry Occupational Therapy Services was said, in occupational therapy research, there is evidence that an increase in activity levels throughout the day helps children's cognition and alertness. Connecting the body and the brain is an important part of learning. It can help the children learn how to increase the interaction or contact of their senses.

Generally speaking, computers have widely been used for research, writing, editing and presentation of work, but there is still little encouragement of sensory engagement and collaborative learning, creativity and flexible thinking. Recently, the progress of technology has allowed the development of exploratory learning environments, in which pupils have more control over their learning as they interact with the interface. In such environments, increasingly popular in education, exploration replaces drill and practice, as advocated by constructivist theories of learning. There has been a renewed interest in hands-on approaches for special education, allowing children to learn via active exploration with concrete materials that facilitate knowledge construction and problem solving. Indirectly, the concrete material that children used can help them to have actual interaction especially touch and visual interaction.

By embedding digital data in physical object, tangible technologies are aligned with constructivist and embodied cognitive theories (mental process of acquiring knowledge through thought, experience and senses), building on <https://assignbuster.com/sensory-interaction-in-sensory-integration-therapy/>

the supposed benefits of educational manipulative and hands on experimentation. With tangible technologies, educational designers can go beyond screen based applications for PCs and create systems more diffused in the physical environment (Falcao & Price, 2010).

The US Department of Health's Restraint and Seclusion Reduction Initiative promotes touch therapy as an alternative to seclusion and restraint in severe psychiatric disorders. Seclusion and restraint are the most common means to manage aggressive children. Researchers have found an alternative to this method which is therapeutic holding. Therapeutic holding is similar to hugging, where the arms are wrapped and held around the shoulders, chest and back by a care-giver. Another promising touch therapy involves grounding the senses through contrasting touch sensations (Vaucelle, 2009).

7. 0 CONCLUSION

As a conclusion, it is an important that having future research on designing the new technologies, particularly applying the sensory interaction like tangibles for children with learning difficulties. Although the personal computer applications have their significance and place, the technology can provide better sensory experiences through the interweaving of computation and physical materials. From the research conducted by sensory integration therapist, it has proven that tangibles can support in teaching the special educational needs students (Falcao & Price, 2010).

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