

**THE PREVALENCE OF SENSORY INTEGRATION DYSFUNCTION IN  
CHILDREN AGED THREE TO TEN YEARS**

**by**

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## **Declaration**

I declare that '**THE PREVALENCE OF SENSORY INTEGRATION DYSFUNCTION IN CHILDREN AGED THREE TO TEN YEARS**' is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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**Gizelle Geringer**

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**Date**

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## **SUMMARY**

The sensory integration approach originates from physical (anatomical and physiological) evidence whilst the play therapy approach originates from psychological evidence. Apart from play therapy, the researcher has also attended various courses in sensory integration therapy.

Although both of these approaches are used as intervention methods with children who display behavioural, emotional and social difficulties, the researcher considered whether it was important for a play therapist to be aware of sensory integration therapy. The researcher then started this study in order to investigate the incidence of sensory integration dysfunction in children who receive play therapy. After completing the study, the researcher is of opinion that it is indeed necessary for play therapists to be aware of sensory integration theory in order to provide holistic play therapy intervention and to ensure positive therapy outcomes.

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# **CHAPTER ONE:**

## **INTRODUCTION TO THE STUDY**

### **1.1 INTRODUCTION**

Schoeman (1996:42) states that the human sensory system is a highly complex system, which enables human beings to experience the world. In this regard Kranowitz (2003:3) explains that it is through our senses that we receive sensory information from the environment and that we need this information to survive, learn and to function smoothly. In other words, our brains receive sensory information from our bodies and surroundings, interpret these messages and organise our purposeful responses.

Sensory modalities play a vital role in Gestalt play therapy. According to Schoeman (1996:57), the child needs to be sensory intact in order to make contact, increase awareness and to build a trusting therapeutic relationship (Schoeman,1996:57). Sensory contact is of concern for both the therapist and the child client in order to establish a therapeutic relationship. It is also important for the play therapist to assess the child's sensory contact process as this can help the therapist to determine how the child copes with other issues in his life (Schoeman,1996:57).

Emmons and Anderson (2006:14) explain that sensory integration is a child's ability to feel, understand and organise sensory information from his body and his environment. When the brain integrates sensory information correctly, the child's body movements are highly adaptive, learning is easy and 'good' behaviour is a natural outcome. Sensory integration is reflected in a child's development, learning and feelings about himself and sensory integration has a direct influence on social and emotional development (Emmons & Anderson, 2006:14).

But what happens when the child has difficulty interpreting, organising and acting on sensory information? Bundy (2002:14) explains that:

Sensory integration is a theory of brain-behaviour relationships. It cannot be observed although it can be hypothesised that it occurs on the basis of evidence from neuroscience. Deficits can be observed in behaviour and emotional well-being of a child and it can only be hypothesised that these deficits are the direct result of poor sensory integration.

Kranowitz (2003:3) further explains that sensory integration dysfunction occurs when the brain inefficiently processes sensory messages coming from a person's own body and his environment. Sensory integration dysfunction may affect a child's development, behaviour, learning, communication skills, friendships and play. Furthermore it may also make children self-protective or not self-protective enough and that a child's strongest sense may be a sense of uncertainty (Kranowitz, 2003:7).

It is clear that a child with sensory integration dysfunction may have difficulty with emotions and behaviour and it is very likely that such a child might be referred to a play therapist. According to the researcher it is of the utmost importance for a play therapist to be aware of possible sensory integration dysfunction of the child-client, as it will greatly influence the therapeutic process. For example a child who is overly sensitive to tactile stimulation might not want to touch certain materials and if the therapist suggests a sand tray activity, the child will not participate and might feel misunderstood by the therapist. The therapist in turn might perceive the child's reluctance as resistance to therapy while the child's behaviour can simply be explained in terms of sensory integration theory rather than the child displaying some form of psychological defence mechanism.

To summarise, sensory integration dysfunction has a great impact on a child's emotional well-being and behaviour (Compare Emmons & Anderson, 2006:14.) In the researcher's view, at some point a play therapist will see a child with sensory integration dysfunction in therapy. This child will have been referred due to possible emotional problems and/or behavioural difficulties. It is the researcher's opinion that successful intervention for this type of child will only be possible with parallel sensory integration therapy and it is the play therapist's duty and responsibility to be aware of sensory integration theory in order to recognise sensory integration dysfunction and make the appropriate referrals to an occupational therapist that is qualified in sensory integration therapy.

In this study, the researcher investigated the incidence of sensory integration dysfunction in children (aged 3-10) that were receiving play therapy in the Western Cape, South Africa. The researcher furthermore highlighted the impact that sensory integration dysfunction can have on a child's social, emotional and behavioural development and the researcher also made practical recommendations about the holistic intervention of the child with sensory integration dysfunction.

## **1.2 THE PROBLEM AND RATIONAL OF THE STUDY**

The researcher consulted with various experts in order to establish if the study was viable. Experts both in the field of play therapy and occupational therapy have been consulted. The researcher consulted with Mrs Debbie Levy and Miss Pauline Harries. Both these professionals are senior occupational therapists that have practised for more than 20 years and use sensory integration techniques on a daily basis. They both approved of this study and agreed with the researcher that sensory integration dysfunction has a significant impact on a child's life and that a play therapist should indeed be aware of possible sensory integration dysfunction in a child especially in the light of tactile techniques such as the sand tray.

Natasha Wignarajah, a play therapist, cited that she was not familiar with sensory integration dysfunction and the impact it could have on a child. She requested a copy of the research paper in order to circulate it within her department.

As an occupational therapist, the researcher is very interested in sensory integration theory and has completed two courses in sensory integration therapy. During these sensory integration courses, the researcher learned how sensory integration dysfunction can influence a child emotionally and behaviourally and that made her realise that, as a play therapist, one would need to know about sensory integration theory. For the researcher, sensory integration theory holds significant importance when it comes to treating children, especially in play therapy where various sensory materials are used, e.g. play dough and sand trays, as certain materials might have an effect on a child with sensory integration dysfunction. The topic of 'sensory integration' has been well researched by many occupational therapists worldwide including in South Africa. However, after completing an intensive literature search, the researcher could not find studies and theory available on the impact of sensory activities that a play therapist might use, on a child with sensory integration dysfunction. Therefore the researcher wanted to establish if children that were being seen by a play therapist also had sensory integration dysfunction and if it was necessary for a play therapist to be aware of sensory integration theory.

The researcher is of the opinion that other professionals, other than occupational therapists, that study play therapy, hold inadequate knowledge or are unaware of sensory integration theory and of how sensory integration dysfunction can influence a child emotionally, socially and behaviourally. Natasha Wignarajah, a play therapist that was consulted in 2006 on the viability of this study, agreed with the researcher that many professionals that do not have formal training in sensory integration theory are not aware of the effects of sensory integration dysfunction on a child's functioning.

A child who has sensory integration dysfunction might be mistakenly referred to a play therapist due to emotional or behavioural difficulties. The play therapist, if

unaware of sensory integration theory, may misconstrue the problem. By completing this study, the researcher aimed to investigate whether a significant number of children who were currently receiving play therapy had sensory integration dysfunction, and, if so, wanted to highlight the importance of being familiar with sensory integration theory for the play therapist.

As mentioned earlier, the researcher was of the opinion that play therapists in general were not adequately aware of sensory integration theory and the effect that sensory integration dysfunction could have on a child. A child with sensory integration dysfunction might at some point have been referred to a play therapist due to emotional and behavioural difficulties. If the therapist was not aware of sensory integration theory, the researcher is of opinion that the child's sensory integration dysfunction may have an effect on the therapeutic relationship and therefore the success of the play therapy intervention.

According to Fouchè and De Vos (2005:104), the aim of the study implies the broader, more abstract conception of the final result toward which effort is directed. The aim of this study was to investigate the incidence of sensory integration dysfunction in children that were receiving play therapy in the Western Cape, South Africa. If this study showed that there were indeed children that had sensory integration dysfunction, the researcher then further aimed to highlight the importance for a play therapist to have basic knowledge about sensory integration theory

According to Fouchè and De Vos (2005:104) the objective of a research study refers to the more concrete, measurable and more speedily attainable conception of such a final result toward which effort is directed.

The objectives of this study were:

- To do a literature study in order to explain sensory integration theory and to highlight how sensory integration dysfunction impacts on a child's development, emotions and behaviour.

- To use a standardised assessment tool called the Sensory Profile for Caregivers, in order to establish if children in the sampling group may have sensory integration dysfunction. Hereafter the Sensory Profile for Caregivers will be referred to as the Sensory Profile.
- To analyse the data of the above mentioned Sensory Profile for Caregivers assessment tool.
- Following the results of the Sensory Profile, to discuss the main Gestalt play therapy concepts and to highlight the importance for a play therapist to be aware of sensory integration dysfunction.
- To conclude the study and make appropriate recommendations.

Robson (2005:548) explains that a hypothesis is the predicted or proposed answer to a research question. The hypothesis of this study was thus that some children (aged three to ten) in the Western Cape that received play therapy may present with sensory integration dysfunction.

### **1.3 RESEARCH APPROACH**

#### **3.1.1 Research Approach**

Quantitative research is where data collection procedures are applied in a standardised manner and where the study is focused on a specific hypothesis that remains constant throughout the investigation (Fouché & Delport, 2005:73). The researcher utilised the Sensory Profile for Caregivers as a standardised measurement tool, to obtain the data in this research study. The hypothesis has also remained constant throughout this investigation. This indicates that the researcher has used a quantitative approach in this study.

#### **1.3.2 Type of Research**

According to Fouché and De Vos (2005:105), applied research is the scientific planning of induced change in a troublesome situation. Applied research is done to

solve specific and practical questions, for example: “Are there any children with sensory integration dysfunction in the Western Cape that are currently receiving play therapy?” To determine the answer to this question, the researcher utilised applied research by using the standardised Sensory Profile measurement tool. Fouchè and De Vos (2005:106) also mention that applied research can have the objectives of exploring or describing. Scheurich (2000:59) explains that exploratory research is necessary to discover what is happening, particularly in little-understood situations. Exploratory research will provide new insights, ask new questions, assess phenomena in a new light and it will generate ideas and hypotheses for future research. Fouchè and De Vos (2005:106) elaborate on this by saying that the need for an exploratory study could arise out of a lack of basic information on a new area of interest, or in order to get acquainted with a situation so as to formulate a problem or develop a hypothesis. This study was indeed conducted to gain insight into a specific situation. The situation refers to the incidence of sensory integration dysfunction in children (age three to ten) who receive play therapy. The researcher conducted this study because she felt that this was a generally new area of interest for play therapists and that there was indeed a lack of basic information with regards to what degree play therapists need to be aware of sensory integration theory. This study was therefore explorative in nature.

### **1.3.3 Research Design**

A fixed research design refers to the fact that the research design is fixed (that it utilizes a standardised measurement tool) prior to the main phase of data collection and that it also involves statistic analysis (Robson, 2005:547). According to Fouchè and De Vos (2005:138) this fixed research design could furthermore be explained as a one-group post-test-only design and clarify that the randomised one-group post-test-only design is a design where the subjects are chosen randomly and there is only one group and one test, for example, one group of children is tested using the Sensory Profile. Thus the researcher made use of a fixed research design in that a standardised measurement tool was used to test one group of respondents.

## **1.4 RESEARCH METHODOLOGY**

### **1.4.1 Research Procedure and Work Method**

The researcher conducted an in-depth literature study (Chapters One and Two).

This research study was conducted from end of 2005 to early 2009, therefore some of the references that were published in 1995 are still considered to be within the ten year time limit that the researcher is recommended to use for this study. However, during the literature study the researcher also made use of references older than ten years as these books are considered to be classic resources. These included:

- Oaklander, V. 1988. Windows to our Children. United States of America: The Gestalt Journal Press
- Webb, N.B. 1991. Play Therapy with Children in Crisis. United States of America: The Guildford Press

Following the literature review, the researcher made use of a standardised measurement tool named The Sensory Profile For Caregivers by Winnie Dunn. The Sensory Profile provides a standard method for professionals to measure a child's sensory processing abilities and to profile the effect of sensory processing on functional performance in the daily life of a child (Dunn, 1999:1). The researcher aimed to test 100 children from various private play therapy practices throughout Gauteng. When the researcher was unable to find adequate numbers of respondents in Gauteng, she decided to change the catchment area to the Western Cape. Ultimately, only five play therapists were willing and capable of assisting with the research study. The children that were tested were between the ages of three and ten years old, as that is the age group on which the Sensory Profile has been standardised (Tomchek, 2007:191). The researcher requested that the selected play therapists circulate the Sensory Profile Questionnaires to the caregivers of children from his or her caseload. The term 'caregivers' refer to the subjects' parents or to those individuals that have legal guardianship of the subjects. The caregivers of the selected children completed the questionnaires and returned it to

the play therapist, who posted them back to the researcher in the United Kingdom, using registered post. The researcher covered all postage expenses. The researcher arranged with each play therapist to only write the child's initials, birth date and sex on the Sensory Profile and to keep a record with her of the child's full name, if the caregivers wanted feedback from the researcher. The researcher included three types of letters in the package that have been sent to each play therapist. Please refer to Appendices A to D at the end of this research study. The first letter was for the attention of the play therapist and it had clear instructions about what assistance was needed. The second type of letter was for the attention of the caregivers that participate in this study. This letter also had clear instructions about how to complete the questionnaires. The third letter was a 'Further Information' page that defined the aim of the study and explained what sensory integration/dysfunction was. The caregivers and play therapists were provided with an e-mail address in case they wanted to make contact with the researcher. Neither the caregivers nor the play therapists made any enquiries. The play therapist's role in this study was purely to circulate the questionnaires to the caregivers, obtain them after completion and to post them back to the researcher.

Once the Sensory Profiles were received, the researcher scored each questionnaire and analysed the data by using the standardised scoring manual of the Sensory Profile. Bentz and Shapiro (1998:93) mention that when only one variable is analysed it is called univariate analysis. The researcher consequently made use of a univariate analysis to analyse the data obtained from the Sensory Profile questionnaires as only one variable was measured, namely the incidence of sensory integration dysfunction in children aged three to ten who were receiving play therapy in the Western Cape at the time of the study.

The researcher presented the findings and test results of the Sensory Profile in Chapter Three.

The researcher completed another literature review (Chapter Four) in order to highlight the importance for a play therapist to be aware of sensory integration

dysfunction. The researcher finally concluded this research study in Chapter Five and also made appropriate recommendations.

#### **1.4.2 Universe, Population, Demarcation of Sample and Sampling Technique**

According to Strydom (2005:193), the term ‘universe’ refers to all potential subjects who possess the attributes in which the researcher is interested. The universe in this study included all the children who received play therapy in South Africa.

Population, according to Strydom (2005:193), is a term that sets boundaries on the study units and refers to individuals in the universe who possess specific characteristics. The population in this study was children between the ages of three to ten years that were receiving play therapy in the Western Cape at the time of the study.

Several authors (compare Strydom, 2005:194; May, 1997:260) agree that a sample is the elements of the population that are considered for actual inclusion in the study. The sample is studied in an effort to understand the population from which the sample was drawn. According to Struwig and Stead (2001:209) convenience sampling is chosen purely on the basis of availability and that respondents are selected merely because they are accessible. In this study, the researcher thus made use of convenience sampling as she used all of the subjects that she could get into contact with and who were willing to partake in this study. Although the researcher contacted as many play therapists as she could find, only a few were able to take part in the study. Play therapists in South Africa are not registered with a single body and therefore the researcher was unable to calculate exactly how many play therapists there are in private practice in the Western Cape. The researcher therefore was unable to determine how many children aged three to ten were receiving play therapy in the Western Cape at the time of the study. Due to the fact that it was unfeasible to determine the population size, the researcher aimed to test 100 children that received play therapy, in her sampling group.

The researcher, however, was unable to find more than five play therapists that were able and willing to take part in her study. The researcher only received 30

Sensory Profiles back and two of these could not be used as not all the sections of the Sensory Profile were completed.

The convenience sample used in this study was 28 children that received play therapy in the Western Cape between the ages of three and ten years old.

## **1.5 ETHICAL ASPECTS**

Robson (2005:547) describes *ethics* as principles relating to what is right and wrong, standards and codes of conduct, while Strydom (2005:57) defines *ethics* as a set of moral principles which is suggested by an individual or group and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects. It was important for the researcher to keep all ethical aspects in mind when conducting this study in order to protect the subjects during the course of this study as well as herself. Therefore it was necessary for this study to be approved by the Ethical Committee prior to commencement.

### **1.5.1 Avoidance of harm**

Strydom (2005:58) explains that subjects can be harmed in a physical and/or emotional manner during or as a result of research studies. Dane (1998:44) furthermore states that an ethical obligation rests with the researcher to protect subjects, within reasonable limits, from any form of physical discomfort that may emerge from the research project. As this study was comprised of caregivers that completed questionnaires, no harm came to the subjects.

### **1.5.2 Informed consent**

According to Strydom (2005:59), informed consent implies that all possible or adequate information on the goal of the investigation, the procedures which will be followed during the investigation, the possible advantages, disadvantages and

dangers to which subjects may be exposed, as well as the credibility of the researcher, be rendered to potential subjects or their legal representatives.

The researcher informed the play therapists and care givers of the goal and procedures of this study. Informed consent was obtained from the selected play therapists and caregivers before circulation and completion of the Sensory Profile.

### **1.5.3 Deception of subjects**

Neuman (2000:60) says that deception occurs when the researcher intentionally misleads subjects by way of written or verbal instructions, the actions of other people, or certain aspects of the research setting. The researcher was honest and truthful about this study and the subjects were not deceived about the purpose, goals or procedures of this study.

### **1.5.4 Violation of privacy/anonymity/confidentiality**

Strydom (2005:61) states that privacy implies the element of personal privacy, while confidentiality indicates the handling of information in a confidential manner. The researcher requested that the caregivers only put the child's initials, sex and birth date on the Sensory Profile questionnaire to ensure confidentiality. The researcher made use of registered postal services in order to send and receive the questionnaires to and from South Africa. By using only the subject's initials, sex and birth date on the questionnaires, confidentiality was ensured.

### **1.5.5 Actions and competence of the researcher**

According to Strydom (2005:63), researchers are ethically obliged to ensure that they are competent and adequately skilled to undertake the proposed investigation. The researcher felt adequately skilled to undertake this study, especially with the support of an appointed study leader. During a sensory integration course, the researcher was trained in conducting and scoring the Sensory Profile. The Sensory Profile is a well known measurement tool under professionals that are trained in sensory integration therapy and is internationally used to determine if children ranging from ages three to ten years old have a sensory integration dysfunction.

### **1.5.6 Release or publication of the findings**

Strydom (2005:65) states that the findings of the study must be introduced to the reading public in written form, otherwise even a highly scientific investigation will mean very little and will not be viewed as research. The researcher should also compile the report as accurately and objectively as possible (Strydom, 2005:65). The researcher compiled an accurate report at the end of the investigation. Strydom (2005:66) explains that the written report needs to comply with various criteria, namely, that the report needs to be:

- Accurate, objective, clear, unambiguous and contain all essential information.
- Avoid slanting and biased opinions.
- Avoid plagiarism.
- Admit shortcomings and errors.
- Inform subjects of findings in an objective manner.

The researcher considered all of the foregoing criteria when she wrote the report. The researcher offered to discuss the outcomes with the caregivers of the children, although there was no feedback requested.

### **1.5.7 Debriefing of the subjects**

Strydom (2005:66) cites that, through debriefing, problems generated by the research experience can be corrected. The researcher was willing to disclose the outcome of the Sensory Profile to the caregivers who were interested in the outcomes. As mentioned above, no feedback was requested.

## **1.6 DEFINITIONS AND MAIN CONCEPTS**

### **1.6.1 Sensory Integration**

Ayres as quoted by Bundy and Murray (2002: 4) defined sensory integration as “... the neurological process that organises sensation from one’s own body and

from the environment and makes it possible to use the body effectively within the environment". Heller (2003:14) reports that sensory integration is the organisation of sensations from the environment as well as the sensations from inside the body that tell a person who he is physically, where he is and what is going on around him so that he can make sense of the world. The researcher defines sensory integration as the process by which sensory information is received through the senses. This sensory information is sent to the brain to be interpreted and organised so that a person can make sense of the world around him. This information influences the person's interaction with the world.

### **1.6.2 Sensory Integration Dysfunction**

Heller (2003:54) explains that sensory integration dysfunction occurs when neural connections between the different parts of the brain are not properly established and a person's brain cannot easily organise sensory messages from the skin, muscles and joints, inner ear and the environment.

Similarly, Kranowitz (2003:4) states that sensory integration dysfunction takes place when the brain inefficiently processes sensory messages coming from a person's own body and his or her environment. The person has difficulty responding in an adaptive way to everyday sensations that others hardly notice or take in their stride. According to the researcher, sensory integration dysfunction is when a child's neurological system incorrectly organises and interprets sensory information resulting in problems in learning, motor skills and behaviour.

### **1.6.3 Sensory Profile**

The Sensory Profile is used to determine how well children ages three to ten process sensory information in everyday situations and to profile the sensory system's effect on functional performance. The profile contributes to a comprehensive picture of a child's performance (Pollock, 2006). Dunn (1999:1), who is the developer of this assessment tool, describes the Sensory Profile as a standard method for professionals to measure a child's sensory processing abilities

and to profile the effect of sensory processing on functional performance in the daily life of a child.

According to the researcher, the Sensory Profile is a standardised measurement tool that indicates whether a child's sensory processing is significantly different from his/her peers and whether the child may have sensory integration dysfunction.

#### **1.6.4 Play Therapy**

Cattanach (2003:1) explains that play therapy is a way of helping troubled children to cope with difficult life events. Play is used as the medium of communication because it is the way children make sense of their world. It is the play of children heard by a sensitive therapist and the relationship of trust and care between the two, which can help children manage their lives.

Through the therapeutic use of play, children who have suffered traumatic or life changing events, are given the opportunity to express their feelings safely, enabling them to start the healing process (Garofolo, [sa]).

According to the researcher, play therapy is based on the therapeutic interaction between therapist and child, where the therapist respectfully enters the world of the child by using various play therapy techniques. The child is encouraged to share, become aware of his emotions and actively take part in therapy by means of play in order to try and make sense of his world and circumstances.

### **1.7 CONCLUSION**

This chapter demonstrates the research methodology utilised by the researcher to conduct the study. By following the problem formulation for the study, the researcher identified the aim and the objectives for the study as identified in 1.2 of this chapter. The researcher conducted a quantitative research study by using a standardised assessment tool called the Sensory Profile. This type of study was explorative and the researcher made use of the one-group post-test-only design, which is considered a 'fixed' design. The researcher used the Sensory

Profile to test 28 children in order to establish and confirm the hypothesis of this study. This chapter also explained the ethical aspects that were adhered to throughout the process of this study and during the interaction with respondents in the study.

## **CHAPTER TWO:**

# **SENSORY INTEGRATION: SYSTEMS INVOLVED AND THE EFFECTS ON THE FUNCTION AND THE BEHAVIOUR OF THE CHILD.**

### **2.1 INTRODUCTION**

In this chapter the researcher will give more in-depth information about sensory integration, the anatomical systems that are involved with sensory integration and also how sensory integration dysfunction impacts on a child's development, emotions and behaviour.

### **2.2 SENSORY INTEGRATION**

The child's senses give him the information that he needs to function in the world. Kranowitz (2005:51) explains that the senses' first function is to help with survival. The second function is to aid learning and enable the child to be an active sociable person. The senses receive information from both outside and inside the body. Every move the child makes, every bite that he eats, every smell he smells and every object that he touches produces sensations. When all this information from the senses is integrated by the central nervous system, sensory integration takes place. This process tells the child what is going on, where, why, when and how he must respond, thus it influences his decisions and behaviour.

Kranowitz (2005:52) distinguishes between external and internal senses. She describes external senses as the five sensory systems that receive sensory information from outside the body. The touch or tactile sense provides information about touch, which is received through contact with the skin.

Olfactory (smell) and gustatory (taste) senses provide information about smell and taste, through contact with the nose and mouth. Visual and auditory senses provide information about sights and sounds coming from the environment without actual contact with the eyes and ears.

A person has some control over these senses. For example, a child can cover his ears when he hears loud shouting and he can close his eyes when the sun is too bright. He can also not eat certain food because he doesn't like the taste, pinch his nose shut when he smells something bad and also run away when his friend wants to tickle him.

According to Kranowitz (2005:54) there are also two internal senses. The vestibular sense provides information about the position of the head in relation to the surface of the earth and the movement of the body through space and balance.

The proprioceptive sense provides information about body position and movement of body parts. Information comes from stretching and contracting the muscles.

Unfortunately, not every child experiences competency with sensory integration. When some aspect of sensory integration does not function efficiently, the child may experience stress in the course of everyday life because processes that should be automatic or accurate are not (Case-Smith, 2001:338).

According to Heller (2003:94) each baby is born with his own 'style' based on how well he organises sensation. Differences in sensory reactivity and recovery from disturbing sensory stimuli are obvious soon after birth and sensory defensiveness can be detected as soon as two weeks after birth. Emmons and Anderson (2006:43) however state that most paediatricians and parents agree that many behaviours seen in babies tend to be temporary and should only become 'diagnostic' when viewed through the lens of time. These two authors also listed possible signs of sensory integration dysfunction in infants:

- Chronic crying or almost never cries.

- Dislikes being swaddled, touched or held.
- Overwhelmed by relatively low amounts of noise.
- Poor eye contact or acts as ‘deaf’.
- Does not babble or constantly babble.
- Delayed motor milestones that include rolling over, sitting without support, crawling and walking.

With all of the internal and external senses, a child with sensory integration dysfunction will either be over-responsive, under-responsive to sensory information or actively seek out sensory information (Hanft, Miller & Lane, 2000). This is due to the fact that the child’s central nervous system is integrating the sensory information too quickly or not quickly enough. There are many subtypes of sensory integration dysfunction, but for the purpose of this study, the researcher will only discuss the following three, sensory avoiding, sensory disregarding and sensory seeking behaviour.

### **2.2.1 Sensory Avoider**

Miller (2006:22) explains that children with sensory over-responsivity respond to sensory messages more intensely, more quickly and/or for a longer period of time than children with normal sensory responsivity. Over-responsivity may occur in just one of the senses or in a combination of two or more. Miller (2006:22) elaborates on this issue by saying that children with over-responsivity create a comfort zone in an over-stimulating world by avoiding change, which holds the potential of leading to some new assault on their senses. This need is so great that compulsive and perfectionist habits are common, for example, a child might refuse to eat two different foods that were allowed to touch on the plate. Miller (2006:23) also describes how over-responsivity influences a child’s behaviour by saying that children often become aggressive or severely withdrawn, depending on the strategy they use for dealing with the constant experience of ‘too much’ sensation. Dunn (1997:33) explains that this phenomenon (over-responsivity) is sometimes termed “sensory defensiveness” due to the behavioural responses

associated with hypersensitivity or over-responsiveness, for example, individuals often avoid or demonstrate distressed responses to sensory stimuli in the environment.

Kranowitz (2005:70) agrees by saying that over-responsivity to touch stimuli and sound is common and often referred to as “tactile defensiveness” and “auditory defensiveness”. “Sensory defensiveness” is the term used when all the senses are affected. Kranowitz (2005:70) also explains that the over-responsive child’s brain cannot inhibit sensations efficiently. Over-aroused and unable to screen the irrelevant from the relevant information, the child seeks to defend himself from most sensations. For the tactile defensive child, tactile stimulation can be painful and the child’s responses might be primal in that he will pull his hand away from others or he might hit out at the therapist if she comes too close (Wilson, 1998:70). The over-responsive child may respond as if he is irritated, annoyed or even threatened and according to Kranowitz (2005:71) may react in the following ways to sensory stimuli:

- Fight – the child responds with vigorous resistance or hostility, he is negative and defiant, often lashing out.
- Flight – the child reacts with an aversive response, in other words with a feeling of revulsion and repugnance toward a sensation, accompanied by an intense desire to avoid or turn away from it. The child may actively withdraw, fleeing from sensations by running away, jumping back, and hiding under the table, desperate to get away from the perceived threat.
- Flee – the child withdraws passively, simply avoiding the people and objects that distress him.
- Freeze – when the child experiences the perceived sensory-threat, he may stop in his tracks, unable to move, speak or even breathe.
- Fright – the child perceives the world to be a scary place. Everything may make him crumple and cry. He may be fearful and cautious, closing out unfamiliar people and situations. However possible, he will avoid

sensations, particular touch and movement, because he can't tolerate them.

Emmons and Anderson (2006:33) describe the child as easily overwhelmed by colours, textures, smells, sounds, touch and movement. This may manifest in the covering of eyes or ears, holding nose, gagging, vomiting, screaming, refusal to move or refusal to participate in certain movement activities, or dislike of bathing, brushing teeth and other self-care activities.

### **2.2.2 Sensory Disregarder**

Miller (2006:25) explains that children with sensory under-responsivity are less responsive to sensory information than the situation demands. They will take longer to react and/or require more intense or long-lasting sensory messages before they react to the sensory stimulation. These children often fail to notice if they have bumped or bruised themselves and can be slow to notice cold as well as heat. Miller (20006:25) furthermore explains that these children are usually withdrawn, preferring solitary games to playmates or not playing at all, they prefer to stay indoors and hardly ever complain about being bored.

Lane (2002:107) agrees that individuals who under-respond do not react to the intensity or frequency of sensory stimuli with the same magnitude as others, in other words these children demonstrate a less intense reaction than that seen in most children under the same circumstances. Two authors (Compare Kranowitz, 2005:72; Dunn, 1997:32.) describe the child with under-responsivity as a sensory disregarded and that he needs a lot of stimulation just to achieve ordinary arousal or alertness. Kranowitz (2005:72) asserts that the sensory disregarded may appear to be a 'space cadet', lacking initiative and is unable to 'get going'. This type of child may have difficulty understanding gestural communication. The child may furthermore misinterpret non-verbal cues and respond slowly to non-verbal messages. Emmons and Anderson (2006:33) describe these children as lethargic and those for whom everything appears to be a huge effort. According

to the above-named authors, these children might walk slowly or have constant running noses. They might have a flat affect and do not actively greet others. They might need repeated prompts to do things in class or at home and they often appear detached from their surroundings and might not pay attention to what is going on around them.

### **2.2.3 Sensory Seeker**

Miller (2006:28) reports that some degree of sensory seeking is normal in children as they learn, grow and try to master new challenges, but sometimes children might be extreme in their quest for seeking sensory stimulation. At a playground or amusement park, these children might seek out a scary ride that other children will approach with apprehension. At school, they clown around by throwing themselves against walls and falling to the floor with such violence that adults worry they will hurt themselves.

Miller (2006:28) elaborates by saying that children with sensory seeking behaviour can become extremely demanding, even explosive or aggressive when their quest for sensation is thwarted. These children are usually considered as being 'naughty'. Kranowitz (2005:73) describes children with sensory seeking behaviour as 'touchers and feelers' or 'bumpers and crashers'. This author elaborates on the subject by saying that the child's brain and body are telling him to act but that the child is unable to act in an organised and appropriate way. This child is often a risk taker and may also have poor impulse control and this is the reason why people frequently look upon children with sensory seeking behaviour as troublemakers.

Emmons and Anderson (2006:33) are also of opinion that children with sensory seeking behaviour are the children that jump, crash, thump, hit things, head butt, throw themselves, spin, rock and generally seek means of sensory stimulation. These are the children who, if one sensory experience is removed, will often quickly replace it with an equally intense sensory experience. To illustrate their opinion, these two authors give an example of a four year old girl that pedals a

tricycle repeatedly into a brick wall, and when the tricycle is taken away from her, begins to ‘crash’ into other children. These children have difficulty controlling their impulses and are overly active, therefore their symptoms are often confused with better-known Attention Deficit Hyperactivity Disorder (Miller, 2006:28).

## **2.3 SENSORY SYSTEMS**

In this section the researcher will discuss each sense and highlight issues surrounding sensory integration dysfunction and also provide a checklist under the sub-types of sensory over-responsivity (sensory avoiding), sensory under-responsivity (sensory disregarding) and sensory craving (sensory seeking) behaviour.

### **2.3.1 Touch or Tactile system**

The tactile system is the sense of touch. Tactile information is received through receptors that are located in the skin from head to toe. Touch sensations include light touch, deep touch, vibration, pain, movement and temperature, hot and cold (Miller, 2006:169). Heller (2003:42) reports that touch is the first sense to develop in the embryo, it organises other senses and it is essential for the proper balance of the nervous system. Each touch nurtures psychological growth, stimulates physical and mental growth, impacts on physiological functions like breathing, heart rate, digestion, it enhances self-concept, body awareness, sexual identity, boosts the immune system and enhances the grace and stability of movement.

Kranowitz (2005:82) agrees with the above author in saying that the tactile system, or sense of touch, plays a major part in determining physical, mental and emotional human behaviour and that constant tactile stimulation is necessary to keep us organised and functioning. The tactile system connects the child to the world and bonds him to others. It gives the child essential information for body

awareness, motor planning, visual discrimination, language, academic learning, emotional security and social skills. Kranowitz (2005:83) furthermore explains that the tactile system is made up of two components, namely the protective (defensive) component and the discriminatory component. The protective component's purpose is to alert the person to potentially harmful stimuli. Tactile receptors for this protective system are especially located in hairy skin, head, face and genitals. These receptors are stimulated by light touch, for example, a child can sometimes detect when a mosquito has landed on his arm. Yack, Aquilla and Sutton (2006:42) elaborate by saying that the protective system is primitive. It alerts the child when he comes into contact with something that may be dangerous and triggers his body to react against potential harm. Sometimes the nervous system is gently alerted and other times the 'flight, fright or fight' (refer to 2.2) response is activated. The discriminatory component helps the child to discriminate between soft or hard objects, if something is smooth or has sharp edges, if something is hot or cold or if someone is touching the child softly or firmly. This sense is used when the child wants to locate something when vision is excluded, for example, when the child puts his hand in his pocket to search for a specific object amongst other objects. Thus this system helps the child to perceive the attributes of objects such as its size, shape, weight, density, temperature and texture. The discriminatory receptors are located in the skin, especially on the palms and fingertips, the soles of the feet and the mouth and tongue. Deep touch is the stimulus that causes the receptors to respond. Yack, *et al.* (2006:42) report that the discriminative system enables the child to feel the quality of objects that he is touching. According to these authors, the protective system is dominant but as the nervous system matures the child begins to increasingly rely on the discriminative system. Successful functioning of the tactile system depends however on the balance between both the protective and discriminative system.

Yack, *et al.* (2006:42) also agree that the feedback from the tactile system contributes to the development of body awareness and motor planning abilities.

Every aspect of daily living, for example, dressing, brushing teeth, eating, toileting, are dependent upon a functional tactile system. When tactile information is successfully integrated, the child automatically knows which touch is alarming, which touch is pleasurable, which touch can be ignored and which touch needs to be explored. The child with tactile dysfunction may be hyper- or hypo-sensitive to touch or may have problems with tactile discrimination. The child may have difficulty shifting attention to other sensations, like the sound of a human voice, because he is so overwhelmed by messages about touch. Some children interpret and react to harmless light touch as being potentially dangerous and something to be avoided. Behaviourally, these children may appear anxious, controlling, aggressive and unwilling to participate in home and school activities. The constant feeling of being vigilant or on guard and the frequent experience of the ‘fight, fright or flight’ response consumes a lot of energy resulting in having less energy and attention for learning and interacting (Yack, et al., 2006:43).

Koomar, Kranowitz and Szklut (2005:35) and Case-Smith (1998:236), give various characteristics of children with sensory integration dysfunction with regards to the tactile system and these characteristics involve the following:

#### **2.3.1.1 Sensory Avoider**

The sensory avoider with over-responsivity (tactile defensiveness) may:

- Show negative emotional responses during diaper or clothing changes.
- Respond negatively and emotionally to light touch sensations and might present with anxiety or aggression. The child may withdraw, scratching or rubbing the place that has been touched. As an infant, the child may have shown discomfort when being cuddled.
- Respond negatively and emotionally to the possibility of light touch. The child may appear irritable or fearful when others are close for example when standing in a queue.

- Presents with negative and emotional responses when approached from behind, or when he is unexpected touched for when someone's foot grazes his under a table.
- Dislikes his hair/head being touched for example a pat on the head, or when he is receiving a haircut.
- Be overly ticklish and over-respond to physically experiences. The child may talk about a scrape or a splinter for days.
- Respond similarly to different touch sensations. A raindrop on his skin may cause the same reaction as an insect bite.
- Strongly resist being touched by a hairdresser, dentist, nurse or doctor.
- Display behaviour that seems stubborn, wilful, verbally or physically pushy, or otherwise difficult for no apparent reason.
- Avoid friendly or affectionate pats and cuddles, especially if the person touching is not a parent or familiar person. The child may reject touch altogether from anyone except his mother (or primary care giver).
- Be inattentive and fidgety when he is expected to be quiet and pay attention for example in the classroom or church.
- Prefer receiving a hug to a kiss. He may crave the deep touch pressure of a hug, but try to rub off the irritating light touch of a kiss.
- Resist having his fingernails trimmed and teeth brushed.
- Be a picky eater, preferring certain textures such as crispy or mushy foods. The child may dislike food that is hot or cold as well as sticky foods like rice and cake icing.
- Dislike baths or insists that the bath water be extremely hot or cold.
- Be unusually fastidious, hurrying to wash a tiny bit of dirt off his hands.
- Avoid walking barefoot on grass or sand or wading in water and may walk on tiptoe to minimise contact with the ground.
- Fuss about clothing such as hats, belts, scarves, rough textures or labels.
- Need to repeatedly touch certain surfaces and textures that provide soothing and comforting tactile experiences, such as a favourite blanket.

- Avoid touch sensations by withdrawing from art, science, music and physical activities.
- Avoid messy play such as sand, finger paint, paste, glue, mud, clay – perhaps becoming tearful at the idea.
- Withdraw from group activities and avoids visiting friends.
- Have trouble forming rapport with others and may only have a few friends.

From the above-mentioned characteristics, it is clear how the child with over-responsivity reacts to tactile stimulation and how this impacts on his daily functioning, behaviour and relationships with others. Roger and Ziviani (2006:166) state that children need friends to ensure emotional wellbeing and stability. Children with friends feel they have self-worth and are more secure. Good friends are also able to assist children to deal positively with life's stresses and support them through difficult times. Children with poor social skills have been shown to be at greater risk of delinquency, depression, social withdrawal, poor academic performance, substance abuse and serious emotional/behavioural disturbances (Petersen, 2002:23). From the information provided above it can be concluded that the child with tactile defensiveness will have difficulty making and keeping friends and this in turn may lead to more dysfunctional problems.

### **2.3.1.2 Sensory Disregarder**

The sensory disregarded with under-responsivity may:

- Not notice touch sensations unless it is very intense.
- Not notice that clothes are in disarray, or that socks are wet or sand and leaves in hair.
- Not notice heat, cold or changes in temperature indoors or out, often keeping on a jacket even when sweating, or not putting on a jacket even when shivering.
- Show reduced or no response to pain from scrapes, bruises, cuts or even fractured bones.

- When barefoot, not complain about sharp gravel or hot sand.
- Not react to spicy or peppery food.
- Does not notice when he has dropped something.
- Appear to lack motivation to touch and explore toys and materials that appeal to most other children.
- Hurt other children or pets during play, without intent, but actually not realising the pain that others feel.

From the above-mentioned characteristics, one can understand how this type of child could easily be misunderstood by his teachers, friends and even his own family. These children often injure themselves, for example, when they have touched very hot objects such as light bulbs, a steaming iron or a hot oven plate. Due to their under-responsiveness they do not pull their hand away before scalding themselves.

#### **2.3.1.3 Sensory Seeker**

The sensory seeker may:

- Ask for touch sensation for example tickles, hugs or back rubs.
- Need to touch everything that he sees for example, bumping and touching others and running hands over furniture and walls. The child 'has to touch' items that other children understand are not to be touched.
- Rub, bite his own skin, constantly twirl hair in fingers or rub certain textures over his arms to get light touch input.
- Frequently remove socks and shoes to walk barefoot on certain surfaces and textures that other children might find uncomfortable.
- Seek certain messy experiences, often for long durations for example playing with water or finger paint.
- Seek very hot or cold room temperature or bath water.
- Put too much food in his mouth when eating.
- Prefer steaming hot, icy cold, extra-spicy, or excessively sweet foods.
- Use his mouth to investigate objects, even after the age of two.

- Show inappropriate behaviour, getting very close to others and touching them, even if his touches are unwelcome.

Yack, *et al.* (2006:44) are of opinion that the importance of touch in a child's life cannot be overstated. The inability to respond appropriately to touch sensations can seriously interfere with the ability to develop many skills like social skills, perceptual skills, etcetera. For those children who react uncomfortably to touch, the impact on social and emotional development is disastrous.

### **2.3.2 Visual system**

Kranowitz (2005:155) explains that the visual system is a highly complex system that enables us to identify sights, anticipate what is coming towards us and prepare for a response. The stimulus that triggers vision is light, or a change in light. According to this author vision should not be confused with eyesight, which is only one part of vision. Eyesight is a prerequisite for vision. Vision, unlike sight, is not a skill that is present at birth but rather one that is gradually developed as the senses are integrated. As the child grows up, he learns to make sense of what he sees.

Kranowitz (2005:157) continues to explain how the visual sense is influenced by the other senses and vice versa. This author explains that the vestibular and proprioceptive systems profoundly influence vision. For example, when a child stretches and contracts his muscles to lie down or stand on two feet, sensations bombard his brain and facilitate eye movements. Eye coordination is improved with purposeful activity. Thus, movement, balance, muscle control and postural responses are prerequisites for proper vision development. The tactile sense, too, has an influence on vision. If someone suddenly grabs the child's arm, he will turn around to see who it is. The auditory system affects vision as well. When the child is called by his mother, he will turn around to see where she is. Hearing also reinforces visual processing about what is being discussed, for example, when hearing the word 'apple' it will trigger a visual image of an apple.

All the senses are thus needed to develop vision, just as vision is needed to develop the other senses (Kranowitz, 2005:157). Heller (2003:215) reports that the eyes contain 70 percent of the body's sense receptors and are the first to register approximately 90 percent of all the incoming information from the environment – making it the primary way in which we evaluate and understand the world. As with the tactile system, Kranowitz (2005:157) states that the visual system, too, can be divided into two components namely the defensive component and the discriminatory component. Vision, as part of the defensive component, acts primary to protect the child from danger. When light hits the eye, reflexive responses are elicited so that the child can see clearly, for clear and single vision is an essential survival skill. Basic visual skills include:

- Acuity – the ability to see details of objects.
- Adjusting from dark to bright light.
- Accommodation in each eye so that the child can focus on objects at varying distances, example when he copies words from the black board into his book, he looks at the board (far) and then at his book (near).
- Detection of movement, for example, at what speed a car is driving down the road so that a child can judge accurately if he will be able to cross the street in time.
- Binocularity (two-eyed-vision) – the ability to form one picture although the two eyes record images separately.
- Ocular-motor (eye-motor/movement) skills – including focussing attention on one object (fixation), efficient movement from point to point for example when reading, and tracking of objects through space for example when a ball is being thrown into the air.

With healthy working eyes as the foundation, the child can get on with the discriminative component of vision involving conscious higher level brain functions. Visual discrimination helps to refine details about what is seen, where the object is in space, where the child is in relation to it. This “what, where and

how" of vision guides the child's responses to what he sees. Discriminative skills include:

- Peripheral vision – awareness of images that surround him through the sides of his eyes, primarily for detecting motion.
- Depth perception – seeing objects and spaces around oneself on three dimensions and also judging relative distances between objects, for example, when a child judges the space between the door frames so that he can walk through the clear opening and not bump into the door.
- Stable visual field – when it is determine which objects are moving and which are standing still.
- Spatial relations – judging how close objects are to other objects and to oneself – this is a very important skill that is needed for parking!
- Visual discrimination – discriminate between size, shape, pattern, form, position and colour.
- Form constancy – recognition of a form, symbol, or shape even when its size, position or textures changes in order to match separate or categorise objects or to know whether a letter is "u" or "n" or "p" or "q".
- Visual figure-ground – differentiating objects in the foreground and background, for example, looking for a friend in a crowd of people.
- Visual attention – using the eyes, brain and body together long enough to stay with an activity such as studying.
- Visual memory – recognising, associating, storing and retrieving visual detail that has been seen previously.
- Sequential memory – perceiving words and pictures in order and remembering the sequence – very important for reading and spelling.
- Visualisation – forming and manipulating images of objects, people or scenarios – this is a prerequisite for language development.
- Visual-sensory integration – combining vision with touch, movement, balance, posture, hearing and other sensory messages.

Chan and Chow (2005:369) report that visual-perceptual deficits negatively impact on a child's self-care, work and leisure activities. In self-care tasks, children may have difficulties manipulating eating utensils or shoelaces. School and productive activities such as house chores also present problems for those with visual-perceptual problems. For example, these children may be slow to master the alphabet and numbers. As far as play is concerned, children with visual perceptual problems may have difficulties in negotiating obstacles in the playground and doing puzzles.

Kranowitz (2005:160) concludes by saying that if both components of vision are working together, the child not only sees, but he will also be able to respond adaptively to what he sees in social and physical surroundings. When dysfunction involves movement (tripping over things that can clearly be seen), posture (unable to maintain an upright posture while seated) and difficulty learning left from right, then chances are that the problem might be sensory based. However, if the child only has visual discriminatory problems (such as matching colour) - without movement – then the problem might not be sensory based but could be, for example, near or far sightedness.

Koomar, *et al.* (2005:45) and Miller (2006:164) give various characteristics of children with sensory integration dysfunction with regards to the visual system, which will be discussed as follows:

#### **2.3.2.1 Sensory avoider**

The visual defensive child may:

- Shield his eyes to screen out sights, close or cover one eye or squint.
- Avoid bright lights and sunlight, perhaps preferring to wear sunglasses, even indoors.
- Be uncomfortable or overwhelmed with moving objects and try and avoid objects coming towards him such as a ball.

- Withdraw from classroom participation and avoid group movement activities.
- Avoid direct eye contact.
- Experience headaches, nausea or dizziness when using eyes.

One can understand that this type of child might be misunderstood by his teacher, especially if the child insists on wearing sunglasses in the classroom in order to avoid the brightness of the fluorescent lights overhead.

#### **2.3.2.2 *Sensory Disregarder***

The sensory disregarded with under-responsivity may:

- Be unaware of light/dark contrasts, edges and reflections.
- Be unaware of movement, often bumping into objects such as swings.
- Respond late to visual information such as obstacles in his path.

This type of child will find it almost impossible to participate in sport like rugby and netball as the child will find it difficult to catch the ball and run away from his or her opponents, or, on the other hand, stay with his or her opponent.

#### **2.3.2.3 *Sensory Seeker***

The sensory seeker may:

- Seek bright lights, strobe lights and direct sunlight.
- Seek visual stimulation such as finger flicking, spinning, peering at patterns and edges such as ceiling and fence lines.

This type of child typically enjoys going to arcades where there is a lot of flickering coloured lights and moving objects.

#### **2.3.3 *Auditory System***

The ear is both the organ of sound and of balance (Heller, 2003:45). Though a child hears from birth, it is initially a mixture of sounds. As an infant learns to

integrate movement of the eyes, head and body, he becomes able to locate sound in space. In time, infants learn to interpret what they hear, for example, they recognise their mother's voice from other voices. Kranowitz (2003:152) agrees with the above author in saying that audition, or hearing, is the ability to receive sounds. A child is born with this basic skill however, the fact that he can hear does not guarantee that he will understand sounds. As he purposefully interacts with his environment, he learns to interpret what he hears and to develop sophisticated auditory processing skills.

Kranowitz (2005:176) further states that vestibular and auditory systems work together as they process sensations of movement and sound. These sensations are closely intertwined because they both begin to be processed by receptors in the inner ear. The ear's influence on physical development is profound. It is for instance vital not only for hearing, balance, and flexibility, but also for bilateral integration (using the two halves of the body together), breathing, speaking, self-esteem, social relationships, vision and of course academic learning.

The same as the tactile and visual system, Kranowitz (2005:177) explains that the auditory system also consists of two components, namely the defensive component and the discriminative component. The defensive component can be explained when babies are startled when they hear loud or unexpected noises, the reason being that they are not born with the skill of listening. This is acquired as the child integrates vestibular and auditory sensations. Therefore, as the brain develops, it tells the child if the sound that he hears is one that he can enjoy and use or must avoid for self-protection. The discriminative component develops as the child moves, touches and engages in many experiences. This component helps the child to refine details about the 'what' and 'where' of sounds and include the following:

- Localisation – the ability to determine where the sound is coming from (the source) and to judge the distance between the source and oneself.
- Tracking – the ability to follow sound.

- Auditory memory – the ability to remember what was heard for example the lesson the teacher gave in class.
- Auditory sequencing - the ability to put in order what was heard and repeat it in logical order such as the alphabet.
- Auditory discrimination – the ability to compare and contrast environmental sounds such as vacuum cleaner, fire alarm and police siren.
- Auditory figure-ground – the ability to distinguish between foreground and background sounds, in order to hear the main message without being distracted.
- Association – the ability to relate a novel sound to a familiar sound such as connecting the bark of your new puppy to the category of ‘dog’.
- Auditory cohesion – the higher level listening ability to unite various ideas into a coherent whole, to understand riddles, jokes, puns and to take notes in class.
- Auditory attention – the ability to maintain focus sufficiently to listen to a teacher’s lesson, a conversation or a story. This skill is essential in bringing the auditory processing skills together.

Kranowitz (2005:179) is of opinion that when these two components (defensive and discriminatory) are working well together, a child can respond adaptively to sounds. The child will know what the sound is and where it is coming from or will be able to make an educated guess based on previous sounds that he has heard, for example, is it a noise made by an animal or by a machine? When the child is able to process sounds typically, he will be able to put out the uniquely human products of speech and language.

Kranowitz (2005:179) however, distinguishes between speech and languages by saying that speech is the physical production of sound. Speech depends on smoothly functioning muscles in the throat, tongue, lips and jaw. The vestibular, proprioceptive and tactile systems govern motor control and motor planning for using the fine muscles to produce speech. Language is the meaningful use of

words, which are symbols representing objects and ideas. Language that the child takes in and understands, through listening and reading is called ‘receptive’ in other words ‘incoming’. Language that is put out to communicate through speaking, singing or writing is ‘expressive’ or ‘outgoing’. The child listens, moves, speaks, and reads with his ear. Body awareness, balance, motor coordination, control over his muscles, sequencing (putting this in specific order), language skills, planning ahead and problem solving grow stronger as the child process sounds that surround him (Kranowitz, 2005:180).

Miller (2006:164) explains that when a child’s auditory system is not intact, he may have difficulties with hearing and impairment in the ability to process and interpret sounds. The child’s ability to correctly discern the source or location of sound, to distinguish selected sounds from background noise, to distinguish between similar sounds, identify sounds, or his ability to identify sounds when they are incomplete, may be affected. In this regard Kranowitz (2005:180) also emphasises how language can be affected as the child with auditory processing dysfunction may have difficulty with recalling what he wants to say, putting his thoughts in order, or articulation may be hard. He may have difficulty pronouncing words clearly. Again, the child would need to be tested to determine if his hearing or listening problems are sensory based or as a result of hearing loss. Koomar, *et al.* (2005:49) and Heller (2003:316), give various characteristics of children with sensory integration dysfunction with regards to the auditory system which, will be discussed as follows:

#### **2.3.3.1 Sensory Avoider**

The sensory avoider may:

- Be distressed by loud and or sudden noises, including sound of voices, thunder, fire alarms or popping balloons.
- Be distressed by metallic sounds such as those coming from a xylophone or from clinking silverware or high-pitched sounds such as those coming from whistles or screeching chalk.

It will be very difficult if not impossible to take this type of child to a restaurant, fun fair, market or even the cinema as the child will not be able to cope with all the loud sounds.

### **2.3.3.2 *Sensory Disregarder***

The sensory disregarded may:

- Seem unaware of the source of sounds or may look all around to locate where they come from.
- Have difficulty recognising particular sounds, such as voices or cars coming down the street.
- Have difficulty tracking sounds in the environment such as footsteps and recognising the difference between sounds such as angry or friendly voices and high or low notes.
- Have a poor sense of timing and rhythm when clapping, marching, singing, jumping rope or playing instruments.
- May have difficulty discriminating between words that sound similar for example cat/cap, bad/bag or side/sign.
- Have a short attention span for listening to stories and may have difficulty recognising rhymes.
- Like to make loud noises or sounds, for example, using objects to bang on things.

Parents need to teach this type of child road safety skills, as the child is at risk of injury or death as he will be likely to cross roads without looking for motorcars as he will not give attention to the sound of oncoming traffic.

### **2.3.3.3 *Sensory Seeker***

The sensory seeker may:

- Welcome loud noises and television volume.
- Love crowds and places with noisy action.

- May speak in an unnecessary loud voice.

This type of child will find it very hard to sit still in church or other places where he needs to be quiet, as he will constantly try and stimulate himself by making loud noises.

#### **2.3.4 Olfactory (smell) and Gustatory (taste) Systems**

There is not a lot written about these two senses as most of the authors focus their attention especially on the tactile, proprioceptive and vestibular senses. Heller (2003:45) goes so far as to consider the tactile, vestibular and proprioceptive senses the 'tripod of the nervous system' and feels that these three systems are the precursors to the development of the visual and auditory senses. Cool as quoted by Heller (2003:45) is of the opinion that the tactile, vestibular and proprioceptive systems are fundamental to accurately perceive and process sight and sound.

Kranowitz (2003:185) states that, as humans evolved, the value of smell which helps with survival has decreased and the senses of sight and hearing became more essential. Responses to pleasant and unpleasant smells are immediate and a person can determine if the smell is enjoyable or harmful and move away. Kranowitz (2003:185) further points out that taste help humans to survive and provides essential information about bitter, salty, sweet and sour flavours. A child can spit out what his gustatory system informs him may be harmful, for example sour milk. Smell and taste go hand in hand. That is why if a person has a cold, food seems to be a bit tasteless as well. As the olfactory system and the gustatory system are still part of the five 'main' senses, it is therefore possible that a child can also show over-responsivity, under-responsivity or sensory seeking behaviour with regards to these senses. The researcher will list a few characteristics in this regard as described by Kranowitz (2003:185).

A child with olfactory dysfunction may:

- Be over-sensitive to smells and object to odours, such as citrus fruits, that other children do not notice.
- Be under-sensitive to smells and ignore unpleasant odours such as dirty diapers.
- Be a picky eater.

A child with gustatory dysfunction may:

- Be over-sensitive to tastes and may strongly object to certain textures and temperatures of food.
- Gag often when he eats.
- Lick or taste inedible objects such as toys.
- Prefer very spicy or very hot food.

From the above information it seems that sensory integration dysfunction with regards to the olfactory and gustatory systems does not influence a child as much, the child will still display odd behaviour, but less so than with sensory dysfunction of the other systems. According to the researcher, parents often find it difficult to cope with 'picky' eaters and dinner time often results in arguments as the parents insist that the child finishes his meal, but as a consequence of sensory integration dysfunction, the child finds it impossible to cope with certain food textures and smells.

### **2.3.5 Vestibular System**

Kranowitz (2005:321) and Yack, *et al.* (2006:45) describe the vestibular sense as the system that responds to the pull of gravity. The vestibular sense provides information about the head's position in relation to the surface of the earth and it coordinates movement of the eyes, head and body that affect equilibrium, muscle tone, vision, hearing and emotional security. Heller (2003:342) furthermore explains that the receptors for the vestibular system are located in the inner ear and that it detects changes in head position and responds to changes of body

movement through space. According to Yack, *et al.* (2006:45), the vestibular sense tells the child that he is moving or remaining immobile, as well as the direction and speed of his movement. It also helps the child to stabilise his eyes when he is moving and tells him if objects around him are moving or remaining still. Even without his eyes, the child is able to determine whether he is vertical or horizontal. These authors elaborate by saying that a child needs to accurately process vestibular information to properly use his vision, prepare his posture, maintain balance, plan actions, move, to calm himself down, and to regulate his behaviour. The vestibular system has a very strong relationship with the auditory system as both these systems respond to vibration. The visual system and the vestibular system also have a close relationship. The vestibular system influences the development of eye movements, including tracking and focussing, and together it is these two systems that help the body to maintain an upright position.

Kranowitz (2005:116) reports that a child with vestibular dysfunction will have difficulty processing information about gravity, balance and movement through space. As mentioned above, the vestibular sense influences most of the other senses resulting in the child having difficulty in processing information from various systems.

Koomar, *et al.* (2005:39) and Yack, *et al.* (2006:59), provide various characteristics of children with sensory integration dysfunction with regards to the vestibular system and these will be discussed as follows:

#### **2.3.5.1 Sensory Avoider**

The sensory avoider with over-responsivity to vestibular stimuli may:

- Dislike swinging or spinning.
- Be cautious, slow moving, and sedentary, hesitating to take risks.
- Try to avoid elevators and escalators, perhaps even experience motion sickness.
- Find continual physical support from a trusted adult comforting.

- Also present with gravitational insecurity. Wilson (1998:198) describes gravitational insecurity as the insecurity that a child experiences in space, when his feet are off the ground and he does not have the control of his body or movement. This type of child has a great fear of falling, even when no real danger exists. The child has a fear of heights, even slightly raised surfaces. The child may also avoid walking on a kerb or jumping down from the bottom step. The child experiences anxiety when his feet leave the ground and he has a fear of climbing or descending stairs and will hold tightly to the banister. Another characteristic of a child with gravitational insecurity include feeling threatened when his head is inverted, upside-down or tilted, for example when having his hair shampooed over the sink (Wilson, 1998:198).

These children are often made fun of in school, especially if they are too scared to participate in activities in physical exercise class. This might lead to reduced feelings of self-worth and confidence, especially when it seems like all the other children can climb and jump and roll with ease.

#### **2.3.5.2 *Sensory Disregarder***

The sensory disregarded may:

- Not notice or object to being moved.
- Seem to lack inner drive to move actively.
- Once started, swing for a lengthy time without getting dizzy.
- Not notice the sensation of falling.

As mentioned above, this type of child may not respond efficiently to protect himself by extending his hands or a foot to catch himself when he is falling as he simply realises too late what is happening to him.

### **2.3.5.3 Sensory Seeker**

The sensory seeker may:

- Need to keep moving, as much as possible, in order to function and may have trouble sitting still or staying in a seat.
- Repeatedly, vigorously shake his head, rock back and forth and jump up and down and like seesaws or trampolines more than other children.
- Crave intense movement experiences, such as bouncing on furniture, using a rocking chair, turning in a swivel chair, assuming upside-down positions, or placing his head on the floor and pivoting around it.
- Enjoy fast-moving or spinning playground equipment, or seeking the fast and ‘scary’ rides at an amusement park.
- Not get dizzy, even after twirling or spinning rapidly for a lengthy amount of time.
- Enjoy swinging very high and/or for long periods of time.

These types of children are likely to have a fractured arm or leg at some point due to the fact that they take part in risky activities, for example, jumping from heights or speeding up and down the streets on their bicycles and not giving any attention to traffic.

Koomar, *et al.* (2005:40) furthermore explain that sensory integration dysfunction of the vestibular system also results in the child having difficulty using his body in a coordinated way, having problems with balance, affecting movement of the child’s head and muscle tone. This child may for instance lose his balance unless both feet are firmly on the ground, as when stretching on tiptoes, jumping or standing on both feet with eyes closed. He will easily lose his balance when he stands on one foot or tries to hop on one leg. He will have a loose and floppy body, move in an uncoordinated way and be clumsy. This type of child tends to slump in a chair or over a table, prefers to lie down rather than sit up, and constantly lean his head on a hand or arm. He may have difficulty turning door knobs or handles that require pressure, and have a loose grasp on tools such as pencils, scissors or spoons. He has poor gross-motor skills and frequently

stumble and trip, or be clumsy at sports and active games and he also has poor fine motor skills, for example, using cutlery and pencils (Koomar, *et al.*, 2005:40).

According to Koomar, *et al.* (2005:41) the above-mentioned difficulties sometimes result in the child being emotionally insecure and the child may present with being easily frustrated and having a low self-esteem. This type of child may also have a low tolerance for potentially stressful situations and may be irritable in other's company and may therefore avoid or withdraw from people. The afore-mentioned characteristics will make it difficult for the child to make friends and to relate to his peers, making the child feel like an 'outsider'.

This type of child can be described as 'constantly on the go', never sitting still. But when closely observed, his movements will appear to be clumsy, uncoordinated and poorly executed.

### **2.3.6 Proprioceptive System**

Emmons and Anderson (2006:20) and Heller (2003:340) explain that the proprioceptive system uses information from the muscles and joints to give a person awareness of body position. It is the feedback from the muscles and joints that allow the child to stand without falling or use a pencil and bounce a ball. For example, if a child closes his eyes and lifts his arm in the air, he knows that his arm is in the air without looking, due to feedback from his muscles and joints. According to Kranowitz (2005:54) proprioception provides information about where the body parts are in space, how the body parts relate to one another and how fast the body is moving through space. Proprioception also provides information of how much and how quickly the muscles are stretching and how much force the muscles exert.

This information is vital for every move that is made. Reflexes, automatic responses (example stretching an arm out to catch oneself when falling) and planned actions depend on it. The self-awareness that proprioception grants, enables a person to do his job, whether a master violinist, downhill skier or salad

chef. Kranowitz (2005:139) elaborates by saying that proprioception dysfunction is almost always accompanied by problems with the tactile and/or vestibular systems. Whereas it is common for a child to have only a tactile problem or only a vestibular problem, it is less likely for a child to have only a proprioceptive problem. Whether under responsive or sensory seeking, a child may be unable to use the information for adaptive behaviour. He may show confusion when walking down the street or getting in and out of the bath. Discriminating where his body parts are, the rate, speed of actions and also planning of the action is a problem and such a child is often seen as clumsy.

Koomar, *et al.* (2005:43) and Emmons and Anderson (2006:36), give various characteristics of children with sensory integration dysfunction with regards to the tactile system and these include the following:

#### **2.3.6.1 Sensory Avoider**

The sensory avoider may:

- Becomes upset when it is necessary to stretch or contract his muscles.
- Avoid weight bearing activities such as jumping, hopping, running, crawling, rolling and other physical actions that provide strong proprioceptive input to muscles.
- Be a picky eater, because certain food textures require forceful, coordinated chewing and his mouth muscles are not getting the necessary sensory information.

Walking, climbing and running, stretching and contracting one's muscles are activities that people do every day. A child who wants to avoid these actions or becomes upset when he needs to perform these actions can easily be misunderstood by his friends, his parents and even himself.

### **2.3.6.2 Sensory Disregarder**

The under responsive child may:

- Have low muscle tone and his limbs and body may be ‘floppy’.
- Keep his elbows close to his ribs for stability when writing, or keep his knees tightly together when standing, again, for stability.
- Break toys easily as he can not judge how much pressure he applies to toys.

This type of child will also hold his pencil very tightly and push down on the paper or book very hard when writing, often tearing the page that he is writing on.

### **2.3.6.3 Sensory Seeker**

The sensory seeking child may:

- Deliberately “bump and crash” into objects in the environment, for example jump from high places and tackle people.
- Stamp his feet on the ground when walking.
- Kick his heels against the floor or chair and bang objects together.
- Engage in self-stimulating activities such as head banging, nail biting, finger sucking or knuckle cracking.
- Like to be tightly swaddled in a blanket or tucked in tightly at bedtime.
- Prefer shoelaces and belts to be tightly fastened.
- Chew constantly on objects such as shirt collars, pencils, toys and gum.  
The child may enjoy chewy food.

This type of child may appear to be aggressive as they may tackle friends and play very roughly, often hurting their friends and scaring them away.

## **2.4 THE IMPACT OF SENSORY INTEGRATION DYSFUNCTION ON A CHILD'S SOCIAL, EMOTIONAL AND BEHAVIOURAL FUNCTIONING.**

The impact of sensory integration dysfunction on a child's functioning, relationships and day-to-day life is quite clear from the information provided so far in this chapter. Kranowitz (2005:27) explains that sensory integration dysfunction has an effect on how the child feels about himself and how he relates to others. This type of child has poor adaptability and may resist meeting new people, playing with new toys or eating different types of food and can get upset by minor changes. This child will also have attachment problems and may have separation anxiety and will be clingy and fearful when separated from a caregiver. Kranowitz (2005:27) continues to explain that this type of child may struggle to do tasks that his friends find easy and this will result in the child giving up easily leaving projects and schoolwork unfinished. The child may have difficulty making and keeping new friends. He may have difficulty adhering to rules of certain games and may not be willing to share his toys and may find it difficult to communicate his feelings, thoughts and needs both verbally and non-verbally. The child may be inflexible and overly sensitive to change, stress and hurt feelings. The child may be very needy and demanding and may seek attention in negative ways and be angry or panic for no obvious reasons. He may be a generally unhappy child, believing and saying that he is dumb, crazy, a loser and have very low self-esteem (Kranowitz, 2005:27).

Emmons and Anderson (2006:98) mention that the child with sensory integration dysfunction will also have problems with emotional stability. The child could be laughing one minute and sobbing the next without any apparent reason. These two authors also state that a child can have a 'shut down' when the child is subjected to too much sensory stimulation. This 'shut down' episode is described as a refusal or inability to respond and is also referred to as the child being sensory overloaded. Heller (2003:340) describes this episode as a dual state of physical exhaustion and sensory over-arousal. Kranowitz (2003:288)

refers to this behaviour as the child having a “meltdown” and that this is caused by excessive sensory stimulation accompanied by screaming, writhing and deep sobbing. This behaviour can often be witnessed in busy restaurants or arcades where noise, smell of food, flashing lights and a busy atmosphere can create an over-stimulating environment for the child.

## 2.5 CONCLUSION

Lougher (2001:185) reports that the mental health and emotional development of some children may be significantly compromised by sensory integration dysfunction. If the child has difficulty processing incoming sensory information, he may exhibit a range of social, cognitive or behavioural difficulties. The child may have sleeping and eating difficulties and have trouble playing with friends. The child finds it difficult to master typical childhood activities such as learning to write, riding a bicycle or swinging on a playground swing. All of these children may experience compromised relationships with their family, teachers, friends and other care-givers in their lives.

It is clear from the information that is provided that all the sensory systems are needed to work as an integrated whole in order for the child to make sense of his own body, to make sense of his world around him, to grow and to learn and to experience life to the full. However, it is also clear how sensory integration dysfunction of one or more systems can impact on a child’s life and experiences. One can understand how easily these children are misunderstood, as they are hardly able to understand their own bodies themselves and their reactions to certain stimuli. Think of a child that has vestibular, proprioceptive, visual and tactile dysfunction. This child might present with various behaviour problems and emotional insecurities. Depending on whether the child is over or under responsive to stimuli he may withdraw from society or be actively out there seeking sensory input in all the inappropriate ways. All the authors mentioned in

this chapter categorically agree that children with sensory integration dysfunction have difficulty with socialising, being accepted by their peers and they are even misunderstood by their parents and siblings. According to the researcher, these are exactly the reasons why these children will be referred to a play therapist. It is therefore the researcher's opinion that a play therapist has to be aware of how sensory integration dysfunction can influence a child socially, emotionally and behaviourally.

## **CHAPTER THREE:**

### **SENSORY PROFILE AND TEST RESULTS**

#### **3.1 INTRODUCTION**

The hypothesis of this study was that some children (aged three to ten) in the Western Cape that receive play therapy might present with sensory integration dysfunction. One of the objectives of this study was to use a standardised measuring tool, called the Sensory Profile for Caregivers, in order to determine if there were children that have sensory integration dysfunction that also receive play therapy. In this chapter, the researcher will discuss the Sensory profile for Caregivers, what it is and also the different sections that are included in this measuring tool.

The researcher aimed to test 100 children, but as explained in Chapter One, in the end the researcher only managed to use 28 tests and towards the end of this chapter, the researcher will present the test findings.

#### **3.2 THE SENSORY PROFILE FOR CAREGIVERS**

The Sensory Profile is a measurement tool that was developed by an occupational therapist, Professor Winnie Dunn. Dunn (1999:1) describes the Sensory profile as a standard method, used by professionals, to measure a child's sensory processing abilities and to profile the effect of sensory processing on functional performance in the daily life of the child. Dunn (1999:2) furthermore states that the purpose of the Sensory Profile is to evaluate the possible contributions of sensory processing to the child's daily functioning and to provide information about both the child's tendencies to respond to stimulation and which sensory systems are likely to be contributing to the child's day to day functioning.

Bundy (2002:182) is of opinion that the Sensory Profile provides valid and reliable information regarding sensory integration and explains that the Sensory Profile has undergone rigorous psychometric testing and has been found to differentiate successfully between children with sensory integration dysfunction and those with normal sensory integration.

Tomchek (2007:191) explained that the norm of the Sensory Profile was established using 1,037 children. None of these children had a disability. Items are scored on a 1-point to 5-point scale, depending on the frequency of behaviour:

1 = Always

2 = Frequent

3 = Occasionally

4 = Seldom

5 = Never

Bundy (2002:183) describes the Sensory Profile as a parent questionnaire of sensory processing. It consists of 125 statements of a child's responses to sensory experiences or situations. According to Dunn (1999:1), the Sensory Profile consists of 125 items grouped into three main sections namely Sensory Processing, Sensory Modulation and Behavioural and Emotional Responses. The Sensory Processing section indicates the child's responses to the basic sensory systems. Sensory processing is further broken down into six sensory processing systems that include auditory, visual, vestibular, touch, multi-sensory and oral sensory processing.

The Sensory Modulation section reflects the child's ability to regulate and organise the degree, intensity and nature of his response to sensory input in a graded and adaptive manner.

The Behavioural and Emotional Responses section refers to the child's behaviour and whether the child's behaviour is influenced by sensory integration dysfunction.

Dunn (1999:3) further states that the Sensory Profile provides a natural way to include the families in the information gathering process, as it is the caregivers that report their own experiences with the child. The Sensory Profile is also quick and easy to administer, is applicable for children with all types of disabilities and severity levels and clearly links the child's sensory processing with the child's daily life functioning.

### **3.3 SCORING OF THE SENSORY PROFILE**

The researcher used the "Summary Score Sheet" that is part of the Sensory Profile assessment tool. The "Summary Score Sheet" was designed to simplify the scoring process and it also facilitates comparisons of a child's performance to a sample of children without disabilities (norm= 1,037). When combined with other information, the assessor, using the Sensory profile, is able to make decisions about the significance of the child's scores in relation to performance in daily life (Dunn, 1999:31).

The researcher used a "Summary Score Sheet" to map each child's performance in one of three performance areas.

**Typical Performance:** Scores that fall within this range indicate typical sensory processing abilities. This range indicates that the child performed like a child in the top 84% of the research sample of children, meaning that the child is functioning on an average level with regards to sensory integration.

**Probable Difference:** Scores that fall within this range indicate questionable areas of sensory processing abilities. This range indicates that the child's performance was between the 2<sup>nd</sup> and 16<sup>th</sup> percentile, representing 14% of the population sample. This indicates that the child performs on a just below-average level with regards to sensory integration.

**Definite Difference:** Scores that fall within this range indicate sensory processing problems. This range indicates that the child is performing like a child in the bottom 2% of the research sample (Dunn, 1999:31). Thus, a child whose

scores fell in this range functions well below average level with regards to sensory integration.

### **3.4 TEST RESULTS**

The researcher aimed to test 100 children but due to difficulties locating respondents, only 30 children were tested. From the 30 tests, only 28 could be used as two tests were not fully completed by the caregivers. Out of 28 children, only four children (<sup>1</sup>NT, BH, LN, RO) were found not to have sensory integration dysfunction difficulties. This indicated that an overwhelming 24 children out of 28 were found to have sensory integration dysfunction difficulties. The Sensory Profile of three out of the four children that did not have sensory integration dysfunction showed difficulties with 'Emotional/Social Responses'. The researcher therefore makes the assumption that this is due to trauma/conflict/emotional disturbances that the children have suffered and not due to any sensory integration dysfunction, as their Sensory Profile scores fell in the Typical Performance range, indicating that they function on an average level with regards to sensory integration.

Six children, (BD, RC, LP, DR, SO, CZ), out of the 24 children that were identified to have sensory integration dysfunction, showed scores within the 'Definite Difference' range on the majority of sensory systems meaning that they function well below average in the majority of their sensory systems with regards to sensory integration. Below follow the results for the different sensory systems:

#### **3.4.1 Test Results for Auditory Processing**

The test results for auditory processing showed that eleven children scored within the 'Typical Performance', six within 'Probable Difference' and eleven in 'Definite Difference'. In other words, of the 28 children that were tested, eleven children were found to have auditory sensory processing problems.

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<sup>1</sup> Initials of the children who were tested. Please refer to tables for further information.

<b>Child</b>	<b>Typical Performance</b>	<b>Probable Difference</b>	<b>Definite Difference</b>
LT	X		
RC			X
KJ	X		
BD			X
LP			X
MP			X
DM		X	
LN	X		
DB	X		
JT	X		
DR			X
BH	X		
RO	X		
SO			X
DH			X
MW	X		
BC			X
NT	X		
TN		X	
MR			X
ZM	X		
CJ		X	
TS	X		
GN		X	
MM		X	
CZ			X
AB			X
CM		X	

Table 3.1

As discussed in Chapter Two of this research study, the child with auditory processing difficulties may be distressed by loud noises, metallic sounds, high-pitched sounds or sounds that would not bother other people, for example, a toilet flushing or distant church bells. This child might also have difficulty tracking sounds in the environment such as a passing car or have a poor sense of timing and rhythm when clapping, marching, singing or playing musical instruments (Koomar, *et al.*, 2005:49). Depending on the activity and materials used in play therapy, this child's sensory integration difficulties might prevent him from

engaging in the therapeutic process. For example if the play therapy room is near the toilet or a busy road or the play therapists suggests playing with musical instruments, this child might have difficulties engaging in play and might also be misunderstood by the play therapist as the therapist might not understand the child's 'odd' behaviour. The child, whom is sensitive to auditory stimuli, might suddenly stop playing with a toy to listen to a distant ambulance siren. The play therapist might not even have heard this sound and might think that the child is a 'dreamer' or is breaking contact with her.

### **3.4.2 Test Results for Visual Processing**

The test results for visual processing showed that 19 children scored within the 'Typical Performance', six within the 'Probable Difference' range and three within the 'Definite Difference' range. In other words, of the 28 children that were tested, three children were found to have visual sensory processing problems.

Child	Typical Performance	Probable Difference	Definite Difference
LT	X		
RC		X	
KJ	X		
BD			X
LP	X		
MP	X		
DM	X		
LN	X		
DB		X	
JT	X		
DR			X
BH	X		
RO	X		
SO		X	
DH	X		
MW	X		
BC		X	
NT	X		
TN	X		
MR			X
ZM		X	
CJ	X		

TS	X		
GN	X		
MM	X		
CZ	X		
AB	X		
CM		X	

Table 3.2

According to Yack, *et al.* (2006:55), children with visual processing difficulties might have problems with being sensitive to changes in lighting, finding a desired object between other objects and matching socks and shoes. This type of child might also be irritated by patterns on curtains or tables, often loses his place when reading or might be fascinated by detail. During play therapy, this type of child might be affected by activities that include mirrors, bright lights or this child might be affected by a very strong overhead light such as a fluorescent light. The therapist also needs to limit visual distractions in the play therapy room otherwise the child that is sensory seeking might not be able to concentrate on drawing or painting at a table. This could be achieved by having one wall painted a soft colour and free from posters. The play therapist could then ensure that the sensory seeking child always faces this wall when busy with activities at a table.

### 3.4.3 Test Results for Vestibular Processing

The test results for vestibular processing showed that twelve children scored within the 'Typical Performance', four within the 'Probable Difference' range and twelve within the 'Definite Difference' range. In other words, of the 28 children that were tested, twelve children were found to have vestibular sensory processing problems.

Child	Typical Performance	Probable Difference	Definite Difference
LT	X		
RC			X
KJ			X
BD			X
LP			X
MP	X		

DM			X
LN	X		
DB		X	
JT			X
DR			X
BH	X		
RO	X		
SO			X
DH	X		
MW	X		
BC	X		
NT	X		
TN		X	
MR	X		
ZM			X
CJ			X
TS	X		
GN		X	
MM	X		
CZ			X
AB		X	
CM			X

Table 3.3

Heller (2002:316) explains that children with vestibular processing difficulties might have problems with tipping their heads backwards or forwards, feel panicky when on a swing or when ascending and descending stairs. On the other end of the scale, this type of child with more sensory seeker tendencies might feel the need to keep moving as much as possible and will have difficulty sitting still. This type of child might also rock back and forth in his chair and jump up and down in order to satisfy his need for vestibular stimulation (Koomar, *et al.*, 2005:49). A child who is constantly 'on the go' might be misunderstood by the play therapist and might be wrongly thought of as having Attention Deficit Hyperactivity Disorder.

A child who has gravitational insecurity (as mentioned in Chapter Two) might not like stories that include the idea of flying and games where a lot of head movement is involved as this will cause the child to feel unsafe in his environment. The play therapist might interpret the child's behaviour as being

resistant to therapy or be concerned that their therapeutic relationship is not strong enough.

### **3.4.4 Test Results for Tactile Processing**

The test results for tactile processing showed that twelve children scored within the 'Typical Performance' range, eight within the 'Probable Difference' range and eight within the 'Definite Difference' range. In other words, of the 28 children that were tested, eight children were found to have tactile sensory processing problems.

<b>Child</b>	<b>Typical Performance</b>	<b>Probable Difference</b>	<b>Definite Difference</b>
LT		X	
RC			X
KJ	X		
BD			X
LP			X
MP		X	
DM	X		
LN	X		
DB	X		
JT		X	
DR		X	
BH	X		
RO	X		
SO			X
DH	X		
MW			X
BC		X	
NT	X		
TN	X		
MR			X
ZM		X	
CJ	X		
TS		X	
GN			X
MM	X		
CZ			X
AB		X	
CM	X		

Table 3.4

As mentioned in Chapter Two, children with sensory seeking tendencies might want to touch everything they see, whereas those who are avoiding tactile stimuli (tactile defensiveness) might not want to touch certain materials at all (Kranowitz, 2005:102). This type of child might not like it when the play therapist touches his arms, hands or hair and materials such as clay or sand might even elicit the flight/fright/fight response. The child will feel anxious during the play therapy session and might even feel distrusting and fearful of the play therapist which will greatly affect the I-thou therapeutic relationship.

### **3.4.5 Test Results for Oral Sensory Processing**

The test results for oral processing showed that twelve children scored within the ‘Typical Performance’ range, eight within the ‘Probable Difference’ range and eight within the ‘Definite Difference’ range. In other words, of the 28 children that were tested, eight children were found to have oral sensory processing problems.

Child	Typical Performance	Probable Difference	Definite Difference
LT			X
RC		X	
KJ	X		
BD	X		
LP			X
MP		X	
DM		X	
LN	X		
DB			X
JT	X		
DR			X
BH	X		
RO	X		
SO	X		
DH	X		
MW		X	
BC		X	
NT	X		
TN	X		
MR	X		
ZM			X
CJ			X

TS			X
GN		X	
MM		X	
CZ			X
AB	X		
CM		X	

Table 3.5

These children might have difficulties with distinguishing between different tastes of food or might not notice when they are dribbling or when their mouths are dirty (Kranowitz, 2003:185). Dunn (1999: 35) also reports that children who score low in this section might have difficulty with oral sensitivity and might either chew on everything (pens or clothes) or might be irritated with certain type of food when eating. The researcher is of opinion that this type of sensory processing difficulty might not be evident in the play therapy room unless the play therapist uses food/smells as part of therapy.

### 3.4.6 Test Results for Emotional and Social Responses

This section tested the child's behaviour and emotional responses in relation to sensory processing difficulties.

The test results for emotional and social responses showed that eight children scored within the 'Typical Performance' range, four within the 'Probable Difference' range and sixteen within the 'Definite Difference' range. In other words, of the 28 children that were tested, sixteen children were found to have emotional and social response problems.

Child	Typical Performance	Probable Difference	Definite Difference
LT	X		
RC			X
KJ		X	
BD			X
LP			X
MP	X		
DM			X
LN			X
DB			X

JT	X		
DR			X
BH			X
RO	X		
SO			X
DH		X	
MW	X		
BC	X		
NT		X	
TN	X		
MR			X
ZM			X
CJ	X		
TS			X
GN			X
MM			X
CZ			X
AB		X	
CM			X

Table 3.6

Kranowitz (2005:28) reports that many children with sensory integration dysfunction have behavioural problems but that most children with behavioural problems do not have sensory integration dysfunction.

The results of the Sensory Profile prove this statement to be true as two children, BH and LN, have scored low in only the Emotional and Social Responses section (Table 3.6), indicating that sensory integration dysfunction is not the cause of their emotional, social and behavioural difficulties.

The researcher is of the opinion that a combination of trauma or conflict and sensory integration dysfunction would influence a child's emotional and behaviour development. For example, question number 112 of the Sensory Profile asks if the child has difficulty making friends. An answer of 'always' would score low and fall within 'Definite Difference'-range. However, this might be because the child has a low self-esteem due to being emotionally abused at home or it might be because the child is tactile sensitive and does not like to be touched by others, and therefore stays away from unfamiliar people.

### **3.5 CONCLUSION**

It is clear from the test results that the majority of the children tested who receive play therapy also have sensory integration dysfunction. The researcher feels that the results are quite overwhelming as the majority of children tested were found to have sensory integration dysfunction in one or more sensory system. The researcher concludes that the outcome of this study provides clear evidence that it is imperative for a play therapist to be aware of the impact that sensory integration dysfunction can have on a child as well as the therapeutic process.

The researcher also noticed that the Sensory Profile results for children BH and LN, showed only low scores in the 'Emotional/Social Responses'. From this information, the researcher concludes that sensory integration dysfunction is not the cause of these low scores as these children had average scores in all the other sensory systems. This indicates that sensory integration therapists should also be aware of play therapy and must therefore be able to make the necessary referral to a play therapist to investigate emotional, social and behavioural issues in children.

## **CHAPTER FOUR**

### **GESTALT PLAY THERAPY**

#### **4.1 INTRODUCTION**

The aim of this study was to investigate the incidence of sensory integration dysfunction in children that were receiving play therapy in the Western Cape, South Africa. If the test results reflected that the children who were tested had sensory integration dysfunction, the researcher further aimed to highlight the importance for a play therapist to have basic knowledge about sensory integration theory. In the previous chapter, the researcher discussed the test outcomes that clearly indicated that the majority of the children who were tested had sensory integration dysfunction in one or more sensory systems and the researcher will now continue to discuss the importance of sensory integration for the play therapist.

In this chapter, the researcher will further aim to define play therapy and specifically Gestalt play therapy and also discuss central concepts within the Gestalt therapeutic approach. Various sensory activities that a play therapist might use during the play therapy session will be discussed and the researcher will highlight how this could affect the child with sensory integration dysfunction. The researcher will furthermore discuss what type of children will benefit from play therapy and when a child is likely to be referred to a play therapist.

#### **4.2 PLAY THERAPY**

The researcher has already defined ‘play therapy’ in Chapter One, 1.6.4. However, the researcher will review this concept by discussing a few more definitions from more professionals. Tyndall-Lind (1999:9) states that play

therapy is a very old and popular form of child therapy. For children facing any kind of psychological challenge or stressful life circumstances, play can provide vital opportunities for self-expression, healing and the enhancement of coping and relationships skills. Bills (1999:7) explains that play therapy allows the therapist to fully experience the child's world as the therapist reveals herself for the person she is and is sensitive to receive the delicate and subtle messages communicated by the child. The process of play is viewed as the child's effort to gain control in his environment. According to Landreth (2002:16) play therapy can be defined as a dynamic interpersonal therapeutic relationship. The therapist needs to be trained in play therapy procedures and techniques and must be able to provide selected play materials and must facilitate the development of a safe relationship for the child. The child must feel safe to fully express and explore their feelings, thoughts, experiences and behaviour through play (Landreth, 2002:16). Schaefer and Kaduson (2006:107) similarly state that play therapy offers play, language and interaction to the child at his specific level of social and emotional development. Even adolescents may find the idea of play too childish, but for some it can be a relief to be given permission to express themselves using various play materials (Sharman, 1997:78).

In conclusion, the researcher defines play therapy as a potential healing journey where the therapist accompanies, supports and encourages the child to use whatever emotional and physical strength he has to become me aware of his feelings, to interact in the play therapy session and to try and find a balance in a chaotic world.

#### **4.3 GESTALT, GESTALT PLAY THERAPY AND GESTALT CONCEPTS**

Perls, Hefferline and Goodman (2003:11) explain that the German word 'gestalt' has no exact English translation, although the concepts of 'configuration', 'structure', 'theme' or 'meaningful organized whole' most closely approximate the word 'gestalt'. Yontef and Jacobs (2000:9) furthermore explain that Gestalt

therapy is a theory that maintains there is no meaningful way to consider any living organism apart from its interactions with its environment. Gestalt therapy therefore includes the cognitive and emotional totality of each person, each moment during each event. Gouws as quoted by Blom (2006:19) defines Gestalt play therapy as a psycho-therapeutic technique whereby the therapist attempts to give the child the opportunity to express his feelings verbally and non-verbally. The researcher has primarily focussed on the incidence of sensory integration dysfunction in children that receive play therapy, but the researcher also briefly wants to discuss the impact that sensory integration dysfunction in a child might have on the Gestalt play therapy process.

Therefore, the researcher has chosen three Gestalt concepts namely therapeutic relationship, organic self-regulation and awareness, in order to highlight the possible impact of sensory integration dysfunction on the Gestalt play therapy process.

#### **4.3.1 Therapeutic Relationship**

Blom (2006:54) describes the therapeutic relationship as the most fundamental aspect of the therapeutic process and is of opinion that therapy without this relationship will be unsuccessful. In Gestalt play therapy, the therapist must aim to establish an I-thou relationship with the child client. Buber's name should be mentioned here. This implies that the therapist and the child client are equals so that one is not more superior to the other. Blom (2006: 56) elaborates by saying that the I-thou therapeutic relationship means that the child should be treated with respect and that the child should at no stage be judged. Schoeman as quoted by Blom (2006:56) explains that the therapist must become the child's playmate and friend and this is regarded as the main objective of the therapeutic relationship by both Schoeman and Blom (Blom, 2006:56). Oaklander (2000:28) mentions principles of the I-thou relationship in working with children and explains that the therapist must meet the child on the child's level without judgement. Furthermore, the therapist must respect the child's boundaries and

limits and the therapist must be able to support the potential of the child and be involved and interactive during the play therapy session.

When applying these principles, the therapist will be able to provide a safe therapeutic working relationship with the child (Oaklander, 2000:28).

Kranowitz (2005:70) however explains that children with sensory integration dysfunction have difficulty in forming relationships with peers, teachers and sometimes their own families.

This means that the child with sensory integration dysfunction, might have difficulty engaging in the therapeutic relationship and forming an I-thou relationship and that this difficulty in engaging might be challenging to both the child and the play therapist. The inability to form a proper I-thou relationship might contribute to the child's low self-esteem as he might feel that he is misunderstood by the therapist and this will have an impact on the Gestalt play therapy process as the child and the therapist will be unable to meet each other on the same level.

#### **4.3.2 Organismic Self-Regulation**

Blom (2006:23) explains that, according to Gestalt theory, all behaviour is regulated by a process called organismic self-regulation. The concept of organismic self-regulation implies that the child continuously experiences needs of a different nature such as physical, emotional, social, spiritual or intellectual needs. The child will experience discomfort if these needs are unmet until action is taken to satisfy these needs, upon which balance is restored. The process by which these needs are met, or the action that was taken, is called organismic self-regulation (Blom, 2006:23).

Perls, *et al.* (2003:35) and Kirchner (2003) state that the child is straining for the maintenance of an equilibrium which is continuously disturbed by his needs and that the child has a natural capacity to constantly reorganise himself as he adapts to changing circumstances.

Schoeman (1996:35) explains that it is the task of the therapist to explore what the needs of the child are and to make it possible for the child to meet his needs. When the needs are not met, the child experiences a disturbance and the therapeutic relationship can therefore not develop properly. However, Latnet (1995:35) mentions that organismic self-regulation does not ensure health, but only that the organism (child) will do all it can with what physical and emotional strength is available. Schoeman (1996:35) concludes by saying that the therapist must always keep in mind that the child client and his needs always come first.

Geldard and Geldard (2002:31) describe the well-known theory of Abraham Maslow that maintains that human beings have a hierarchy of needs. The need for safety is listed as the second most important need, after physiological needs that include food, water, rest, air and warmth. The child with sensory integration dysfunction will be unable to meet his need for safety in an environment that constantly assaults his senses. As discussed in Chapter Two, Kranowitz (2005:71) explains that stimuli, which a child with sensory integration dysfunction finds threatening, can elicit the fight, flight or freeze response in the child. This can also take place in the play therapy room, therefore if a play therapist is not aware of sensory integration theory, she might not know how to provide a safe environment for the child with sensory integration dysfunction. If a child feels unsafe in a play therapy room, he will not be able to complete the process of organismic self-regulation and as his need for safety will remain unmet this will result in an inability to focus on any other needs.

#### **4.3.3 Awareness**

Crocker (1999) states that “awareness is the beating heart of Gestalt therapy”. A child’s senses influence the way in which he experiences the world. Seeing, hearing, smelling, tasting and touching enables the child to experience his environment and in doing so becomes aware of himself and his emotions (Shoeman, 2004:137). One of the main aims of Gestalt Therapy is to help the child client become more aware of his feelings and so that he can achieve the

highest level of mental health. Gestalt therapy aims to increase awareness so that needs can be identified and met (Schoeman, 2004:138). Frazao (1999: 36) explains that awareness refers to the capacity one has to realise what is happening in the outside world in the present moment. It is the possibility to perceive the inner and outer medium through perceptive and emotional skills. Contact needs to take place through seeing, hearing, smelling sensing, language and movement in order to increase awareness. The information obtained from the senses, language and movement then organises our perceptions and give meaning to our feelings.

Weaver (2001:42) states that sensing is what determines the nature of awareness and that sensory awareness is the practice of becoming more in touch with oneself. Through sensory awareness the client is able discover the connection between his mind and body and is able to live fully in the here and now.

Blom (2006:90) is of opinion that sensory experiences are prerequisites for children to come into contact emotionally with themselves and that the Gestalt play therapist must include sensory experiences within the therapy session in order to increase awareness in the child.

All five senses will now be discussed as well as examples of activities that can be used in a play therapy sessions:

#### **4.3.3.1 Touch**

Blom (2006:92) says that 'touch' plays an important role in respect to sensory-contact making and that sensory activities should be implemented in a non-threatening way. Oaklander (1988:110) explains that being able to discriminate between tactile sensations is important for the child's cognitive functioning. Schoeman (2004:141) cites that the play therapist should be aware that the child's sense of touch can be influenced by various aspects such as memories, emotions, temperature and pain. Senior and Hopkins (1998:43), Oaklander (1997: 28) and Cooke (1996:31) suggest the following tactile activities in order to enhance the child's perception and experience of touch:

- Walking barefoot on various surfaces such as newspapers, cushions, sandpaper, metal, stones and water.
- Placing various objects in a bag that are made from different types of materials. Asking the child to take something out that is ‘soft’ or ‘hard’ or ‘smooth’.
- Talking about things that hurt the skin.
- Using a Chinese fan to fan different parts of the body (arms, legs and face).
- Using different types of materials to brush the skin like feathers, feather dusters, tissues, cotton wool, sponges, silk scarves.

As explained in Chapter Two (2.3.1), children with sensory seeking behaviour might not want to stop walking barefoot over various surfaces, whereas a child with sensory avoiding behaviour will not be able to partake in this activity at all. A child with sensory disregarding behaviour might also have difficulties locating items in a bag as they will struggle to discriminate between tactile stimuli (Koomar, *et al.*, 2005:37).

#### **4.3.3.2 Sight**

Blom (2006:94) mentions that sight is important as it allows the child to gather information and knowledge about the world and that this promotes self-awareness. Oaklander (1998:111) suggests that it is through seeing that the child learns most about his environment. The ability to see the environment and the people around us is necessary for making good contact outside the self.

Thompson and Rudolph (1996: 48) suggest the following activities to promote the child’s function of sight.

- Looking at objects through glass, water or cellophane.
- Pouring colourful ice blocks in water and letting the child see how the colour of the water changes as the ice is melting.
- Touching various objects with eyes open and then closed.

Children with sensory avoiding behaviour might not find it enjoyable to experiment with different light stimuli and might even avoid eye contact with the therapist all together (Koomar, et al., 2005:45).

#### **4.3.3.3 Hearing**

Oaklander (1988:112) is of the opinion that sound entering the child's awareness is the first step toward contacting the world, the beginning of communication. Children often have 'selective' hearing and thus shut out what they do not want to hear.

Blom (2006:94) explains that various activities can be used to promote sensory experiences in respect to hearing that include:

- Helping children to identify sounds that are similar. Different objects such as rice, beans and buttons can be placed in a bottle which is then closed. Two sets of bottles of each 'sound' are required. The child must then pick up a bottle and shake it, and try to find the other bottle containing the same sound.
- Using various musical instruments to make high or low pitched sounds or tunes with different rhythms.
- Painting while listening to music.

According to Koomar, et al., (2005:49) children with auditory integration dysfunction have difficulties with aspects of music such as staying in tune and recognising rhythms. A child with sensory avoiding behaviour will not be able to concentrate on painting or drawing tasks with music in the background and a child with sensory disregarding behaviour will have difficulties in distinguishing between different sounds.

#### **4.3.3.4 Taste**

Oaklander (1988:119) cites that the tongue not only gives information about sour, sweet, bitter and salty, but also if something is lumpy, hard, soft, hot or cold. The tongue is involved with chewing, swallowing and most of all – talking. Schoeman

(2004:142) explains that food tastes will remind children of different stages or events in their lives. The child may mention these type of memories during the play therapy session, thus giving both the child and the therapist a better understanding of the child's earlier experiences.

Oaklander (1998:119) lists a few examples of taste promoting activities:

- Bringing in various things to taste – sour sweets, cold ice cream or hot chocolate. Discuss the various tastes and qualities of the food samples.
- Discussing the tastes that the child likes and dislikes.

According to Kranowitz (2003:185), children with sensory seeking behaviour will also explore inedible objects with their mouths and tongues and children might cram their mouths full of food, not giving much attention to the taste.

#### **4.3.3.5 Smell**

Blom (2006:97) comments that children gather information about the world and themselves through smell. Lambe (2007) and Lear (1998:137) suggest a few activities that can be used in the play therapy session:

- Discuss the different smells that the child likes and dislikes.
- Give the child different smell experiences such as flowers, herbs or perfumes. This can be done by placing objects of different smells in small bottles. Make holes in the lid so that the child can sniff the scent. The child must then try to identify the smells or what the smells remind them of.
- Put a blindfold on the child and ask him to sniff various things that the therapist holds close to his nose. This can include toast, toothpaste, shampoo or marmite.
- Name ten things that have no smell.
- Some children loves to concoct 'bad' smells, mixing together perhaps vinegar and a drop of peppermint essence or any unlikely combination of strong (safe) smells.

According to Kranowitz (2003:185), children might be over or under responsive to different smells. The child with sensory avoiding behaviour will not be able to tolerate sharp smells whereas the child with sensory disregarding behaviour might not notice the difference in various scents.

If the play therapist is not aware of sensory integration theory, the play therapist might not make sense of the child's 'odd' behaviour in the play therapy room. Kranowitz (2003:185) furthermore explains that smell plays an important part in establishing and reviving memories and that the response to familiar smells is immediate. If a child experiences a smell in the play therapy room that he finds overwhelming, he might behave in such a way that the play therapist might think that the particular smell has triggered a traumatic memory, whereas in reality the child is just sensitive to olfactory stimuli.

#### **4.4 REFERRING A CHILD FOR PLAY THERAPY**

The researcher has explained in Chapter Two how a child's behaviour, social and emotional responses in everyday life situations might be affected by sensory integration dysfunction. However, sensory integration dysfunction is not the only reason that children display inappropriate behaviour.

Lougher (2001:73) and Webb (1991: 73) discuss a few examples of when a referral to a play therapist should also take place.

- Aggressive children displaying temper tantrums, destructiveness and anti-social behaviour. These behaviours are displayed in one setting, for example, at school, or may be generalised wherever the child is, for example, at school, home, friends' houses or shops and restaurants. There may be different causes for these behaviours and the reasons will differ for every child. These children typically have low self-esteem and might feel that they are not accepted by their peer group.

On the other hand, victims of social aggression might also need to be referred to a play therapist. Herman (1997:113) states that the distress and trauma of social aggression disrupts a child's sense of security, trust, connection with others and greatly impacts on their self-esteem and self-worth.

- Children who are restless with poor concentration and distractibility. It is important that these children are screened for attention deficit/hyperactivity disorder and for attention deficiency disorder and other physical conditions such as development coordination disorders or perceptual problems. It is imperative to find out when these behaviours began as many changes in a child's life can precipitate these behaviours. Examples of these are changes of school, bereavement, moving house or changes in home situations.
- Children abused physically, sexually or emotionally. Abused children are referred for play therapy usually after the abuse has been disclosed and investigated. Although in some cases the abuse may have happened several years before, and the child may have flashbacks of the abuse, emotional and behavioural disturbances, psychosomatic and interpersonal difficulties. Abused children are likely to have a low self-esteem and many are very angry but may not know how to express their anger in an appropriate manner. James (1999:36) explains that the child's thoughts and memories about the actual events might remain in current memory and the child might experience feelings of rage, helplessness, powerlessness, shame and guilt. Sexual abuse can also lead to the development of conduct problems in children who were previously free from such problems and a referral for psychological support should strongly be considered (Howlin, 1998:6).
- Stressful life events that are unresolved. This can be anything from bereavement, fostering, trauma, parental separation, parental alcohol addiction or when parents do not have adequate parenting skills. The child may present as low in mood, often tearful, a loner, unable to express

grief, fear or anger, sometimes hyperactive and with the inability to concentrate, usually with low self-esteem. Some children present with eating difficulties (over- and under- eating) to compensate for their loss. They may also have somatic symptoms such as stomach ache or headaches.

- Children experiencing post-traumatic stress. These children are often referred as part of the process of debriefing from a traumatic incident. The child may be too young or too traumatised to understand and cope with verbal debriefing but may be able to express their feelings about the traumatic incident through play. These children might also suffer from nightmares about the traumatic incident or may have generalised their fear into other objects. For example, a child who was attacked by a big dog might now be afraid of all big animals. Children who have been through a traumatic experience often regress to an earlier developmental stage and start to wet and soil their beds again, or they can become uninterested or preoccupied. Their sleep patterns may be disturbed and they can present as being anxious and easily startled by loud sounds and sudden movement. The child may also have difficulty with concentration and retaining new information.
- Poor peer relations. When a child's social skills are maladaptive, the child will often ask for reassurance from adults, show regressed behaviour and withdraw from situations in which compromise or cooperation with peers is necessary. These children might appear to be anxious and may try to avoid going to school.
- Self-deprecating, self-mutilating and self destructive behaviour. Abuse victims often blame themselves for the abuse, feeling shame, guilt and self-hate. Low self-esteem and poor self-image are often consequences of abuse. Self-deprecating refers to the inability to assert one's rights or needs and self-mutilation refers to inflicting injuries to oneself, whereas self-destructive behaviour refers to suicidal ideation or gesture or substance abuse.

- Children with depressive feelings and low mood. Occasional feelings of sadness are a normal part of every child's life. However, care givers may identify a problem that requires specialist help when the extent of unhappiness is such that the child's quality of life and general functioning is significantly impaired (Sharman, 1997:16).

The researcher agrees with the views expressed by Webb & Louher, but argues that the needs and responses of every child are unique and that referrals to the play therapist should be made on a case by case basis. What will be traumatic for one child might not be so for the next child. One child might be very jealous about the arrival of a new sibling and might display temper tantrums and violent behaviour, while another child might be very welcoming towards the new baby. In conclusion, the researcher believes that if a child displays inappropriate age related behaviours, is overly emotional and dependant or if the child displays psychosomatic signs of stress the opinion of a play therapist should be sought.

#### **4.5 CONCLUSION**

From the information and discussions in this chapter, the researcher explained how sensory integration dysfunction can influence the therapeutic relationship, organismic self-regulation process and awareness and thereby impact on the Gestalt therapy process. The researcher also highlighted how certain activities suggested by the play therapist can influence a child's emotions and behaviour during the therapy session and might for example lead to the inability to form a therapeutic relationship with the therapist. This again highlights the fact that play therapists need to be aware of sensory integration dysfunction. The researcher furthermore discussed the question of when a referral to a play therapist should be considered in order to investigate emotional, behavioural and social difficulties of the child client in the possible absence of sensory integration dysfunction.

## **CHAPTER FIVE:**

## **CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 INTRODUCTION**

It is apparent from the test results discussed in the previous chapter, that there are indeed children with sensory integration dysfunction that receive play therapy. In this chapter, the researcher will conclude her study and discuss the aims, objectives, hypotheses of the study and also give recommendations.

### **5.2 AIM OF THE STUDY**

The aim of this study was:

'To investigate the incidence of sensory integration dysfunction in children (three to ten years) that were receiving play therapy in the Western Cape, South Africa. If this study showed that there were indeed children that had sensory integration dysfunction, the researcher then further aimed to highlight the importance for a play therapist to have basic knowledge about sensory integration theory.'

The aim of this study was met as follows: in Chapters Two, the researcher defined sensory integration as well as what sensory systems were involved. The researcher also explored how sensory integration dysfunction can impact on a child's day-to-day activities and how this influences a child's emotional, social and behavioural development. The researcher tested a sample group of 28 children by using a standardised assessment tool, the Sensory Profile. By using the Sensory Profile, the researcher was able to establish test results. These tests results were discussed in Chapter Three and the researcher highlighted that an overwhelming 24 children out of 28 children that were tested showed that

they had sensory integration dysfunction difficulties. In Chapter Four, the researcher highlighted the importance for a play therapist to have basic knowledge about sensory integration theory and discussed how sensory activities that might be used by a play therapist could impact on a child that has sensory integration dysfunction.

### **5.3 OBJECTIVES OF THE STUDY**

The researcher formulated objectives as discussed in Chapter One, 1.2 to direct the study. The first objective was to do a literature study in order to explain sensory integration theory and to highlight how sensory integration dysfunction impacts on a child's development, emotions and behaviour. The researcher met this objective by completing a literature study (Chapter Two) in order to explain sensory integration theory and also to clarify how sensory integration dysfunction impact on a child's emotional, social and behaviour development.

The next two objectives were to use a standardised assessment tool called the Sensory Profile, in order to establish whether children in the sampling group may have sensory integration dysfunction and to analyse the data of the above mentioned Sensory Profile assessment tool. These two objectives were met in the application of the Sensory Profile to test the sampling group of 28 children. The results indicated that 24 children out of 28 children had sensory integration dysfunction of one or more of their sensory systems. The Sensory Profile also indicated the emotional and social responses of the sampling group. Sixteen children scored within the 'Definite Difference' range and four children's scores fell within the 'Probable Difference' range.

Due to the results of the Sensory Profile measuring tool, the researcher was able to meet the next objective of highlighting the importance of sensory integration for a play therapist to be aware of sensory integration dysfunction. In Chapter Four the main Gestalt play therapy concepts were discussed and also how sensory integration dysfunction could impact on the play therapy process. In the same

chapter, sensory activities, used by play therapists, were also discussed and how this could impact on the child and ultimately compromise the success of play therapy.

The final objective was to conclude the study and make appropriate recommendations after obtaining test results of the 28 children that were tested.

In this chapter, the researcher will conclude her study by making appropriate recommendations to play therapists and occupational therapist trained in sensory integration therapy.

## **5.4 HYPOTHESIS**

The hypothesis of this study was:

‘that some children (aged three to ten) in the Western Cape that received play therapy might present with sensory integration dysfunction.’

This study has shown the hypothesis to be true. Tests results clearly indicated that 24 children out of 28 children that were tested had sensory integration dysfunction in one or more sensory system. The researcher appreciates that a bigger sample would have had a greater impact on the hypothesis, although she feels that this study created a firm foundation for further research .

## **5.5 RECOMMENDATIONS**

The researcher strongly recommends that sensory integration theory should be included in the play therapy course curriculum at universities and colleges. Throughout this study, the researcher made use of examples and explanations in order to highlight the impact that sensory integration dysfunction can have on a child's emotional, social and behavioural development. As a play therapist, it is therefore crucial to be aware of sensory integration theory and to understand

how this may affect the child client and the therapeutic process. The researcher listed many examples of behaviour or tendencies that children with sensory integration dysfunction are likely to display, consequently when the play therapist recognises any of these behaviours or tendencies, it is her duty to refer the child to a sensory integration therapist. The researcher advises that the therapist works closely with an occupational therapist that is trained in sensory integration therapy in order for her to advise the play therapist on techniques or materials that could be used in play therapy. The play therapist can then utilise this information and advice in order to promote and establish an I-thou therapeutic relationship with the child client, which is the most important aspect of the Gestalt play therapy process.

On the other hand as an occupational therapist, it is the researcher's opinion that there might be a general lack of knowledge about play therapy in the occupational therapy community. Occupational therapists might struggle to provide successful intervention because the child's emotional aspects might not have been addressed. The test results (Table 4.6) of two of the children, BH and LN, showed more emotional/behavioural difficulties than sensory integration dysfunction. It is thus evident that there are children with emotional, social and behavioural difficulties due to aspects other than sensory integration dysfunction. It is important for occupational therapists to recognise that these children will benefit from receiving play therapy and that it is the duty of the occupational therapist to refer these children to a play therapist in order to investigate social, emotional and inappropriate behaviour. The researcher therefore strongly advises that the practice and profession of play therapy is more defined and elucidated within the curriculum of occupational therapists.

The researcher is furthermore of the opinion that if the child has primarily emotional, social and behavioural difficulties, it is the duty of the occupational therapist to refer the child to a play therapist in order to investigate these issues before any attention is given to scholastic problems. Scholastic problems might

include reading, writing, paying attention, visual perception etcetera. Reason being is that the child with emotional difficulties for example due to abuse or trauma will not be able to focus on improving academically. However, if the child has any sensory integration dysfunction it will affect the play therapy process as explained in this study. Therefore, if the play therapist and the occupational therapist are not able to work together (parents might not be able to afford both) it is the researcher's opinion that the child should first receive sensory integration therapy in order for the child to make optimum use of play therapy sessions so that the child can deal with his emotional, social and behavioural issues. Then only should the child be referred back to occupational therapist to investigate possible scholastic difficulties. The researcher feels that the integration of occupational therapy (with sensory integration techniques) and play therapy needs more research in order to establish the effectiveness and value of this integrated therapy.

Play therapists in a specific area could request that an occupational therapist, trained in sensory integration techniques, present workshops to play therapists in order to teach them various ways of working with children with sensory integration dysfunction. Ideas for sensory friendly activities could also be discussed. This could prove to be valuable sessions in that the different professionals could learn from one another. Joint research can also be undertaken in order to establish the effectiveness and value of a joint occupational therapy (with sensory integration techniques) and play therapy approach to treating a child client holistically.

Not only is it imperative for a play therapist to be aware of sensory integration dysfunction, but it will also be beneficial for play therapists to be trained to administer and score the Sensory Profile. By doing so, a play therapist can establish whether their clients have possible sensory integration dysfunction and if so, make the necessary referrals and request joint working with an occupational therapist trained in sensory integration techniques. During the

training it needs to be emphasised that the information should always be correlated with collateral information from parents, teachers and other professionals involved with the child. Play therapists could also educate themselves by reading up on the subject of sensory integration. The researcher suggests the following books as a good introduction to sensory integration:

- Answers to questions teachers ask about sensory integration – written by J. Koomar, C. S. Kranowitz and S. Szklut, 2005.
- The out-of-sync child has fun – Activities for Kids with sensory integration dysfunction – written by C. S. Kranowitz – 2003.

The play therapist could furthermore discuss her play therapy room with an occupational therapist that is trained in sensory integration techniques in order to present play therapy in a sensory friendly environment. This might include making use of natural light where possible and putting mobile phones on silent whilst busy with a play therapy session. Where possible, the play therapy room should not be near a busy street and the room should be painted in soft colours rather than bright colours. The play therapist should also take note of the child's positioning when the child is busy with 'table work' activities as it is a good idea for the child to face a wall that is free from distracting wall hangings and posters. The play therapist could also have a mini trampoline available for children with vestibular and proprioceptive sensation seeking behaviour to allow these children to meet their need for stimulation at intervals throughout the play therapy session. A 'hide-out' zone will allow children that are easily overwhelmed with sensory information (sensory avoiders) to relax. This could be dark space with soft cushions or throws and a few glow-in-the-dark stickers. The play therapist should also have a radio with a variety of music to hand in order to stimulate children that have auditory seeking behaviour. These children will prefer to have background music while they draw or paint. The play therapist should also have various activities available for children and encourage them to choose activities and materials that they feel comfortable with. If children are allowed to choose their own activities, they will feel understood, accepted and respected by the play

therapist and this will greatly enhance the I-thou therapeutic relationship. By exercising control over the activity, the child will be able to meet his needs and this promotes organismic self-regulation.

Activities available that provide tactile stimulation for example, wood, water, sand, clay, shells, hand puppets, paint, rocks etcetera should be made available and the play therapist should accept that tactile seeking children might want to fiddle with toys continuously, even when busy listening or actively engaging in other activities.

## **5.6 FINAL THOUGHTS**

The researcher hypothesised that there would be children that would have sensory integration dysfunction who also receive play therapy.

The Sensory Profile for Caregivers was utilised as an assessment tool in order to prove that the hypothesis was true. The researcher found the results quite unexpected in that 24 out of the 28 children that were tested, had sensory integration dysfunction in one or more of the sensory systems. Now, more than ever, the researcher is of the opinion that a combination of sensory integration therapy and play therapy is crucial in the holistic intervention of the child client with sensory integration dysfunction. Specifically selected activities, materials and techniques are required to treat a child with sensory integration dysfunction, as highlighted in this study. A combination of sensory integration and play therapy techniques will ensure that the physical and emotional needs of the child client are met in therapy. After completing the study, the researcher provided recommendations and hopes that other professionals in the field of both occupational therapy and play therapy find this study meaningful and useful in their intervention approach to the child client. In an ever-demanding world, it is the responsibility and duty of all paediatric health care professionals to work together in order to provide and ensure effective therapy outcomes for the child client.

**KEY TERMS:**

**Occupational therapy; Play therapy; Sensory integration; Sensory Integration dysfunction; Gestalt therapy; Sensory seeking; Sensory defensive; Sensory avoiding; Awareness; Therapeutic relationship; Organismic self-regulation**

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## **Appendices**

### **A. Letter to the Play Therapist:**

Dear Play Therapist,

I am an occupational therapist, living in London, who is currently busy with my Master's Degree in Play Therapy. I am in my second year and I am doing this course through Huguenot College that is affiliated with UNISA.

I need to complete a research study (thesis) as part of my course requirements and would appreciate it if you will be able to assist me with collecting data for my study. The title of my research is: "The Incidence of Sensory Integration Dysfunction in children aged three to ten years that are currently receiving Play Therapy in the Western Cape."

Please refer to the page titled 'Further Information' for more information about sensory integration, etc.

I am going to use an assessment tool, called the 'Sensory Profile For Caregivers'. It is a standardised assessment tool for children aged three to ten. It consists of an easy questionnaire that the child's caregiver needs to complete. Once I have received the questionnaires, I will score each questionnaire and I will be able to establish if the child has sensory integration dysfunction issues in comparison with his/her peers.

#### **Instructions:**

- Please randomly choose ten children aged three to ten that are currently receiving play therapy from you.
- Please ask the caregivers of the selected child to complete the Sensory Profile questionnaire and return it to you at their earliest convenience. Please hand them a 'Caregiver' letter and a 'Further Information' letter.

- Please collect all ten questionnaires and return them to me in the self addressed envelope provided.

I need 100 questionnaires from caregivers in order to complete this study. Please encourage the care givers to take part, promptly complete and return the questionnaires to you.

Please notify me if you will not be able to receive ten questionnaires, as I will then need to request that more play therapists take part in my study.

I have included my e-mail address on the 'Further Information' – page and you are welcome to contact me via e-mail if you have any questions about this study.

I want to thank you for taking the time to assist me in my research project as without you I will not be able to complete my studies.

Kind regards,

Gizelle Geringer

## B. Letter to Caregiver

Dear Caregiver

I am an occupational therapist, living in London, who is currently busy with my Master's Degree in Play Therapy. I am in my second year and I am doing this course through Huguenot College that is affiliated with UNISA.

I need to complete a research study (thesis) as part of my course requirements and would appreciate it if you will be able to take part in my study.

The title of my research is: "The Incidence of Sensory Integration Dysfunction in children aged three to ten years that are currently receiving Play Therapy in the Western Cape"

Please refer to the page titled 'Further information' for more information about sensory integration etc.

I am going to use an assessment tool, called the 'Sensory Profile'. It is a standardised assessment tool for children aged three to ten. It consists of an easy questionnaire that you, the caregiver, need to complete and return to the play therapist. Once I have received the questionnaires, I will score each questionnaire and I will be able to establish if your child has sensory integration dysfunction issues in comparison with his/her peers.

Please only write your child's initials, date of birth and the name of the play therapist on the questionnaire to ensure confidentiality.

I have included my e-mail address on the 'Further Information' – page and you are welcome to contact me via e-mail if you have any questions about this study or if you want to know the outcome of the Sensory Profile Questionnaire.

I want to thank you for taking the time to assist me in my research project as without you I will not be able to complete my studies.

Kind regards,

Gizelle Geringer

**C. Information letter regarding Sensory Information that was sent to Caregivers and Play Therapists.**

**Further Information – What is Sensory Integration?**

**What is sensory integration?**

The process of taking in information about the world around us with all our senses and from inside our own bodies. Through integrating and organising the sense of vision, touch, movement, muscle sense, hearing, tasting and smell, we are able to interact comfortably and efficiently in work and play and in caring for ourselves and others.

**What is sensory integration dysfunction?**

Sensory integration dysfunction is when a child's neurological system incorrectly organises and interprets sensory information resulting in problems in learning, motor development and behaviour.

**What is the aim of this study?**

The aim of this study is to investigate the incidence of sensory integration dysfunction in children that are currently receiving play therapy in the Western Cape. If this study shows that there are indeed children that have sensory integration dysfunction, I will further aim to highlight the importance for a play therapist to have basic knowledge of sensory integration theory.

**Why did I choose to do this study?**

As an occupational therapist, I am very interested in sensory integration (SI) theory and have completed numerous courses in sensory integration therapy. During these sensory integration courses, I learned how sensory integration dysfunction can influence a child emotionally and behaviourally and that made me realise that as a play therapist, one would need to know about sensory integration theory. According to me, SI theory is really important when it comes to treating children, especially in play therapy where various materials are used e.g. play dough and sand trays, as

certain materials might have an effect on a child with sensory integration dysfunction.

There is no theory available on the effect of sensory integration dysfunction on a child that receives play therapy, therefore, I want to establish if children that are currently being seen by a play therapist also have sensory integration dysfunction.

I am further of the opinion that other professionals, other than occupational therapists, that study play therapy, do not have adequate knowledge or sometimes don't even know about sensory integration theory and how sensory integration dysfunction can influence a child emotionally and behaviourally. By doing this study, I also want to highlight the importance of sensory integration theory for a play therapist.

**How to contact me if you have any questions.**

Please e-mail me at: [gizellegeringer@yahoo.co.uk](mailto:gizellegeringer@yahoo.co.uk) I will endeavour to reply to your e-mail at my earliest convenience. Please include your child's initials, date of birth and the name of the play therapist in all correspondence.

**D. Sensory Profile for Caregivers**

D. **Sensory Profile for Caregivers**



# SENSORY PROFILE

Winnie Dunn, Ph.D., OTR, FAOTA

## Caregiver Questionnaire

Child's Name: \_\_\_\_\_ Birth Date: \_\_\_\_\_ Date: \_\_\_\_\_

Completed by: \_\_\_\_\_ Relationship to Child: \_\_\_\_\_

Service Provider's Name: \_\_\_\_\_ Discipline: \_\_\_\_\_

### INSTRUCTIONS

Please check the box that **best** describes the frequency with which your child does the following behaviors. Please answer all of the statements. If you are unable to comment because you have not observed the behavior or believe that it does not apply to your child, please draw an X through the number for that item. Write any comments at the end of each section. Please do not write in the Section Raw Score Total row.

#### Use the following key to mark your responses:

**ALWAYS**

When presented with the opportunity, your child always responds in this manner, 100% of the time.

**FREQUENTLY**

When presented with the opportunity, your child frequently responds in this manner, about 75% of the time.

**OCCASIONALLY**

When presented with the opportunity, your child occasionally responds in this manner, about 50% of the time.

**SELDOM**

When presented with the opportunity, your child seldom responds in this manner, about 25% of the time.

**NEVER**

When presented with the opportunity, your child never responds in this manner, 0% of the time.

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## Sensory Processing

Item			A. Auditory Processing	ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
Ear	L	1	Responds negatively to unexpected or loud noises (for example, cries or hides at noise from vacuum cleaner, dog barking, hair dryer)					
Ear	L	2	Holds hands over ears to protect ears from sound					
Ear	L	3	Has trouble completing tasks when the radio is on					
Ear	L	4	Is distracted or has trouble functioning if there is a lot of noise around					
Ear	L	5	Can't work with background noise (for example, fan, refrigerator)					
Ear	H	6	Appears to not hear what you say (for example, does not "tune-in" to what you say, appears to ignore you)					
Ear	H	7	Doesn't respond when name is called but you know the child's hearing is OK					
Ear	H	8	Enjoys strange noises/seeks to make noise for noise's sake					
Section Raw Score Total								

Comments

Item			B. Visual Processing	ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
Eye	L	9	Prefers to be in the dark					
Eye	L	10	Expresses discomfort with or avoids bright lights (for example, hides from sunlight through window in car)					
Eye	L	11	Happy to be in the dark					
Eye	L	12	Becomes frustrated when trying to find objects in competing backgrounds (for example, a cluttered drawer)					
Eye	L	13	Has difficulty putting puzzles together (as compared to same age children)					
Eye	L	14	Is bothered by bright lights after others have adapted to the light					
Eye	L	15	Covers eyes or squints to protect eyes from light					
Eye	H	16	Looks carefully or intensely at objects/people (for example, stares)					
Eye	H	17	Has a hard time finding objects in competing backgrounds (for example, shoes in a messy room, favorite toy in the "junk drawer")					
Section Raw Score Total								

Comments

Item		C. Vestibular Processing					
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
→	L	18	Becomes anxious or distressed when feet leave the ground				
→	L	19	Dislikes activities where head is upside down (for example, somersaults, roughhousing)				
→	L	20	Avoids playground equipment or moving toys (for example, swing set, merry-go-round)				
→	L	21	Dislikes riding in a car				
→	L	22	Holds head upright, even when bending over or leaning (for example, maintains a rigid position/posture during activity)				
→	L	23	Becomes disoriented after bending over sink or table (for example, falls or gets dizzy)				
→	H	24	Seeks all kinds of movement and this interferes with daily routines (for example, can't sit still, fidgets)				
→	H	25	Seeks out all kinds of movement activities (for example, being whirled by adult, merry-go-rounds, playground equipment, moving toys)				
→	H	26	Twirls/spins self frequently throughout the day (for example, likes dizzy feeling)				
→	H	27	Rocks unconsciously (for example, while watching TV)				
→	H	28	Rocks in desk/chair/on floor				
Section Raw Score Total							

Comments

Item		D. Touch Processing						
	L	29	Avoids getting "messy" (for example, in paste, sand, finger paint, glue, tape)	ALWAYS	FREQUENTLY	OCCASIONALLY	SELDOM	NEVER
	L	30	Expresses distress during grooming (for example, fights or cries during haircutting, face washing, fingernail cutting)					
	L	31	Prefers long-sleeved clothing when it is warm or short sleeves when it is cold					
	L	32	Expresses discomfort at dental work or toothbrushing (for example, cries or fights)					
	L	33	Is sensitive to certain fabrics (for example, is particular about certain clothes or bedsheets)					
	L	34	Becomes irritated by shoes or socks					
	L	35	Avoids going barefoot, especially in sand or grass					
	L	36	Reacts emotionally or aggressively to touch					
	L	37	Withdraws from splashing water					
	L	38	Has difficulty standing in line or close to other people					
	L	39	Rubs or scratches out a spot that has been touched					
	H	40	Touches people and objects to the point of irritating others					
	H	41	Displays unusual need for touching certain toys, surfaces, or textures (for example, constantly touching objects)					
	H	42	Decreased awareness of pain and temperature					
	H	43	Doesn't seem to notice when someone touches arm or back (for example, unaware)					
	H	44	Avoids wearing shoes; loves to be barefoot					
	H	45	Touches people and objects					
	H	46	Doesn't seem to notice when face or hands are messy					
							Section Raw Score Total	

Comments

Item		E. Multisensory Processing						
	L	47	Gets lost easily (even in familiar places)	ALWAYS	FREQUENTLY	OCCASIONALLY	SELDOM	NEVER
		48	Has difficulty paying attention					
	L	49	Looks away from tasks to notice all actions in the room					
	H	50	Seems oblivious within an active environment (for example, unaware of activity)					
	H	51	Hangs on people, furniture, or objects even in familiar situations					
	H	52	Walks on toes					
	H	53	Leaves clothing twisted on body					
							Section Raw Score Total	

Comments

Item			F. Oral Sensory Processing				
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
	L	54	Gags easily with food textures or food utensils in mouth				
	L	55	Avoids certain tastes or food smells that are typically part of children's diets				
	L	56	Will only eat certain tastes (list: _____)				
	L	57	Limits self to particular food textures/temperatures (list: _____)				
	L	58	Picky eater, especially regarding food textures				
	H	59	Routine smells nonfood objects				
	H	60	Shows strong preference for certain smells (list: _____)				
	H	61	Shows strong preference for certain tastes (list: _____)				
	H	62	Craves certain foods (list: _____)				
	H	63	Seeks out certain tastes or smells (list: _____)				
	H	64	Chews or licks on nonfood objects				
	H	65	Mouths objects (for example, pencil, hands)				
Section Raw Score Total							

Comments

## Modulation

Item			G. Sensory Processing Related to Endurance/Tone				
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
		66	Moves stiffly				
	H	67	Tires easily, especially when standing or holding particular body position				
	H	68	Locks joints (for example, elbows, knees) for stability				
	H	69	Seems to have weak muscles				
	H	70	Has a weak grasp				
	H	71	Can't lift heavy objects (for example, weak in comparison to same age children)				
	H	72	Props to support self (even during activity)				
	H	73	Poor endurance/tires easily				
	H	74	Appears lethargic (for example, has no energy, is sluggish)				
Section Raw Score Total							

Comments

Item		H. Modulation Related to Body Position and Movement					
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
♡	75	Seems accident-prone					
👁	76	Hesitates going up or down curbs or steps (for example, is cautious, stops before moving)					
→ L	77	Fears falling or heights					
→ L	78	Avoids climbing/jumping or avoids bumpy/uneven ground					
→ L	79	Holds onto walls or banisters (for example, clings)					
→ H	80	Takes excessive risks during play (for example, climbs high into a tree, jumps off tall furniture)					
→ H	81	Takes movement or climbing risks during play that compromise personal safety					
→ H	82	Turns whole body to look at you					
🏃 H	83	Seeks opportunities to fall without regard to personal safety					
🏃 H	84	Appears to enjoy falling					
Section Raw Score Total							

Comments

Item		I. Modulation of Movement Affecting Activity Level					
		ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER	
🏃 L	85	Spends most of the day in sedentary play (for example, does quiet things)					
🏃 L	86	Prefers quiet, sedentary play (for example, watching TV, books, computers)					
→ L	87	Seeks sedentary play options					
→ L	88	Prefers sedentary activities					
→ H	89	Becomes overly excitable during movement activity					
🏃 H	90	"On the go"					
🏃 H	91	Avoids quiet play activities					
Section Raw Score Total							

Comments

Item		J. Modulation of Sensory Input Affecting Emotional Responses					
		ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER	
♡	92	Needs more protection from life than other children (for example, defenseless physically or emotionally)					
✿ L	93	Rigid rituals in personal hygiene					
♡ H	94	Is overly affectionate with others					
♡ H	95	Doesn't perceive body language or facial expressions (for example, unable to interpret)					
Section Raw Score Total							

Comments

Item			K. Modulation of Visual Input Affecting Emotional Responses and Activity Level					
	L	96	Avoids eye contact	ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
eye	H	97	Stares intensively at objects or people					
eye	H	98	Watches everyone when they move around the room					
eye	H	99	Doesn't notice when people come into the room					

Section Raw Score Total

Comments

## Behavior and Emotional Responses

Item			L. Emotional/Social Responses					
	L	100	Seems to have difficulty liking self (for example, low self-esteem)	ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
heart		101	Has trouble "growing up" (for example, reacts immaturely to situations)					
heart		102	Is sensitive to criticisms					
heart		103	Has definite fears (for example, fears are predictable)					
heart		104	Seems anxious					
heart		105	Displays excessive emotional outbursts when unsuccessful at a task					
heart		106	Expresses feeling like a failure					
heart		107	Is stubborn or uncooperative					
heart		108	Has temper tantrums					
heart		109	Poor frustration tolerance					
heart		110	Cries easily					
heart		111	Overly serious					
heart		112	Has difficulty making friends (for example, does not interact or participate in group play)					
heart		113	Has nightmares					
heart		114	Has fears that interfere with daily routine					
heart		115	Doesn't have a sense of humor					
heart		116	Doesn't express emotions					

Section Raw Score Total

Comments

Item		M. Behavioral Outcomes of Sensory Processing					
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
Ear	117	Talks self through tasks					
Eye	118	Writing is illegible					
Eye	119	Has trouble staying between the lines when coloring or when writing					
Heart	120	Uses inefficient ways of doing things (for example, wastes time, moves slowly, does things a harder way than is needed)					
Heart	L	Has difficulty tolerating changes in plans and expectations					
Heart	L	Has difficulty tolerating changes in routines					
		Section Raw Score Total					

Comments

Item		N. Items Indicating Thresholds for Response					
			ALWAYS	FREQUENTLY	OCCASIONALLY	SEDOM	NEVER
Run	123	Jumps from one activity to another so that it interferes with play					
Lips	H	124 Deliberately smells objects					
Lips	H	125 Does not seem to smell strong odors					
		Section Raw Score Total					

Comments

FOR OFFICE USE ONLY

ICON KEY	
Ear	Auditory
Eye	Visual
Run	Activity Level
Lips	Taste/Smell
Body	Body Position
→	Movement
Hand	Touch
Heart	Emotional/Social

THRESHOLD KEY	
	Neither low nor high
L	Low
H	High

SCORE KEY	
1	Always
2	Frequently
3	Occasionally
4	Seldom
5	Never

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