SENSORY MOTOR PROFILE OVERVIEW

Introduction:

The Sensory Motor Profile (SMP) refers to the unique way that a child experiences the world through the 7 primary senses and through movement. Determining a child's SMP is the next step toward discovering a child's complete profile. It is not enough to simply *play at the right FDL;* one must also understand how the child's SMP impacts his ability to interact, problem-solve, play, and participate in activities of daily living. The SMP is best discovered through a combination of skilled observation, standardized assessments, and parent interview. In The PLAY Project, the SMP is identified using information and video gathered from the first visit.

The 7 senses:

There are 7 primary senses that nearly all people are born with. These include visual, auditory, gustatory, olfactory, tactile, proprioceptive, and vestibular. However, the way in which children and adults experience each of these 7 senses varies greatly from person to person. It is important to understand *how* a child processes and interprets information through each of the 7 senses as difficulty with any of the senses can greatly impact a child's ability to move through each level of development. Below are brief descriptions of each of the 7 senses.

1. **Visual -** a child's ability to process & interpret the sights around them
2. **Auditory -** a child's ability to process & interpret the sounds around them
3. **Gustatory -** a child's ability to process & interpret tastes (e.g. food/drink)
4. **Olfactory -** a child's ability to process & interpret smells
5. **Tactile -** a child's ability to process & interpret touch (i.e. the feeling of objects, etc.)
6. **Proprioceptive -** a child's ability to process & interpret input through their muscles & joints
7. **Vestibular -** a child's ability to process & interpret where they are located in space

Discovering the Child's SMP:

Parent interview is typically the first and best way to determine how the child experiences their world. In The PLAY Project, this interview takes place during the first visit. The PLAY Consultant might ask the child's parent(s) about the child's favorite and least favorite activities, experiences, toys, foods, etc., all of which will help the PLAY Consultant form ideas about the child's SMP. From there, the PLAY Consultant will observe how the child explores his environment, carefully taking note of how the child responds to sounds, sights, and other types of sensory input. Additionally, the PLAY Consultant will use an assessment measure (e.g. The Greenspan Social Emotional Growth Chart, The Sensory Profile, or a sensory checklist) which will help to pinpoint any area(s) of difficulty within the child's SMP.

Content adapted from the works of Stanley Greenspan, MD and Lucy Miller, PhD (SPD STAR Center: http://spdstar.org/what-is-spd/#spdchecklist)

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Difficulty with Sensory Processing:

When a child struggles to process, appropriately interpret, and/or respond to sensory input, he may be showing signs of **Sensory Processing Disorder (SPD).** SPD is a complex neurological condition that results in missed or poor connections between the brain (central nervous system) and peripheral nervous system (body). When this occurs, children may exhibit symptoms in various ways. For example, some children may demonstrate clumsiness, whereas others demonstrate strong aversions to certain smells or sounds. It is not uncommon for children with autism spectrum disorders (ASD) to demonstrate symptoms of SPD. Sometimes, these symptoms can simply appear to be "bad" behaviors (i.e. screaming or running away); however, in many cases, the behavior (i.e. response) can be traced back to sensory input.

The Subtypes of SPD:

There are several different ways to describe the symptoms of SPD. These include: sensory over-responsive (aka over-reactive), sensory under-responsive (aka under-reactive), sensory craving

(aka sensory seeking), postural disorder, dyspraxia (aka difficultly with motor planning), and sensory discrimination disorder. In The PLAY Project, we recommend that you become familiar each of the 6 subtypes; however, it is not expected that you will become experts in this area. We recommend that you refer children who show signs of SPD to a pediatric occupational therapist for a formal evaluation. Below are brief descriptions of each of the 6 subtypes.

1. **Sensory over-responsive -** the child may demonstrate an exaggerated or heightened response to sensory input
2. **Sensory under-responsive -** the child may not respond or may demonstrate a delayed or slower than average response to sensory input
3. **Sensory craving -** the child may seek excessive stimulation and/or movement without contentment or satisfaction
4. **Postural disorder -** a child who demonstrates difficulty with postural control to the extent that it affects his ability to stand, sit, or participate to complete various motor tasks.
5. **Dyspraxia -** a child who demonstrates decreased motor planning skills (i.e. difficulty with ideation, sequencing, and coordination of fine and gross motor movements).
6. **Sensory discrimination disorder -** a child who struggles to accurately interpret the subtle characteristics of various stimuli (i.e. sounds, sights, sensations, etc.)

Often, it is difficult to determine how a child is interpreting input through one or more of the 7 primary senses. When this happens, it is helpful to try and isolate each sense in order to determine how a child reacts to variability. Here is an example:

a) If you notice that a you are working with child flinches or puts his hands over his ears whenever people clap next to him, it is safe to assume that he may be reacting strongly

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to the auditory and/or visual input (i.e. the sound of the clapping or the sight of hands moving rapidly). If you then learn from the child's parents that this child responds in a similar way to other loud, unexpected noises, it is likely that he is reacting to the auditory input. This child may therefore be ***over-responsive*** (aka over-reactive) to auditory input, which means that his parents, therapists, teachers, etc. should be mindful of the amount, frequency, and duration of auditory input that this child is exposed to.

Motor Planning:

Motor planning (praxis) involves 3 parts:

1) **Ideation** - the ability to come up with an idea/an intention
2) **Motor planning** - the way the brain organizes and sequences motor actions
3) **Execution** - the ability to perform (execute) motor actions

The 3 senses involved in motor planning include the tactile, proprioceptive, and vestibular sense. These senses allow the child to respond to the sensory information around them (e.g. the sound of their mother's voice). If a child is experiencing difficulty in any of these 3 senses, they may have difficulty responding appropriately to sounds, sights, smells, etc. This is because the tactile, proprioceptive, and vestibular senses are the movement-based senses, which means that they allow the child to react by coordinating their intentions with the needed motor actions (e.g. turning her head, smiling, and looking at her mom).

Take-Home Message:

In summary, a child with noted difficulty in the areas of sensory processing or motor planning will likely exhibit related difficulty with the skills outlined in each of the 6 FDLs (e.g. fine or gross motor difficulties, limited initiation, and/or decreased problem-solving skills). Therefore, it is crucial for PLAY Consultants to recognize and address any signs of difficulty early on. Given that PLAY Consultants are not required to have training or experience in the area of sensory processing, it is important to recommend a formal evaluation by an occupational therapist or other qualified professional when signs of SPD are identified.

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