Part 1: Review of Dunn’s Sensory Processing Framework

Dunn’s model of sensory processing

Thresholds for response

Dunn’s Model of Sensory Processing

Agenda
1. Review of Dunn’s Sensory Processing Model & Framework
2. Review of the Adult & Adolescent Sensory Profile
3. Using the Sensory Profile to Guide Intervention
4. Case Studies
Dunn’s sensory processing framework

- Seeking – the degree to which a person obtains sensory input
- Avoiding – the degree to which a person is bothered by sensory input
- Sensitivity – the degree to which a person detects sensory input
- Registration – the degree to which a person misses sensory input

Everyone has a Sensory Profile!

“Sensory processing” is a concept that explains how we experience life through our senses.

- The Sensory Profile helps to identify sensory preferences rather than a sensory disability or disorder.
- “More than others” or “Less than others” scores alone do not indicate the presence of a functional problem.

Conclusion

- Sensory processing is a fundamental part of being human.
- Every person has a Sensory Profile.
- There is no ‘right’ or ‘wrong’ Sensory Profile.
- Dunn’s sensory processing framework describes a person’s sensory preferences and patterns of behaviour.
- Thinking about sensory processing helps us to gain a more holistic view of people we work with.

Part 2: Adult and Adolescent Sensory Profile

Overview of the test

- Measures sensory processing abilities by self-report.
- Profiles effects of sensory processing ability on functional performance in everyday life.
- Gives information about a person’s tendencies to respond to stimuli and which sensory systems are contributing to or creating barriers to functional performance.
- Provides standardised quadrant scoring (Much less than most people – Much more than most people).
Who is it for?
- Individuals aged 11-65+
- People with physical disabilities
- People with psychiatric conditions
- People with no identified disability

When should I use it?
- To establish a baseline of sensory processing in everyday situations
- To guide intervention and clinical decision making
- To raise awareness of sensory processing as a contributor to behaviour, for both clients and staff
- To assess whether sensory processing patterns are compatible with daily living situation

Administration – Frequently asked Question
Q: If my client is unable to complete the questionnaire (e.g. due to low IQ, impaired communication, inability to attend, etc.), can a caregiver complete the form?
A: Yes, but you should not report the standardised categories (e.g. more than others). Because the normed data for those categories was derived from self-report questionnaires. You can still get lots of useful information about the client's preferences.

Q: What qualifications do I need to have to administer the Sensory Profile?
A: Anyone can administer it, but it takes additional skill to relate the findings to everyday participation challenges, this usually requires the expertise of an OT.

Sample of Questions

Scoring
- Almost always = 5 points
- Frequently = 4 points
- Half the time = 3 points
- Occasionally = 2 points
- Almost Never = 1 point

Reliability and Validity
- Internal consistency for quadrants range from .65 -.78
- Each item on a subscale correlates best with its intended subscale
- Standard error of measurement ranges from 3.58 – 4.51

Discriminant Validity with Adult Temperament Questionnaire (Chess & Thomas, 1998)
- Sensation seeking scores negatively correlated with withdrawal and dysphoric mood subscales
- Sensitivity subscales positively correlated with dysphoric mood and sensory threshold subscales
- Sensation avoiding positively correlated with low adaptability, withdrawal and dysphoric mood
More support for validity

Physiological data consistent with four quadrants using skin conductance measures of responsivity

- Sensory sensitivity respond intensely and habituate slowly
- Sensation avoiding respond intensely but habituate quickly
- Low registration respond weakly and habituate quickly
- Sensation seeking respond weakly but habituate slowly

Additional validity studies

- Distinguished people with and without mental illness
- Distinguished younger and older adults

Findings related to specific populations

Individuals with Schizophrenia
- Low scores on sensation seeking
- High scores on sensation avoiding and low registration

Individuals with Bi-polar Disorder
- Average scores on low registration
- High scores on sensation avoiding and low scores on sensation seeking

Older Adults
- Low scores on sensation seeking
- High scores on low registration with cumulatively higher scores as age from 60 – 70 - 80

Individuals with Autism/Aspergers
- More likely to exhibit behaviors in sensation seeking, low registration and sensory sensitivity
- Especially sensitive to auditory and oral motor input

Individuals with ADHD
- Differences across all quadrants – may be more reflective of a modulation problem

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Interpretation of Questionnaire

- Start broadly by using quadrant summary chart to compare against norm group for each age range
- Get more detailed by using Appendix B for further analysis within each sensory area (pattern grids)
- Then get more detailed by going to individual questions to look for trends in terms of both thresholds and behavioural response
- Scores do not in themselves identify a difficulty or impairment
- Low scores are as meaningful as high scores
- Consider other factors e.g. cognitive, behavioural

Interpretation of Quadrants

- Quadrant scores are independent of one another not part of one continuum
- Each quadrant has its own continuum
- Every person has some aspects of each quadrant in his/her individual sensory processing pattern
- Sensory processing patterns may impact participation differently across different environments
- It’s possible to be different extremes depending on what sensory system is involved
- It’s possible to be two extremes in the same sensory system depending on locus of control (e.g. might hate being touched by others but love messy activities)
Pattern Grids

Appendix B

- Reproducible pattern grids
- Allow analysis of performance within different sensory modalities
- Compare thresholds and behavioural responses

Making it all about occupational performance

Person-Environment-Occupation Model

`Occupational performance is the product of the dynamic relationship among persons, their occupations and roles and the environments in which they live' (Law et al. 1996)

- The Sensory Profile tells us about the person
- Occupational performance will vary depending on the level of congruence between the P, E and O
- Starting with a sensory hypothesis makes interpretation and reporting much easier
- In formulating our hypothesis, testing the hypothesis and implementing intervention, we need to also think about the sensory aspects of the environment and occupation

Intervention Planning

- When using quadrant scores to guide intervention, the goal is to offer sensory input that supports sensory processing patterns, to facilitate participation
- Intervention should ideally be designed as part of daily routines
- Administration manual has a chapter on intervention planning
- Use Ecology of Human Performance framework
- Appendix A – reproducible strategy sheets
- Good resources for AASP ‘Sensory Modulation and Environment’ book by Tina Champagne

The Ecology of Human Performance:

- 5 types of intervention
  1. Establish / Restore – increase skill level
  2. Adapt / Modify – change environment
  3. Alter – finding best match between person and environment
  4. Prevent – troubleshooting
  5. Create – interventions to support participation as part of planning

Ecology of Human Performance in Action

Appendix A – Intervention Strategies

### Intervention Strategies

- Increase tolerance, rather than change the person's preference
  - Graded exposures
  - Personal commitment, rewards or other external motivators

- Create a supportive environment. Start by analyzing the environment in terms of
  - Intensity
  - Amount
  - Repetition
  - Predictability
  - Familiarity
  - Speed

### The Auditory Environment

- Intensity – soft/loud
- Amount – intermittent, constant
- Repetition – rhythmic
- Competing stimuli – background noise, multiple conversations
- Predictability – starts
- Familiarity – accents or garbled speech
- Speed – rate of speech

### The Visual Environment

- Intensity – brightness, colors
- Amount – number of objects to process
- Repetition – clean lines, patterns
- Predictability – organized, movement
- Familiarity – visual input is recognizable, known vs. unknown setting
- Speed – how much time to process information (static environment versus moving (driving))

### The Tactile Environment

- Intensity – light versus deep pressure, degree of irritability
- Amount – body surface
- Repetition – constant or intermittent
- Competing stimuli – consider ambient environment – temperature, wind, fans
- Predictability – handshake versus being touched from behind
- Familiarity – recognize what you are touching (stepping on something unfamiliar)
- Speed – fast/slow

### The Gustatory Environment

- Intensity – spices, temperature
- Amount – how much is taste a part of the experience
- Repetition – different tastes or lots of the same
- Predictability – taste surprises (e.g. plantains not bananas)
- Familiarity – eaten before
- Speed – how quickly you eat and therefore taste

### The Olfactory Environment

- Intensity – strength of the smell
- Amount – e.g. bath stores, restaurants
- Repetition – less relevant
- Competing stimuli – unpleasant smells can be especially distracting
- Predictability – can detect what
- Familiarity – can detect what
- Speed – tends to be more constant, smells generally do not come and go quickly

### The Vestibular/Proprioceptive Environment

- Intensity – large, pounding movements
- Amount – activity level
- Repetition – rhythmic, cadenced
- Competing stimuli – mostly when not executing movements on own, e.g. car rides, elevator
- Predictability – can anticipate movement and body in space
- Familiarity – established motor patterns
- Speed – slow versus quick movements

Examples for Sensory Modulation & Environment
**Next Step**

How do I modify the sensory input based on my client’s quadrant profile?

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**Low Registration – More than Others**

- ↑ Intensity
- ↑ Amount
- ↑ Consistency
- ↑ Competing (↑ of salient stimuli)
- ↓ Predictability
- ↓ Familiarity
- ↓ Speed

Other considerations for Low Registration
- There could be safety issues related to not noticing
- Will probably have a high level of tolerance for different types of environments so capitalize on flexibility
- Cues are an essential strategy because it increases accessibility of salient/important information

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**Sensation Seeking – More than Others**

- ↑ Intensity
- ↑ Amount
- ↓ Consistency
- ↑ Competing
- ↑ Predictability
- ↓ Familiarity
- ↓ Speed

Other considerations for Sensation Seeking
- Incorporate additional sensations into daily routines
- What may be distracting for others, may help increase arousal/promote attention for sensation seekers

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**Sensory Sensitivity – More than Others**

- ↓ Intensity
- ↓ Amount
- ↑ Consistency
- ↓ Competing
- ↑ Predictability
- ↑ Familiarity
- ↓ Speed

Other considerations for Sensory Sensitivity
- How capable is person of assimilating multiple stimuli (may be sensitive but able to handle/process information effectively)
- Otherwise remove distractors and create organizational systems

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**Sensation Avoiding – More than Others**

- ↓ Intensity
- ↓ Amount
- ↓ Consistency
- ↓ Competing
- ↑ Familiarity
- ↓ Speed

Other considerations for Sensation Avoiding
- Be sure to distinguish low registration and avoiding because approaches are often contradictory
- When possible give the individual control over the environment when introducing sensory input
- Be aware of potential for social isolation

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**Distress Tolerance**

- Idea comes from dialectical behavior therapy
- There are times when will have to tolerate an uncomfortable situation
- Develop coping mechanisms for managing those times

Information is Part of the Intervention
- Awareness of personal preferences increases self-awareness and is reassuring
- Provide information to relevant others – spouses, employers, parents, teachers, so that they can understand

Incorporate Breaks
- Aversion may need to leave the party and retreat to the kitchen
- Seeker may need to leave a long lecture and go outside for a run

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**Other strategies……**
Other Strategies Continued

Provide Strategies for Meeting Needs Internally

• Self talk
• Meditation
• Chew gum
• Rock
• Deep breathing

Use Others as Intervention

• To help focus attention
• To provide feedback about behavior
• To reassure
• To distract

Case Study #1 - Jane

• 25yr old female
• Diagnosed with conversion disorder at the age of 16 started cutting at the age of 18 and was diagnosed with borderline personality disorder at the age of 19.
• By 2011 her self-harm had started to increase in intensity, frequency and severity.
• Triggers for self-harm included: experiencing boredom, interpersonal conflict, loneliness, situational stresses, emotional distress and longing for the thrill that self-harm provides.
• She has had multiple admissions to multiple hospitals with some presentations requiring hospital admissions due to the severity of her wounds.
• A common pattern would be that she would be very keen to be discharged as soon as she was medically cleared.
• Jane is not suicidal, however it is common for her to display aggressive behaviours (verbal aggression and/or throwing objects).

Treatments have included pharmacological treatment, psycho-social support, psychological counselling, completing DBT program and ECT.
• During this admission she has been diagnosed with high-Functioning Autism.
• Jane is the eldest of 4 siblings. Her parents divorced when she was 4yrs old.
• Both her parents and step-parents have been very involved in her care. She lives at home with her mother, step-father and siblings.
• Her mother reports that growing up she liked sports and did not like parties. She could not handle loud music. She was bullied in high school.
• She spent a brief time in the Navy but was discharged not long after she graduated due to poor attitude, failing exams and frequently getting into trouble.
• She worked briefly as an AIN, in childcare, plumber and as a pet shop assistant. She reports she would ideally like a vocational role with State Emergency Services, Police or working with animals.

Sensory Hypothesis

Jane is likely to have a profile of “more than others” for sensory seeking in the areas of tactile, proprioception and movement. She might also be low registration in these areas and the combination of the two might be leading her to self-harm to get the increased sensation that goes along with it.

Jane is likely to be “more than other” on either sensory sensitivity or sensory avoiding in the auditory area. Perhaps auditory input is a trigger for her aggressive behaviours and/or her self-harming.
Sensory Profile Results

Intervention

- You work together with Jane to identify areas where she feels like she would like to increase her participation and areas where she already feels like she is having success or had success in the past.
  - She identified that she feels most calm and in control when participating in sports or when being around animals. You highlight the areas in the SP that support this (tactile/movement seeking).
  - She identified that she would like to have more successful employment and social experiences. You discuss how too much noise and/or not enough movement may be impacting these areas.
- You refer Jane to a career counselor who can help identify roles where Jane will be able to have movement throughout the day, possibly with animal involvement.
- You also work with Jane to better recognize situations that are likely to be overwhelming and teach strategies for coping.
- You work to increase the sensory properties she seeks throughout the day.

Case Study #2 - Jimmy

- 24 year old, single male
- Diagnoses of schizophrenia and mild intellectual disability
- Sentenced until 2018
- Charged with assault, threatening behaviour
- Currently in lock-down 23 hours per day because he was too unpredictable and was frequently getting into fights
- When in his cell has lots of attention-seeking behaviour (yelling, singing, banging on door)
- States that his goals are to get out of lock-down and be able to socialize more. Also to be able to go to the gym and get exercise.
Jimmy is likely to have a profile of "more than others" for sensory sensitivity, although it's unclear which sensory systems will contribute to the score.

Jimmy is likely to be "more than others" on sensory seeking in the auditory area. This stems from him making a lot of noise when he is in lockdown, however, it's also possible that this is due to attention-seeking behaviour rather than sensory-seeking.

Things to Consider:
- What causes Jimmy stress or discomfort?
- What things does he find calming?
- What are some areas where we might teach Jimmy some coping strategies?
- How might we modify the environment?

Keep in Mind the Unique Setting:
- Very strict limitations on what can be brought into cell
- Need to be creative about using what is in the environment
Intervention

- You start by looking at the inputs Jimmy seeks to see if there are ways to incorporate more of these within his environment.
  - You spray his bed sheets with calming scents and give him stronger smelling soap/shampoo.
  - You give him exercise routines he can do in the confines of his cell.
- You think the calling out is more attention seeking than sensory seeking. He said he misses the social interaction. You work with the C.O.s and identify another inmate who would be a good match to sit outside of Jimmy’s door and talk to him for short periods throughout the day.
- Another issue that has come up through discussion of the sensory profile is that he often misses the announcement that it’s time to get medication (due to low registration in the auditory area). When he misses his medication he tends to deteriorate quickly. You discuss that most announcements are for staff, not for inmates. When it is an inmate announcement, they start the announcement “attention inmates.” You practice tuning into these words as a trigger for him to pay attention.

Intervention Continued

- You work through why being in the common area is so challenging for him. When he gets out of solitary confinement, you want him to have more success with fewer escalations to fighting.
  - You work out that it is likely a combination of overwhelming auditory input + visual input + people bumping into him that results in overload.
  - He likes playing games so you encourage him to go into the common area for one game of cards or checkers and then give himself a break back in his cell. After a period he can go back out for another game.
  - You help him to understand his triggers and early warning signs so that he can remove himself from the situation before it escalates.
  - You look at strategies such as positioning himself in the room so that his back is to a wall. This will prevent incidental contact that he can’t see coming. You also look at positioning himself at the far end of the room from where the T.V. is located, as that adds a lot of extraneous auditory and visual input.

Thanks for your attention!

Any questions?

amy.schulenburg@pearson.com
0407 259 317

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