IMPLEMENTING SENSORY BASED STRATEGIES IN A PEDIATRIC EDUCATIONAL DAY TREATMENT PROGRAM

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LEARNING OBJECTIVES

1. Review of sensory processing and self regulation in school based trauma informed programming to facilitate occupational participation and decrease the use of restraint and seclusion.

2. Analyze the theory, evidence, and research supporting implementation of self-organizing sensory strategies, equipment and spaces for settings for children and youth with mental health and neurodevelopmental needs.

3. Analyze the process Spurwink has taken to implement sensory strategies and spaces in 5 day treatment programs and the current research project of the effectiveness of these strategies to influence restraint and seclusion. The research is in partnership with the University of New England’s Occupational Therapy Department.
THEORY AND LITERATURE

- **Sensory Integration**: The work of A. Jean Ayres (1979) widely used for children with attention deficit hyperactivity disorder, developmental coordination disorder, and autism (Pediatric Therapy Network, 2005).

- **Sensory processing**: The work of Dunn (1997; 2001).

- **Sensory strategies**: Champagne (2011); Champagne, Koomar, & Olson (2010); Lane and Schaaf (2010); and Loukas (2011).

- **Trauma informed care**: Protocols of individualized support, voice and choice, and use of results in crisis planning (National Association of State Mental Health Program Directors [NASMHPD], 2006).

- **Sensory Strategy evidence**: Researchers in a meta analysis reviewed 17 studies on the outcomes of sensory strategies and found that these assist clients to regulate physiological and emotional arousal in a non-invasive, self-directed, and empowering manner consistent with the Recovery Model of care (Scanlan & Novak, 2015).
SENSORY THEORETICAL FOUNDATION

Sensory Integration/Dynamic Systems
(Champagne, 2011; Scanlan & Novak, 2015)

Sensory Integration
• Requires an OT to direct the session
• Understood by the OT; challenged by some administrators
• Utilized in a specialized “pull out” space that are not safe to access during the day
• Limited evidence for long term outcomes

Dynamic Systems
• Self directed access to sensory input
• Understood by the client, teacher, direct care workers, and family
• Utilized in order to participate in daily occupations and routines
• Becomes a life strategy and part of the daily routine
SENSORY STRATEGIES/SELF REGULATION

An evolved theoretical perspective emerging from sensory integration or sensory modulation.

Dynamic Systems Theory (Champagne, 2008)
- Facilitates occupational participation throughout the day and across contexts
- Establishes the client as the agent of change
- OT acts as initiators, caretakers, and outcome keepers
- Adds value to the day treatment setting

How this changed OT at Spurwink:
- Integrated OT strategies throughout the milieu
- Increased awareness of sensory based theories, strategies and techniques with educational staff
- Implemented another framework for reducing the use of restraints and seclusions for youth
- Facilitated carry over and practice from direct treatment sessions
DYNAMIC SYSTEMS THEORY
Also called Nonlinear Science, Chaos/Complexity.

- Self-organization: views humans and the nervous system as always changing and influenced by meaningful input.
- Interconnected to dynamic contexts
- Unpredictable
- Attracted to input that emerges into equilibrium
- “Butterfly power” and butterfly effects

(From Champagne, 2011, p. 8, 9, 10)
EVIDENCE-BASED PRACTICE

Research question:

What are the effects of self-organizing sensory strategies on occupational participation for clients with behavioral difficulties in a day treatment setting? Study implemented by design of OT with consultant Tina Champagne. Evidence will be gathered through mixed method review.

This study was approved by the Institutional Review Board of both Spurwink and the University of New England in 2016.

Spurwink embarked on a program to decrease restraint and seclusion in 2015. This program was brought forward by their occupational therapy department. Occupational therapy students have developed programs for Spurwink. This study would look at outcomes of these projects and may be more specific for student research in the future.
Implementation of Strategy Rooms at Spurwink Day Treatment Programs
Case Example:
- 16 yo male
  - History of unsafe behaviors including aggression, assault, self-injury and property destruction.
  - Diagnoses: Autistic disorder, Anxiety disorder, ADHD
  - High restraint list since August 2015.
  - Moderate restraint numbers (more than 5 each month) between 4-13 per month across day and residential treatment

https://youtu.be/RevGxXKh2y4
PROCESS

Step 1: Summer 2014- Fall 2015

- Agency and leadership support
  - Spurwink’s Strategic Plan
    - Focus: Reduction of restraint numbers across the agency
  - Spurwink’s Restraint Reduction Team
    - Determined a need to change the rooms (called LifeSpace rooms) which many students utilized when dysregulated.
- Initial thoughts were to include some sensory based strategies and equipment
- Paint the rooms a more welcoming color
- Include chalkboard/whiteboard paint
- A preliminary equipment list was developed
PROCESS


- Partnership with UNE OT Department
  - UNE student sensory projects
  - Tina Champagne workshop
  - UNE Student involvement and literature review
  - UNE/Spurwink umbrella IRB proposal/acceptance
  - Grant proposal and funding for materials/equipment
  - Pre-survey developed (Spurwink)
  - Focus group questions and protocol developed (UNE Students)
  - Strategies for monitoring sensory strategy utilization finalized
  - April 1: UNE/MMC poster proposal
  - UNE OT Students observe OT milieu and sensory spaces
  - Addendum IRB proposal targeted for April 18
PROCESS

Step 2 Continued...

- Consultation with Tina Champagne at Spurwink
  - First consultation was with agency OTs
  - Second consultation was with agency administration, program directors, assistant program directors of education, OTs
    - Primary focus: *Culture shift*

- Grant awarded from the Davis Foundation in the amount of $15,000 in December 2015

- Input from each program’s OT was utilized to develop individualized equipment lists for each program
PROCESS

Step 3: May 1-December 2016

• Implementation
  – Surveys
  – Focus group with UNE research group and Spurwink OTs
  – Purchasing of equipment
  – Trainings at day treatment sites
  – June: AOTA proposal submitted
  – Tracking begins after trainings and continues through December
PROCESS


• Data analysis and dissemination
• Continued implementation
  – Measurement and data gathering/analysis
  – Case studies
  – Article for publication (students plus team)
  – AOTA presentation in Philadelphia March 30-April 2, 2017
EQUIPMENT

- LL Bean Camp Rocking Chairs
- Bean bag chairs
- LED Lights
- Mats
- Play Moby
- Mats
- Hammock swing
- Trampoline

- Creation of Technology Cabinet
- Hand fidgets
- Tents
- Fiber Optic lights
- Stretch Eeze
- Weighted shoulder animals
- Sit and spin
Sensory Processing
Sensory information flows into our bodies at every moment of every day. The intake, processing, and organization and of sensory information:

Is an *unconscious process* of the brain (like breathing and digestion)

*Organizes* information that is detected by senses

Gives *meaning* to the incoming information by sorting through and selecting what to focus on (listening to a conversation, not the person across the room tapping on the table)

Allows us to act or *respond* to a situation in a purposeful manner to form perceptions, behavior responses and therefore learn.

Ayres, A.J. (1979)
Our nervous systems are like a highway; with information coming in and going out, jetting off exit ramps and entering through on ramps. Most of our nervous systems work without flaws, or accidents, or traffic jams.
Neuro-Typical

Arousal Level

High Arousal

Optimal Arousal

Low Arousal

Time of Day

Waking up
Mid-Morning
Lunch
Afternoon
Dinner (Putting kids to bed)
Bedtime

Groggy and don't want to get out of bed

Arrive at work

You are calm, organized and focused

Go for a run

You feel calm, organized and focused after the run
Children with sensory processing or sensory integration problems have nervous systems that have 6 or 7 car pile ups and traffic backed up as far as the eye can see.
Those traffic jams and 7 car pile ups can begin to move along nicely. For our students, a deer suddenly jumps in the middle of road. Our students are not able to apply the brakes soon enough to prevent further traffic back-ups.
When a child has these “car accidents” and “traffic jams,” they have a difficult time interpreting, organizing and creating purposeful responses for all the sensory information that is bombarding their nervous system.
Figure 5. Pyramid of Learning. (Williams & Shellenberger, 1-4)
Sensory input can act as the traffic cop directing traffic to ensure it moves along correctly. This is a PROACTIVE decision which included thought and planning between the construction company and police department. Just as our sensory or emotional regulation input is most effective as a PROACTIVE approach to regulation.
Trauma Informed Care

• The use of self-organizing strategies versus restraint and seclusion (which can re-traumatize)

• Spurwink is a trauma informed agency. All staff are trained from this framework and is a crucial theoretical piece of the strategy room implementation.
WHY IS REGULATION IMPORTANT?

• Manage emotions/feelings and physiological arousal
• Available for learning
• Focus and alert
• Interact, explore, engage, and take risks
• Tolerate others, the environment, and change
• Use situation-appropriate emotional responses
• Give ourselves choices of how to react or respond
• Access previously learned information
• Transition between activities and environments
WHERE IS YOUR ENERGY?

These concepts are adapted from Zones of Regulations (Kuypers, 2016), The Alert Program (Shellenberger and Williams, 1996), and Attachment, Self-Regulation and Competency (ARC). (Anna find ARC ****)

http://www.zonesofregulation.com/research.htm

http://www.alertprogram.com/research.php
Modifications to Thermometer to adapt to multiple developmental levels and abilities in regards to recognition of regulation levels.
PRELIMINARY DATA

Average Change in Thermometer Check-in
by "Entering" check-in score

Average Change

-5 -4 -3 -2 -1 0 1 2 3 4 5

Entering Score (1-10)

0 1 2 3 4 5 6 7 8 9 10
ALEXANDER: A CASE STUDY

15 years old with a history of disruptive behavior, and early childhood trauma:

**Diagnosis:**

Axis I: Oppositional Defiant Disorder, ADHD, Combined type, possible Post Traumatic Stress Disorder

Axis II: Intellectual Disability, Mild-Moderate

Axis III: No History of contributing medical problems.

Axis IV: History of Severe Psycho-Social Stressors related to Primary Support Group

Axis V: GAF = 45

**General Arousal:** Impaired – Hyper active activity level, task focus is low and easily distracted and impulsive.

**Cognitive Functioning:** Impaired – Difficulty with social interactions, difficulties using effective coping strategies, emotional regulation and hyperactivity.

**Psychosocial functioning:** Impaired – Difficulty with emotional regulation, often misinterprets social contexts and is easily frustrated.

**Sensory:** Alexander prefers to use the strategy room with the lights off, the door (with a window) closed so that both light and sound from outside are minimized. Alexander prefers to sit in a beanbag chair with a regular blanket and listen to music, or asks for deep pressure from staff on his back, arms and legs.
CASE STUDY QUOTES

Alexander: “It makes me calm down.”

Alexander’s teacher: (32 years of teaching experience)
“...I think the transformation to being so calm in voice and body when he is in the strategy room is wonderful. The change in him doesn’t last a long time, but even if it’s a short period of time what a nice feeling that must be for him. He talks in a lower and slower voice when receiving deep pressure. This helps a lot after he has been dysregulated. He is better able to hold a conversation and reflect on the issues at hand.”

Alexander’s BHP: (13 years of experience)
The strategy room is an excellent incentive for him to do more in academics. It also offers him more freedom of choice as to activities he can participate in, and he has the choice for what he would like to do in the strategy room. If he is dysregulated he often asks for deep pressure. When used appropriately by Alexander it also helps to build relationships between him and his staff person who is in there with him. It’s a great resource.
PHOTOS

The SPACE PLACE

EXPECTATIONS FOR STUDENTS USING THE SPACE PLACE

- In Just Right Gear while in the sensory room
- Follow staff directions
- Only one person at a time
- Must have staff with you
- Everything must stay in the sensory room
- Put all items back neatly
- Safe with all items
- Tell staff if you begin to feel sick

33
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Spurwink Occupational Therapists (not pictured): Ashley Esmiller, Dave Jordan, Jill Watrous, Kira Personette, Shane Smith, Anna Brown

The results of this research will be presented at the 2017 AOTA Conference in Philadelphia on April 1.
REFERENCES


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