Creating Sensory Friendly School Environments to Promote Positive Participation for Students With and Without Disabilities

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Objectives:

- Identify sensory aspects of the school environment that create barriers to participation for children with and without disabilities
- Describe collaborative strategies designed to modify the sensory environment to assist students in feeling well and doing well
- Apply sensory based strategies at the universal (whole school), targeted (mild sensory challenges) and intensive levels to support successful participation
Sensory Processing – Why is this important?

- Youth with disabilities may experience everyday sensations with more or less intensity than peers without disabilities
  - challenges with emotional regulation, attending, social interaction, and behavior

- Professionals and families need a working knowledge of how the sensory aspects of the environment might influence behavior and social interaction
  - How to make adaptations to support success
What IS sensory processing?

- A person’s way of noticing & responding to sensory messages from their body and the environment
- Nervous system processes sensory input

(Dunn, 2007; Miller, 2006)

Our Senses

…allow us to experience & respond to the environment

- Vision
- Hearing (auditory)
- Touch (tactile)
- Smell (olfactory)
- Taste (gustatory)
Two ‘hidden’ senses

- **Vestibular** – located in inner ear; assists in balance and allows us to tolerate everyday movement; tells us if we’re moving or still

- **Proprioceptive** – input received from receptors in muscles, tendons, & joints; helps us know where our body parts are and where we are in relation to the environment
Sensory Inventory

Stand up if you like what’s on the following slide
We are all unique sensory beings

- We respond to everyday sensory events in individual ways
- Resulting in unique sensory preferences that are reflected in – what we eat, wear, do – and how and where we socialize … how we function every day!
Most people…

- Have **moderate responses** to sensory input allowing for successful participation in daily life activities.
Children with disabilities may respond to sensory input in more extreme ways

- Tend to observe more intense responses
  - Autism spectrum
  - ADHD
  - Prodromal state of psychosis
  - Anxiety
TWO Major Patterns of Sensory Processing

1) OVER-responsive to sensory input
   - Responds to sensory input more intensely, more quickly, &/or for a longer period of time
   - Notices stimuli more easily than others
   - May occur in one or more sensory systems
   - RESPONSE: May see →
     • Sensory avoidance
     • Hyper-reaction to a non-noxious situation
Over-responsive to sensory input

**Sensory Avoider**

- Actively avoids sensory input to protect self from over-stimulation

- Emotional & behavioral responses
  - hyper-vigilant of environment
  - may be fearful or anxious
  - easily upset with certain input
  - distractible
  - may have difficulty completing tasks
SensoryAvoider

Examples:

- **SOUNDS:** Crawls under a desk in a noisy room; seeks out quiet places
- **TOUCH:** Refuses to touch paint or glue; wears only soft, stretchy clothes; refuses to eat certain foods because of texture or taste
- **MOVEMENT:** Avoids playground equipment (e.g. swings, slides, etc.) or sports
Over-responsive to sensory input

Hyper-reactive to sensory input

- Over-reacts to non-noxious sensory input
- Behavior/affect: Easily overwhelmed & stressed; may seem aggressiveness

Examples:
- **SOUND**: screams or covers ears with sudden loud noises (fire drill, vacuum cleaner);
- **VISUAL, Olfactory, Auditory**: Irritable during lunch in the cafeteria, crowded hallways
- **Touch**: Cries when hair is combed or teeth brushed
2) Under-responsive to sensory input

- Responds less to sensory input; has a high-threshold; person misses stimuli that others notice easily; system needs stronger input to activate

RESPONSES – See either →
  - Sensory seeking
  - Less reactive to input; passive, withdrawn
Under-responsive to sensory input

Sensory Seekers

- Actively tries to meet needs for increased sensory input
- Behavior/affect: heightened arousal; may be highly active but disorganized

Examples:

- **MOVEMENT**: Climbs on furniture; can’t sit still
- **PROPRIOCEPTIVE**: Bumps or crashes into things; asks to wrestle; clumsy
- **TACTILE**: Excessive touching
- **SOUND**: Make sounds with mouth, hums, talks to self
Under-responsive to sensory input
Less reactive to input

- Requires a lot of input before responding
- Behavior/affect: decreased arousal and delayed attending; may have flat affect
- Slow to take action
- May be a passive observer
- Less socially active
“It is not the intense sensory processing patterns that matters; what matters is how that pattern affects the person’s ability to participate in everyday life.”

Participation throughout the day
Role of OT in School-based Environmental Modification

- OTs receive core knowledge in sensory processing evaluation and intervention
  - Neuroanatomy, physiology, pathology
- **One of OT’s objective** - Implement interventions within the environment to promote
  - success in academic tasks
  - participation in the school community
- **Services include**: inservices, consultation, classroom adaptation, and direct intervention
Tiered approach to addressing Sensory Needs

Tier 3 ➔

Tier 2 ➔

Tier 1 ➔

Universal

- Schoolwide prevention and health promotion programs

Targeted

- Provision of services to specific groups of students who are at risk for additional difficulties

Intensive

- Provision of intensive, systemic support for individual students (e.g., wraparound services)
Tier 1 Universal, Whole School Strategies

- **EDUCATION to enhance understanding** - student, families and school staff about sensory processing, impact on behavior, & accommodations – and the meaning of behavior from a sensory processing perspective → ALERT Program for self-regulation

- **MODIFICATION of the PHYSICAL ENVIRONMENTS** to foster
  - Sensory processing
  - Attending behaviors
  - Emotional regulation
  - Social participation
Optimal Learning Environments

- If an environment feels physically uncomfortable, psychologically unfriendly, or threatening
  - it won't be a good learning (or social) environment
  - the tendency is to escape from it rather than learn in it

Sensory Friendly Spaces

- Include both passive & active spaces

  - Places for reflection and retreat away from others
  - Places for active engagement
Environmental Engagement in the Classroom

- Active Classrooms

http://www.mayoclinic.org/levine-classroom-future/
Linked Indoor & Outdoor Places

- Natural lighting
- Natural environment
  - Research has shown that human stress levels fall within minutes of seeing green spaces
  - American Architectural Foundation: Voice of the Student on School Design
    - http://www.archfoundation.org/aaf/gsbd/index.htm
Suggested Tier 1 Program
Drive-Thru Menus

Exercise Posters for Relaxation and Stress

Tere Bowen-Irish, OTR/L

- Stress relief & relaxation for the classroom
- Colorful classroom posters
- 10 exercises
- ‘mini-breaks’ throughout the day
Relaxation Menu - keep stress in check

- Uses short visualization and meditation activities to bring about a sense of calm
  - Go Play in Your Mind
  - Pat Pat Relax With That
  - It’s All in Your Head
  - Ready, Set, Imagine That
Belly Brain Waves
Active movements that symbolize getting rid of negative emotions caused by stress → will interfere with clear thinking
- Yes’s and No’s
- Sniff, sniff, puff, puff
- Massage Message
- Gathering Goodies
Tier 2 Targeted Services for Students At-Risk

- **Occupational therapist** - Screen at-risk children/youth for possible sensory processing challenges (e.g. autism spectrum disorder, anxiety disorders, those experiencing prodrome symptoms)

- **Modify environments** (e.g. classroom, cafeteria, playground, home) specific to the needs of at-risk students
How does your engine run?

The Alert Program for Self-Regulation
by
Mary Sue Williams & Sherry Shellenberger
Occupational Therapists

www.alertprogram.com
Overall goal → Successful participation at school which is dependent on -

- Being able to:
  - Attend
  - Perform necessary school tasks in multiple environments
What are the “traditional expectations” for attending?

- Sitting still
- Both feet on the floor
- Hands in your lap and out of your mouth
Let’s test your ability to attend

- Sit still, with both feet on the floor, & hands in your lap.
- Do not squirm or shift weight
- Focus on me and attend to what I am saying.
- No eating, drinking or doodling!
START!
For each child we need to ask:

- “What supports this child’s performance and under what circumstances?”

MORE SPECIFICALLY …

- How can the environment, objects, or activities be modified on an individual basis to promote optimal arousal in order to attend?
FOCUS of the program: Help students learn to →

- Monitor
- Maintain; and
- Change

... their levels of alertness for different situations and tasks by using a variety of sensory input
What is your “engine” anyway?

- The analogy of an engine is used to help children understand concepts of self-regulation.
“Your body is like a car engine. Sometimes it runs on high, sometimes it runs on low, and sometimes it’s just right.”
If it’s HIGH
....

If it’s LOW
....

If it’s JUST RIGHT...
Three stages of the ALERT Program:

**Stage 1** → Identify how your engine runs;

**Stage 2** → Learn how to change your engine levels by using sensorimotor strategies; and

**Stage 3** → Use sensorimotor input in order to regulate your engine for successful attending.
Stage One: Analyze engine functioning

- Apply the engine words (high, low, just right)
- Help students label their own engine and think about how it varies throughout the day
### How Does Your Engine Run?

<table>
<thead>
<tr>
<th>Feels Like</th>
<th>Low</th>
<th>&quot;Just Right&quot;</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake Up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At School</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Recess</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After Recess</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afternoon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After School</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Dinner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinner Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After Dinner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Homework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching TV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Bed Time</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Williams, Shellenberger  A-7
Stage Two: Experiment with methods to change engine level

- Introduce the various sensorimotor methods that may change engine levels; experiment with strategies
- Identify sensorimotor preferences and hypersensitivities
Stage Three: Encourage student to regulate own engine level

- Have students use the various strategies to regulate own level of alertness
- Collaborate with teachers to make sensory strategies made available in classrooms for student use
Sensorimotor Strategies →
Five ways to change your Engine:

1. MOUTH ‘work’
2. MOVEMENT
3. TOUCH something
4. VISUAL; or
5. AUDITORY

Have the child begin experimenting with these sensory strategies and observe the effect on attending.
Keep in mind … Sensory strategies can either INCREASE or DECREASE levels of alertness.
MOUTH work

- **Chewing** (provides heavy work to jaw; chew on gum, licorice, hard pretzels, carrots, apples, raisins, etc.)

- **Sucking** (has an organizing effect on behavior; sucking hard candy, sipping through straw or water bottle)
Move

- Movement provides both proprioceptive and vestibular input
  - **Proprioceptive**: Input to muscles and joints received via “heavy work” – e.g. pushing, pulling, jumping, carrying, squeezing, etc.
  - **Vestibular**: Input to inner ear through movement
Movement strategies

- Allow movement breaks during school day or long homework periods
- How? Be creative!
  - Stand and stretch
  - Run errand to office
  - Exercise break (take a walk)
  - Sit on therapy ball or move-n-sit cushion
  - Stand alongside table
  - Arm wrestle
  - “Dancing flower”
  - Etc.
Touch

- Allow child to “fidget” with certain items
  - Koosh ball
  - Squishy hand balls
  - Silly putty
  - Stress balloon
  - Twisty toy
  - Kneadable eraser
  - Etc.
Look

- Dim lights to help children calm down
- Brighter light to "awaken" nervous system
- Lava lamps (calming)
Listen

Consider individual needs for either complete quiet or background noise

- **Quiet**: sound deafening headphones; quiet, secluded areas

- **Background noise**: may prefer background music or noisier atmosphere
**ZONES of Regulation – Leah Kuypers**

Began as a Tier 2 and 3 Intervention

Is growing into a school wide initiative

Leah Kuypers, MA, OTR/L created *The Zones of Regulation®* author of the book and app by the same name (2011, Social Thinking Publishing; 2013, Selosoft, Inc). See [http://www.zonesofregulation.com](http://www.zonesofregulation.com)
Zones of Regulation

- Teaches social emotional vocabulary
- Uses behavioral cognitive strategies for interventions
- Uses sensory processing strategies for interventions
- Teaches perspective taking
- Students learn to match ‘zone’ with activity
- Students identify personal triggers
- Students create personal tool box of strategies
Self regulation is the ability to control and manage your own behavior or actions.

It allows one to do what needs to be done and to be in the optimal state for the given situation.
What zone am I in today?
Blue Zone: Moving Slow

★ sick
★ tired
★ sad
★ depressed
★ bored
★ shy
★ hurt
★ exhausted
Green Zone: Good to Go

★ Focused & Ready to Learn
★ Happy and Content
★ Thankful
★ Calm and relaxed
★ Okay
★ Good Listener
★ Proud and appreciated
Yellow Zone: A little out of control

- excited and silly
- frustrated/worried
- overwhelmed
- scared
- upset and annoyed
- jealous
- confused
- embarrassed
- grouchy/crabby
- nervous
Red Zone: OUT OF CONTROL

- Angry
- Mean
- Mad
- Feel like yelling
- Feel like hitting (aggressive)
- Terrified
- Elated
Tier 3 – Intensive Individualized Occupational Therapy

High risk: Autism, ADHD, multiply involved
May see significant behavioral outbursts because of sensory challenges.

- Evaluate individuals: Identify patterns of sensory processing (over-responsive, under-responsive) and impact on participation
  - Evaluation - The Sensory Profile (Dunn, 1999)
- Interventions based on individualized need and setting. Develop a sensory diet for the student.
- Educate to enhance understanding about the meaning of behavior from a sensory perspective
Incredible 5-Point Scale

Kari Dunn Buron & Mitzi Curtis, Teachers

- Teaching social understanding to students with autism spectrum disorder (ASD) and similar challenges
- In a concrete, systematic way
5-Point Scale is a Teaching Tool
Steps to creating a scale

1. Determine the problem
2. Identify the skills/social concept needing to be taught
3. Break it into 5 parts from smallest (#1) to biggest (#5)
4. Use a story to teach the scale
5. Use the scale in real situations by using a small portable scale
Example of Situations

- Anger
- Touching
- Voice control
Voice Control

1) Point to where child is on scale
2) Move finger down scale to where you want child to be

<table>
<thead>
<tr>
<th>Level</th>
<th>Voice Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Screaming</td>
</tr>
<tr>
<td></td>
<td>Emergency Voice</td>
</tr>
<tr>
<td></td>
<td>Someone is hurt or you are in danger</td>
</tr>
<tr>
<td>4</td>
<td>Outside Voice</td>
</tr>
<tr>
<td></td>
<td>Recess voice, cheering at a game, or calling the dogs outside</td>
</tr>
<tr>
<td>3</td>
<td>Classroom Voice</td>
</tr>
<tr>
<td></td>
<td>Talking voice</td>
</tr>
<tr>
<td>2</td>
<td>Whisper</td>
</tr>
<tr>
<td></td>
<td>Soft voice / Library voice</td>
</tr>
<tr>
<td>1</td>
<td>No Talking</td>
</tr>
<tr>
<td></td>
<td>It's time to listen</td>
</tr>
</tbody>
</table>
Screaming
Outside voice
Inside voice
Whisper
No talking
Summary

- Students (and adults) demonstrate a range of sensory processing patterns
- Differences need to be acknowledged and respected
- Embed a range of strategies to help students function:
  - Sensory strategies
  - Relaxation & stress reduction
  - Cognitive behavioral strategies