Checked Out & Disengaged?
Research-based Strategies for Increasing
Attention and Engagement in Students with
ASD

Part One

Objectives
• Participants will recall the research and theories regarding attention and engagement in students with ASD and how these attributes may differ from typically-developing students
• Participants will be able to describe antecedent and reinforcement-based strategies that can be used to increase attention and engagement
• Participants will be able to explain how to reinforce attention & engagement as well as develop strategies to move students toward greater self-management

Early Motivation Research
• “In general, autistic children appear very unmotivated.”
Motivating Autistic Children, Koegel & Egel, 1979
Today’s View of Motivation

- Not *un*motivated, but *differently* motivated
  - Special interests
  - Lack of social motivation
  - Sensory differences

- Better understanding of *attention* in ASD

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Motivation – Attention Connection

- If students with ASD are differently motivated and easily distracted you likely will see problems with engagement in academic activities and the ability to sustain attention

> Motivation

> ![Motivation](image)

> Attention

> ![Attention](image)

> Learning

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From: Unstuck & On Target! An Executive Function Curriculum to Improve Flexibility for Children with Autism Spectrum Disorders (Cannon et al., 2011)
Attention

• “The process of concentrating on selected items from the environment, to the exclusion of other, unattended stimuli.”

   Ames et al., 2010, p.53

Breaking Down Attention

• Orienting – the initial physical adjustment toward a stimulus
• Sustaining – the ability to maintain attention to a stimulus
• Shifting - requires the individual to disengage from one stimulus and then shift and reorient to a new stimulus

   (Patten & Watson, 2011)

Attention Differences in ASD

• Young children with ASD have deficits in joint attention (Dawson et al., 2004)

• During play, toddlers with ASD focus more on background objects than on people’s activities (Shic et al., 2011)
Attention Differences in ASD

- Mixed results regarding sustained attention
  - Some studies have reported “overfocus,” or heightened sustained attention (Liss et al., 2006)
  - But others have reported deficits in sustained attention (Sinzig et al., 2014) and greater distractibility (Burack et al., 2015)

Why does attention matter?

- Impaired attention →
  - Distractibility
  - Impulsivity
  - Forgetfulness
  - Poor academic outcomes
  - Emotional & behavioral difficulties
  
  (May et al., 2013)

What causes attention differences?

- ~30% of children with ASD also meet criteria for ADHD (Leyfer et al., 2006; Simonoff et al., 2008)

- Children with ASD and ADHD have more behavioral difficulties than children diagnosed with either alone (Jang et al., 2013)
Intervening to address attention difficulties

For Children with ADHD:
• Strong evidence for medication effectiveness
• Strong evidence for behavioral intervention effectiveness

For Children with ASD & ADHD?
• Medication?
• Behavioral intervention?
• Clinical guidelines suggest behavioral interventions should be implemented first

Function of Behavior

• Behavioral intervention for students with attention difficulties should be focused on specific behavior concerns
  – What is inhibiting their ability to pay attention?
  – What is distracting them?
• Escape from instructional activities is a common maintaining variable for problem behavior.

• Antecedent and consequences of the behavior of concern need to be studied
• Antecedents will suggest environmental changes that set up the student for success or failure
• Analysis of consequences will identify those environmental contingencies that reinforce both desired and undesired behavior
Environmental Modifications = Optimal Outcomes

• Begins with knowing the unique needs of your student
• Involves changing physical environment as well as your interaction with student
• Can substantially impact success/independence in school environment when done properly

Getting to Know the Student

• Every evidence-based intervention begins here…
  – How does he/she learn?
  – How does he/she best communicate?
  – What are his/her special interests?
  – What are areas of challenge for him/her?
  – What has and has not worked for the student in the past? At home?

Using Formal and Informal Assessment Tools

• Student/parent interviews
• Discussion with last year’s team
• Observations
• Reinforcement Inventories
• Normed assessment tools
  – Social Skills Improvement System (SSIS)
  – Behavior Rating Inventory of Executive Function (BRIEF)
  – Educational testing
Assess the Environment

- Environments should be clear, comprehensible, free of unnecessary distractions
  - Space should define tasks & activities
  - Minimize decorative clutter
  - Maximize functional visuals
  - Organized, labeled, and accessible if appropriate

Classroom Environment

- Neat & orderly…functional visuals used throughout
Assess the Program

- Consider using the Autism Program Quality Indicators (APQI)
- Self-assessment tool created by NYS to determine quality of educational programs for individuals with autism
- Available as download
Assess the Program

- Autism Program Quality Indicators (APQI)
  - A tool developed by NYS State Education Department that assists professionals in educational settings to critically examine their program structure and activities
  - Organized into 14 areas: seven categories relating to the specific aspects of the educational process for students, and seven categories referring more broadly to program characteristics and supports

APQI Categories

- Individual Evaluation
- Development of IEP
- Curriculum
- Instructional Activities
- Instructional Methods
- Instructional Environments
- Review & Monitoring of progress and
- Family Involvement and Support
- Inclusion
- Planning the Move from One Setting to Another
- Challenging Behavior
- Community Collaboration
- Personnel
- Program Evaluation

Autism Program Environment Rating Scale (APERS)

- Product of the NPDC
- In development/piloted in several states and countries
- Training in using tool offered after July 2016
- Similar domains evaluated


## APERS Example

<table>
<thead>
<tr>
<th>ITEM</th>
<th>This is a challenge in our program</th>
<th>This element is consistently in place, but we still have work to do</th>
<th>This is a real strength in our program</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Team members often interact with students using a negative tone and do not appear respectful of students' cultural or linguistic diversity</td>
<td>Most key team member-student interactions are positive, respectful, and warm (e.g., show respect for student's feelings, listen attentively, make eye contact). These interactions appear respectful of students' cultural diversity</td>
<td>All team members in the setting engage students in positive, respectful, and warm interactions. These interactions appear respectful of students' cultural diversity</td>
</tr>
</tbody>
</table>

## Modifying Interactions with Students

- Get the student's attention
- Explicit, visual, concrete instructions
  - What does it mean to “be nice”?
  - What does it mean to “pay attention”?
  - What does it mean to “be ready to work”?
- Check for understanding
- Opportunities to practice
- Be prepared to explain changes or arbitrary rules

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**Group Work Rules**

1. Assign jobs: "I’ll do the first one, you do the next one."
2. Ask your partner’s opinion: "What do you think I should do?"
3. Take turns answering: "Your turn, you do this one."
5. If you have a question, ask: "We don’t understand this part."

www.theautismhelper.com
<table>
<thead>
<tr>
<th>Skill Type</th>
<th>Skill Level</th>
<th>Sample Instruction at developmental level</th>
<th>Sample Instruction above developmental level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptive communication</strong></td>
<td>Gestural</td>
<td>Hold up bucket and point inside</td>
<td>Say &quot;ball&quot; or &quot;roll the ball&quot; or &quot;block goes in&quot;</td>
</tr>
<tr>
<td></td>
<td>Single words</td>
<td>Say &quot;ball&quot; with open-hand prompt</td>
<td>Gesture may still be needed</td>
</tr>
<tr>
<td></td>
<td>Phrase speech</td>
<td>Say &quot;at the chair&quot;</td>
<td>Say &quot;both the green thing&quot;</td>
</tr>
<tr>
<td><strong>Reciprocal communication</strong></td>
<td></td>
<td>Say &quot;time to sit at your desk&quot;</td>
<td>Say &quot;get the puzzle and give it to Joe&quot;</td>
</tr>
<tr>
<td></td>
<td>Preverbal</td>
<td>Hold up ball and model pointing to it</td>
<td>Hold up ball and model saying &quot;ball&quot;</td>
</tr>
<tr>
<td></td>
<td>Single words</td>
<td>Hold up ball and wait especially</td>
<td>Hold up ball and model saying &quot;throw the ball&quot;</td>
</tr>
<tr>
<td></td>
<td>Phrase speech</td>
<td>Hold up ball and model saying &quot;roll the ball&quot;</td>
<td>Hold up ball and say &quot;what do you want&quot; or &quot;I have the ball&quot;</td>
</tr>
<tr>
<td></td>
<td>Reciprocal communication</td>
<td>Hold up ball and say &quot;this red ball rolls fast&quot;</td>
<td>Hold up ball and say &quot;I’m going to toss the ball in the bucket&quot;</td>
</tr>
</tbody>
</table>


Modifying the Environment: The Role of the Classroom Support Team
Classroom Support & Communication

- Promote inclusion
- Encourage independence
- Encourage pro-social choices
- Promote self-esteem
- Prompt attending to visual support materials
- Remind of reinforcement plan & rewards
- Assist with organization of materials
- Learn and promote behavior or instructional support plans

http://www.highered.nysed.gov/tcert/career/tavsta.html

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Classroom Support & Communication

- Be aware of student progress and accurately report to teacher as planned
- Assist with home-school communication
- Provide clerical support to teacher as needed
- Establish positive professional relationships with teachers, therapists, parents/guardians, students
- Use strategies, in liaison with teacher, to promote learning

http://www.highered.nysed.gov/tcert/career/tavsta.html

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Fostering Communication
Teachers – TAs & Aides

Appendix 2.1

PTR Classroom Team Survey

School: Name:

Directions: Complete this survey if the team meets regularly for planning purposes. Select the applicable number for each statement, then complete the questions that follow.

1. Our team meets for planning purposes:
   - Rarely: 1
   - Occasionally: 2
   - Frequently: 3
   - Usually: 4
   - Almost always: 5

2. Our team plans daily classroom activities collaboratively:
   - Rarely: 1
   - Occasionally: 2
   - Frequently: 3
   - Usually: 4
   - Almost always: 5

3. Our team plans collaboratively around implementing individualized education program objectives and making adaptations and modifications for the students:
   - Rarely: 1
   - Occasionally: 2
   - Frequently: 3
   - Usually: 4
   - Almost always: 5

http://www.highered.nysed.gov/tcert/career/tavsta.html
Appendix 2.2: PTR Teacher Work Style Survey

Directions: Select the number that indicates your level of agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like to supervise paraeducators closely</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>2. I prefer a flexible work schedule</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>3. I let paraeducators know exactly what is expected</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>4. I provide (or at least determine) all the materials that will be used</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>5. I provide a written work schedule</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>6. I expect the paraeducator to think ahead to the next task</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 2.3: PTR Paraeducator Work Style Survey

Directions: Select the number that indicates your level of agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like to be supervised closely</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>2. I like a flexible work schedule</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>3. I like to know exactly what is expected</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>4. I prefer to decide which materials to use</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>5. I like having a written work schedule</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
<tr>
<td>6. I need time to think ahead on the next task</td>
<td>1 2 3 4 5 NA</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 2.4: PTR Work Style Score Comparison Sheet

Directions: Transfer scores from the PTR Teacher Work Style Survey (Appendix 2.2) and PTR Paraeducator Work Style Survey (Appendix 2.3) into this form. Look for areas of agreement and disagreement. However, there are no right or wrong responses. Determine areas of concern and solutions in light of the areas of agreement and disagreement.

<table>
<thead>
<tr>
<th>Paraeducator</th>
<th>Item Content</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Modifying through Interspersal

- Alternating between maintenance and acquisition tasks
  - Maintenance task is something the student has already learned and mastered
  - Acquisition task is something the student is working on or just learning
- Increase maintenance tasks in alternation with some acquisition tasks if student is stressed

Examples

Math-Homework #7

1. 6 + 5 = ___

2. 12 - ___ = 4

3. 2 + 7 = ___

4. If there are 10 apples in a basket and Melanie takes 3 apples, Dylan takes 1 apple, and Ashley takes 4 apples but then puts 2 back, how many apples will be left in the basket?
Using Shared Control

• Teacher or adult is in charge of learning environment
  – Chooses materials, location, learning goals, etc.
• Choice highly correlated to motivation
• Sharing control or allowing student to direct some aspects of the activity increases likelihood of engagement and motivation

Ways to Share Control

• Follow student’s choice of materials
  – Can you teach addition using Legos, Star Wars figures, etc.?
• Follow the student’s lead
  – Let the student choose when to move to the next activity, allow them to ask for additional time with an activity
• Take turns
• However, maintain safety & appropriateness

Using Special Interests to Increase Engagement

• Many students with ASD have an area or areas of special interest
• SIAs can be used to increase engagement in academic participation and focus
<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Special Interest Area (SIA)</th>
<th>Academic/Social Task</th>
</tr>
</thead>
</table>
| Elementary School | Weather | • Create a graph depicting temperature changes during the month  
• Write a story about a character surviving a harsh climate or storm  
• Report day's weather at morning meeting |
| Middle School | Heating and Cooling Systems | • Using CAD, design simple system for home heating/cooling  
• Write essay on historical development of indoor heating/plumbing  
• Calculate fuel cost for winter using a number of variables |
| High School | Reality game shows | • Act as moderator for class debate  
• Write article or essay on psychological strategies used to win game shows  
• Calculate odds of winning show based on a number of variables |
Motivation

- Motivation is a key factor within all aspects of our lives
- Students with ASD are often labeled unmotivated or lacking motivation
- Motivation is a crucial component of skill-building; when it is lacking, learning may be impeded

Motivation

- Motivation is often thought of as a driving force of behavior
- It is common for motivation to be talked about as a “hidden force” inside of a person
- Is there a more concrete way to think about motivation?
Motivating Operations (M.O.’s)

- Refers to the internal processes or desires of an individual that change or improve the value of a certain stimulus
  - This change can improve the effectiveness or value of a reinforcer or it can reduce the value of a certain reinforcer

Motivating Operations

- Two M.O.’s that are important to consider when analyzing the effectiveness of a reinforcer are:
  - Deprivation
  - Satiation

Motivating Operations

**Deprivation:**
A child who has not been outside on the playground for some time may be more likely to engage in behaviors that have lead to playground access in the past. *This example assumes that using the playground functions as a reinforcer for the child.*
Motivating Operations

Satiation:
• Satiation can also serve as an M.O. during situations in which an individual has contacted a large amount of a reinforcer
• For example, a child who has just engaged in a long duration of playground time, may be less likely to engage in behaviors that have lead to playground time in the past

M.O.’s in the Classroom
• If a student is instructed to complete difficult math problems, the probability increases that the difficult math problems may evoke problem behaviors in order to escape the task
• However, if the student is instructed to complete easy math problems you are less likely to see problem behaviors because escape from the task is not reinforcing

Why is this important?
• Not considering the MO for a reinforcement system is to blame for many failed reward-based behavior management approaches
• Motivation has effects on both the acquisition of new skills and the current frequency of already acquired skills. Increasing motivation will increase both learning and performance
Preference Assessment

- Preference assessments are an incredibly important procedure in any behavior change program
- To effectively strengthen a behavior you must know which items or activities will act as the strongest reinforcers

Preference Assessment

- What is your student doing when they are not paying attention?
  - What makes them happy?
  - When do they smile?
  - When are they engaged?
Preference Assessment
• Caregiver report is not always the best indicator of actual preferences

• One study found a near zero correlation to what was chosen via a preference assessment and what was predicted by caregivers (Green et al., 1988)

• A study conducted with nine preschoolers with developmental disabilities found that systematic assessment identified more effective reinforcers than the teacher survey (Cole, Thompson, Hanley & McKerchar, 2007)

Components of an Effective Reinforcement System
• Defining expectations
  – Consider what you defined as appropriate expectations for attention and indicators of attention for each student
  – Consider the expectation for a typically developing student of the same age
  – Consider that a student with ASD may be paying attention to you even if they are not looking directly at you
Possible Indicators of Attention

• Student is looking toward the teacher
• Student is looking toward the teaching materials
• Student’s body is oriented toward the teacher or materials
• Student is not engaged in self-stimulatory behavior
• Student is not actively engaged with another object
• Student is reaching for the teaching materials

Components of an Effective Reinforcement System

• Reinforcing Response Attempts
  – All attempts that are clear approximations of the targeted behavior are reinforced
  – This may mean starting to reinforce small approximations towards the behavior and attempts of the behavior depending on the student’s current repertoire and ability
Components of an Effective Reinforcement System

• Reinforce Immediately Following Target Behavior
  – At first, reinforcement should be immediate
  – The sooner a consequence is delivered, the more effective it will be
  – An immediate consequence will make it clear to the student what behavior(s) result in reinforcement

• Waiting too long may decrease the power of the reinforcer and may also inadvertently reinforce some unexpected or unwanted behavior exhibited some time after the desired behavior, but before you provided the reinforcement
Components of an Effective Reinforcement System

- Use Labeled or Specific Praise
  - Specifying the target behavior, providing the reason for its delivery, and should be paired with a sincere, enthusiastic tone of voice
  - Provides guidance for future behavior
  - Provides contingent reinforcement that places emphasis on behavior
  - Facilitates discrimination as to which behavior is effective

Use Labeled or Specific Praise

“Nice job paying attention” VS. Example of specific praise

- Pairing
  - The repeated delivery of reinforcement with the presence of a particular stimulus
  - When reinforcement occurs in the presence of another person, the student learns that the person is a source of reinforcement and the person becomes a conditioned reinforcer
Components of an Effective Reinforcement System

- Have all adults who work with the student pair themselves with reinforcement

- We want the student to correlate responding to any adult’s directions or questions with positive reinforcement

Reinforcement System Examples

15 Minutes of

- Computer
- Praise Book
- Transparencies
- Recess
Self-Management

• Typical behavioral management approaches require adults to arrange learning opportunities, prompt and encourage positive behaviors, and deliver appropriate consequences (reinforcement)

• Self-management transfers these responsibilities to the learner
Step 1. Set a Goal for Receiving Reinforcers

Ok, to get a reward, you need to meet your goal for being in your seat.

Step 2. Select a Reinforcer

Which one of these do you think you’d like?

Step 3. Determine Student Evaluation Procedures

Tally Sheet
4. Deliver Reinforcer

Ms. Torri, I've met my goal and now I'm going to use my extra computer time.

Why Self-Management?

• Increases students' awareness of their own behavior

• Students become more independent, self-reliant, and responsible for their own behavior and less dependent on others

• Provides more immediate feedback to students than is possible when teachers evaluate the behavior

In Summary…

• Students with ASD and attention differences are a heterogeneous group. There is no one intervention (or set of interventions) that will improve the classroom functioning of all students with this disorder

• Classroom modifications should be tailored to the unique behavioral needs of each student

• Strategies should also be unique to each student and it is important to remember that in order for behavior change to occur, we must implement plans consistently
CARD Albany is now on Facebook  
https://www.facebook.com/cardalbany

Required Coursework for Special Education Professionals now online – “Responding to the Needs of Students with ASD”  
http://www.albany.edu/autism/nysed_autism_training.php

Online Distance Learning Training  
http://www.albany.edu/autism/33452.php

New York State Regional Centers for Autism Spectrum Disorders  
http://www.albany.edu/autism/nysrcasd.php

Questions?

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Email: card@albany.edu  
Website: www.albany.edu/autism