

HIGH IMPACT TECHNIQUES FOR ASPERGER'S IN THE CLASSROOM

Debbie Gochenaur, Shippensburg University

Andrew Geesaman, Greencastle-Antrim Middle School

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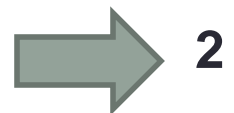
11am to Noon

260 (BCEC)

Finding high impact math classroom techniques that enable Asperger's students to succeed with little additional teacher preparation time required is difficult. We will discuss specific techniques, gleaned from teacher interviews, and the targeted manifestations that each addresses, from choosing and executing strategies to explaining and showing work.

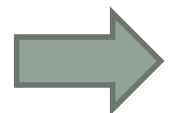
OUTLINE

- What is AS?
- Our research
- Categories
 - Social, Communicative, Cognitive, and Physical
- Discussion by sub-category
 - General manifestations
 - Translation to mathematics classroom
 - Teaching strategies from local teachers
- Teacher Tool



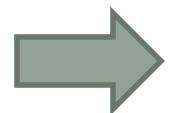
Please turn to a person near you

- Introduce yourself
- Tell them what you are hoping to get from this session



WHAT IS AS?

- AS is now part of the autistic spectrum disorder
 - More cognitively developed than students with autism
 - Socially challenged – both in interaction and language
 - Intense or unusual area of interest
 - Awkward movement – may appear clumsy or have choppy movement
 - Mind Blindness- inability to see things from another's perspective
 - **Every student is unique**
- AS in the mathematics classroom
 - Social & Communication
 - Cognitive
 - Physical

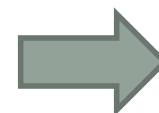


Future of AS

- **Reclassified in 2013** by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5)
 - Considered a higher form of Autism within the Autism Spectrum Disorder
- Unsure if the **International Classification of Diseases (ICD-11)** will include changes to AS diagnosis.
 - Expected to be published in 2017
- **Change in name** will not affect the students who have AS.
- **Number of diagnoses is increasing** and expected to continue.

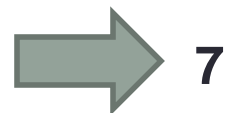
OUR RESEARCH

- **Surveyed** 100 local PA/MD teachers
 - 33% response rate
- Responses were **mapped** to known research
- **Patterns in replies** were used to develop a closed loop mapping
 - Manifestation
 - to Presentation in Math Classrooms
 - to Teacher Strategies
 - That addressed the original manifestation



GROUP DYNAMICS – GENERAL MANIFESTATIONS

- **Inability to work with others**
- **Dexterity issues**
- **Balance, Gait Issues**



GROUP DYNAMICS

– Translation to mathematics classroom

- **Inability to work with others**

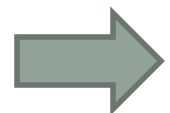
- Difficulties with partner work
- Could be due to anxiety and uncertainty
- Inability to work in small groups

- **Dexterity issues**

- Illegible handwriting

- **Balance, Gait Issues**

- Group Activities



GROUP DYNAMICS: *TEACHER STRATEGIES*

- **INABILITY TO WORK WITH OTHERS**

- Inability to work with a partner
 - **Selective Pairing**
 - *Students willing to work with the student and peers with whom the student is willing to work*
- Difficulty due to anxiety
 - **Pre-assigned pairings**
 - *Pre-knowledge of pairing allows adjustment time*
- Inability to work in small groups
 - **Assign roles to students in group**
 - *A set of expectations for how they should act in the group and what to expect from their peers*

Once more, turn to a person near you

- Which of the three techniques described
 - Selective Pairing
 - Pre-Assigned Pairings
 - Assigned Group Roles

can you see being useful in your own classroom?

If you have already used any of these techniques, please share with your partner how you implemented the technique successfully.



COMMUNICATIVE MANIFESTATIONS

- General manifestations
 - **Struggles with interactive questioning**
 - **Difficulty understanding directions**
- Translation to mathematics classroom
 - **Struggles with interactive teacher questioning**
 - Difficulty with social atmosphere
 - Sense of humor lags that of peers
 - Obsessed with extraneous facts
 - Words with dual meanings (plane/plain/(air)plane, sine/sign)
 - **Difficulty understanding directions**
 - Difficulty with both verbal and written instructions

STRUGGLES WITH INTERACTIVE QUESTIONING

– *TEACHER STRATEGIES*

- Difficulty with social atmosphere
 - **Use exaggerated non-verbal cues to add meaning to questions**
 - *Gives clues to help students understand meaning*
- Sense of humor lags that of peers
 - **Verbal and non-verbal cues**
 - *Amused expressions, or laughing - subtlety is not helpful*
- Obsessed with extraneous facts
 - **Use unambiguous Language**
 - *Focus on required context*
 - **Circle words, peer discussion**
 - *Draw attention to extraneous facts & clarify prior to discussing problem*
- Words with dual meanings (plane/plain/(air)plane, sine/sign)
 - **Circle words, peer discussion**
 - *Draw attention to dual meaning words & clarify prior to discussing problem*

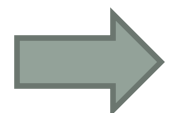
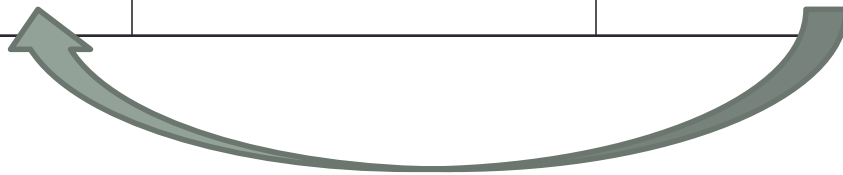
DIFFICULTY UNDERSTANDING DIRECTIONS

– *TEACHER STRATEGIES*



- Difficulty following verbal instructions
 - **Provide written directions to the student prior to the verbal explanation**
 - *Give student time to process the information*
- Comprehension of written instructions
 - **Student recitation of directions in own words**
 - *Aids translation*

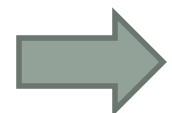
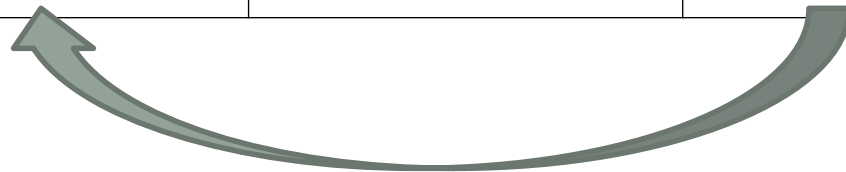
TEACHER TOOL

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Cognitive Manifestations		
Unusual/ Intense area of interest	→ Lack of focus or effort if interest is not math related	→ Inclusion of interest through word problems and project choices - <i>allows student to become the class expert, showing value to his/her contributions</i>



STUDENT CHOICE







General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Physical Manifestations		
Emotional Threshold 	Overstimulation 	Provide student choice - <i>provides control over environment</i> , alleviating feelings of helplessness and anxiety



PROBLEM DISSECTION

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Communicative Manifestations		
<p>→</p> <p>Comprehension of vocabulary</p>	<p>→</p> <p>Word problem comprehension</p>	<p>Graphic Organizers, manipulatives - <i>to aid translation</i> <u>- <i>key word strategies do not work</i></u> <i>for students with AS because of the ambiguity of words</i></p>
	<p>→</p> <p>Parsing multistep problems</p>	<p>Step-by-step guides - <i>break down the problem in sections to clarify focus</i></p>
	<p>→</p>	<p>Break into multiple single step problems - <i>class discussion, peer coaching to pre-determine game plan for individual problem</i></p>





PROBLEM DISSECTION, CONTINUED

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Cognitive Manifestations		
 Demonstrating Knowledge	 Limited or missing explanations and work shown 	<p>Break the question into a set of questions so each step is seen as an answer - <i>allows for repeated 'closure'</i></p> <p>Fill-in-the-blank solutions - <i>gives student opportunity to see solution expectations and show more details where needed</i></p>
 Organizational thought	 Jumbled Solution Work 	<p>Fill-in-the-blank solutions - <i>places focus on the thought process and analysis instead of worrying about missing steps</i></p> <p>Step-by-step instructions or checklist - <i>increases focus on analysis</i></p>





Once more, turn to a person near you

- How do you feel about breaking a question into multiple steps?
- Isn't the point of keeping it together having the student decide what to do first? Then next?

REDUCED PROBLEM SETS

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Cognitive Manifestations		
<p style="text-align: center;"></p> <p style="text-align: center;">Demonstrating knowledge</p>	<p style="text-align: center;">Limited or missing explanations and work shown</p> <p style="text-align: center;"></p>	<p>Provide a <u>reduced set of problems</u> - <i>showing more details on fewer problems</i> relieves stress due to slower work pace</p>
<p style="text-align: center;"></p> <p style="text-align: center;">Organizational thought</p>	<p style="text-align: center;">Trouble completing work</p> <p style="text-align: center;"></p>	<p><u>Reduced Problem Set</u> - <i>showing more details on fewer problems</i> relieves stress due to slower work pace</p>

GRAPHIC ORGANIZERS

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Communicative Manifestations		
Comprehension of vocabulary	Word Problem Comprehension	<u>Graphic Organizers</u> , manipulatives - <i>to aid translation - key word strategies do not work for students with AS because of the ambiguity of words</i>
Distractive behaviors 	Improper manipulative use 	Explain rules for use, in a graphic organizer for some students - <i>reinforcing rules consistently helps anchor good behavior</i>
Physical Manifestations		
Dexterity Issues 	Poor handwriting 	Provide note taking guides - <i>limits the amount the student must write</i>

GRAPHIC ORGANIZERS, CONTINUED

General Manifestations of AS	Presentation in Mathematics Classroom	Effective Teaching Strategies
Cognitive Manifestations		
Demonstrating knowledge	Limited or missing explanations and work shown	Provide a checklist - <i>relieves stress of knowing how much work to show</i>
Abstract reasoning	Cannot translate knowledge into new contexts	Provide graphic organizers, manipulatives - <i>provides connections so that extension to new scenarios can occur</i>

The CCSS world

- turn one last time to the person near you

- What are some other issues that have arisen in your work with students with AS as you have moved towards alignment with CCSS?

Sharing contact information

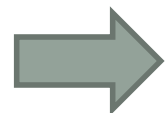
- If you have made a beginning connection with someone near you, please consider sharing your contact information so that you can network in an effort to best serve your students with AS.

Other thoughts – resources?

- Do you have something you would like to add to the discussion?

In Summary

- Nuances within the chart
- Keep an open mind
- Continue to strive to move your students' mathematical knowledge forward



Questions?

Debbie: dlgochenaur@ship.edu

Andy: ageesaman@greencastle.k12.pa.us