Welcome to the Center for Autism and Related Disabilities Seminar
This year, we are using a program called Mentimeter to increase participation and learning through interactive surveys and activities.

To gain access to CARD’s Mentimeter you can do one of two things right now:
Download the Mentimeter app on your smartphone/tablet (available on Android and Apple at no cost)
   Enter in code 52 23 32
OR
Go to www.menti.com from your phone, laptop or tablet
   Enter in code 52 23 32

Objectives
• Participants will be able to list characteristics of autism that impact learning.
• Participants will be able to recognize the critical role of language in developing academic skills.
• Participants will be able to describe strategies to increase academic skills, such as reading and writing.
What is Reading?

- Reading is:
  - “an interactive process in which the reader’s prior knowledge of the world interacts with the message conveyed directly or indirectly by the text” (Smith, 1995)

How do young children learn to read?

- Development of language
  - Foundation of literacy
- Interactive social process between child and adult, usually centered around story telling
- Reciprocal activity – pointing to pictures, turning pages

Typical Reading Development in Children

- Stage 1: Emerging Pre-Reader
- Stage 2: Novice Reader
- Stage 3: Decoding Reader
- Stage 4: Fluent & Comprehending Reader
- Stage 5: Expert Reader
Hyperlexia

- Word recognition skills far above reading comprehension skills
- After primary grades discrepancy between understanding is more likely to become noticeable compared to classmates
- Strongly associated with ASD:
  - Approximately 6-20% of students with ASD have hyperlexia (Ostrolenk et al., 2017)
  - 84% of individuals with hyperlexia have ASD (Ostrolenk et al., 2017)

Characteristics of Autism

- Persistent deficits in social communication and social interaction across multiple contexts (APA, 2013)
  - Sensitivity to story structure – especially when story includes social pieces (Randi et al., 2010)
  - Difficulty making inferences (Randi et al., 2010)
    - E.g., Narrative story structure → must determine character’s motives, emotions, perspectives

Effects of Social Differences on Comprehension and Literacy

<table>
<thead>
<tr>
<th>Area of Developmental Difference</th>
<th>Possible Effect on Literacy and Comprehension/Related Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Attention</td>
<td>Attention is a prerequisite for learning; the child with ASD may not pay attention to a shared object such as a book at the bidding of another or point to pictures or words to direct interest</td>
</tr>
<tr>
<td>Social Experience</td>
<td>Literal comprehension (due to limited world and word knowledge); inference, including inferring the meaning of unknown word from context Understanding of narratives, including plot, action and cause-and-effect</td>
</tr>
<tr>
<td>Social Understanding</td>
<td>Hard to relate to characters and situations in stories, integrate or connect the story to personal experience and understand the appropriateness of character actions and reactions</td>
</tr>
</tbody>
</table>
Communication and Language

- Use of context
  - “Gail was surprised when the dove circled the air and dove into the pool”
- Pronouns
- Questioning
- Auditory Comprehension of Oral Language

Effects of Language and Communication on Comprehension and Literacy

<table>
<thead>
<tr>
<th>Developmental Difference</th>
<th>Possible Effect on Literacy and Comprehension</th>
<th>Areas of Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Development</td>
<td>Differences in development of lower and higher level language skills affect comprehension at the word, sentence, and text level.</td>
<td></td>
</tr>
<tr>
<td>Recognizing and responding to nonverbal language</td>
<td>Recognizing and interpreting nonverbal cues described in literature, missing context cues and foreshadowing.</td>
<td></td>
</tr>
<tr>
<td>Difficulties with pronouns</td>
<td>Problems understanding pronouns in print and understanding to whom the pronouns refer (anaphoric cueing) causes confusion, loss of meaning; pronoun reversals.</td>
<td></td>
</tr>
<tr>
<td>Difficulties in conversation skills, including asking questions</td>
<td>Good readers ask questions before, during and after reading.</td>
<td></td>
</tr>
</tbody>
</table>

Iland, 2011

1 Word: “Dinosaur”
How it may be used...
Expanded Example: Answering Questions

My brother played with the dinosaur at the toy store yesterday


Where?  When?

Generally, consider the child’s use of language…

- Answers novel WH-questions about past events
- Asks questions using all “wh” under multiple conditions
- Initiates and maintain conversations
- Tells stories
- Describes steps of activities
- Follows multi-step directions

Characteristics of Autism

- Restricted, repetitive patterns of behavior, interests, or activities
  - Highly focused *(Autism Guidelines pdf)*
    - Good at decoding *(Arciuli et al, 2013; Randi et. al, 2010)*
    - Focused on the details
  - Limited vocabulary
### Effects of RRBs on Comprehension and Literacy

<table>
<thead>
<tr>
<th>Developmental Difference</th>
<th>Possible Effect on Literacy and Comprehension/Areas of Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow focus of interest/knowledge</td>
<td>Integration and memory: the process of “connection” can break down when the person has difficulty relating new information to what is already known and then storing it to be retrieved later. Generalization: the ability to transfer and apply known material to new situations.</td>
</tr>
<tr>
<td>Literal, specific, and concrete understanding</td>
<td>Generalization: Understanding may be narrowly contextualized, or bound to direct experience, limiting generalization of knowledge from one setting to another. Imagination: difficulty understanding material that is beyond the scope of the person’s actual experience.</td>
</tr>
<tr>
<td>Over-selective attention</td>
<td>Strong focus on a specific interest or detail can interfere with the ability to shift attention or pay attention to more than one thing at a time.</td>
</tr>
</tbody>
</table>

Iland, 2011

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### Secondary Characteristics of Autism (Autism Guidelines pdf)

- Theory of mind
- Executive functioning & working memory
- Weak central coherence
- Possible co-occurring conditions (motor), anxiety, ADHD

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*Figure 4.1: The Sally Anne scenario* Compendium from Baron-Cohen, Leslie and Frith, 1985 (with kind permission).
Theory of Mind

Strategies & Resources
- Understand that perception is relative
- Understand that the context of the event is important
- Video Modeling & Reinforcement

Executive Functioning & Working Memory
The ability to:
- To pay attention & shift attention
- To plan, organize, monitor, and regulate oneself
- The ability to hold information in one’s head and manipulate it
- Text integration (Randi et. al, 2010)
Strategies & Resources

Weak Central Coherence
• The ability to understand context, “see the big picture”
• Metacognitive monitoring (Randi et. al, 2010)

Strategies & Resources
• Direct teaching of language foundation which relationships
  – feature, function, class
    • Listener responding
    • Sorting items
    • Expressively identifying
• Highlighting
• Also teach homographs
  – ex. “record”, “dove”
Directly Teach: Parts of a whole & Main Idea

Look at the title. Look at the pictures.
Who + What Happened = Main Idea

Speech Providers
- Phonemic awareness or letter sound fluency
- Oral language and vocabulary
- Translating text into spoken language
- The ‘Wh’ Question Comprehension Test

Core Skills
- Dynamic Indicators of Basic Early Literacy Skills (DIBELS)
- Center for Teaching and Learning (CTL) Curriculum Maps

Identification and Assessment of Comprehension issues

- The Test of Reading Comprehension-3

5 Building Blocks of Reading

- Phonics
- Phonemic awareness
- Vocab development
- Comprehension
- Fluency

NCLB Part B Sec. 1208(5)(A-E)
Phonics/Phonemic Awareness

- Phonics
  - Deals with the relationship between the sounds of spoken language and the letters of the written language
- Phonemic Awareness
  - Ability to work with individual sounds in words
  - Incorporates the understanding that sounds work together to form words

Phonemic Awareness

- Typically developing children
  - Bat/bat = same; bat/bar = different
  - Rhyming words
  - Isolate, blend, & segment /b/-/a/-/t/

Phonics/Phonemic Awareness

- How do young children with ASD struggle?
  - Requires strong auditory processing skills
  - Hear and process the sounds in a word; break them apart or blend together to sound out new words
Puzzles with 3-Letter Consonant Clusters

Vocabulary
• Ability to understand words and use words to acquire and convey information
• Expressive vocabulary
  – Speak or write specific words for a specific meaning
• Receptive vocabulary
  – Ability to associate a specific meaning with a word encountered in reading or listening

Vocabulary
• Typical Development
  – “What’s that”
  – Try out new words

Henry, 2010
Typical Development

<table>
<thead>
<tr>
<th>Approximate age</th>
<th>Expressive Language (Uses)</th>
<th>Auditory Comprehension (Understands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 to 4 yrs</td>
<td>600-1000 words; 3-4 word sentences; pronouns and adjectives; answers what, where, and when questions</td>
<td>1500 words; recognizes gender differences, plurals, pronouns, adjectives &amp; colors.</td>
</tr>
<tr>
<td>3 to 4 yrs</td>
<td>600-1000 words; 3-4 word sentences; pronouns and adjectives; answers what, where, and when questions</td>
<td>1500 words; recognizes gender differences, plurals, pronouns, adjectives &amp; colors.</td>
</tr>
<tr>
<td>4 to 5 yrs</td>
<td>1000-1500 words; 4-6 word sentences; 3-4 syllable words used; articles appear; uses more adjectives, adverbs, conjunctions; fluency improving</td>
<td>1500-2000 words; “if, because, why, and when”; follows complex directions</td>
</tr>
<tr>
<td>5 to 6 yrs</td>
<td>1500-2100 words; uses 5-8 word sentences; fluent speech; many multi-syllabic words used</td>
<td>2000-2800 words; more complicated sentences</td>
</tr>
</tbody>
</table>

Vocabulary

- How do young children with ASD struggle
  - Often a relative strength
  - Transfer concrete object to word in text
  - Generalizing knowledge to new situation

My Picture Book

United Nations Day

Read trip
Environmental Print Book

Context Clues

Thematic Word Walls
Vocabulary Words Comic Strip

Vocabulary Strategies
- Use of synonyms
  - Use a word processing program
- Image Search and Visual Dictionaries
- Shades of Meaning

Idioms
Comprehension
• Making meaning from text
  – Tapping background knowledge, making personal connections, questioning and problem-solving
• Monitoring strategies
  – Re-read
  – Simplify and summarize
  – Ask questions in their head as they read
  – Ask questions after reading to clarify

 Henry, 2010

Comprehension
• Typical Development
  – Ask questions about characters or events in text
  – Personal experiences
  – Make connections
  – Make predictions
  – Clarify meaning

 Henry, 2010

Comprehension
• How do children with ASD struggle?
  – Linked to receptive and expressive deficits
  – Creating abstract connections
    • Prediction, drawing conclusions, and visualizing events
  – Theory of Mind deficits
    • Understand and relate to characters

Henry, 2010
Explicitly Teach

- Compare/Contrast
- State main idea & supporting details
- Make and verify predictions
- State author’s point of view and biases
- Visual author’s descriptions
- Identify cause and effects

More Strategies

- Retelling
- Think Aloud
- Activate prior knowledge
  - Pre-teach basic factual concepts
- Multiple thematic exposures
- Primer passages & clear titles

Books with a Clear Problem and Solution
Language Experience Story

Cover Picture Prediction

I see .

I think this book is about .

I think this book is about .

because I see on the cover.

Question Sticks

what

where

who

when
Other Visual Supports

<table>
<thead>
<tr>
<th>Story Element</th>
<th>Question Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>character</td>
<td>who</td>
</tr>
<tr>
<td>setting</td>
<td>where</td>
</tr>
<tr>
<td>event</td>
<td>when</td>
</tr>
<tr>
<td>solution</td>
<td>what</td>
</tr>
<tr>
<td>problem</td>
<td>why</td>
</tr>
</tbody>
</table>

Use the Clues

Visual Organizer
Visual Organizers

- Film
  - Provides specific background knowledge
  - Familiar things are easier to understand
  - Teaches visualization skills
  - Expands opportunities for socialization
- Reading Scripts of Plays and Films
  - Reveals thoughts and feelings behind plot and characters
  - Screenwriter overtly states reactions of characters
  - Cooperative activity

Other Visual Tools

- When a teacher teaches the child to identify words in the text that reference words previously used in the text (anaphora).
- Most anaphoras are pronouns, which reference a person who was discussed earlier in the text
- When teaching anaphoric cueing, teachers show students how to pause at an anaphora and relate those words back to their original reference

Anaphoric Cueing
Inferencing Supports

Cooperative Learning Groups

- Teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject
  - Think-Pair-Share
  - Peer Instruction
  - Jigsaw

Direct Instruction

- Focus on Mastery
- Uses Errorless Teaching Strategy
- Patterned “I say, we say, you say”
  - Predictable, Multiple Opportunities
  - Prompts available (visual)
  - Choral responding

- https://www.youtube.com/watch?v=ZjBQi_6_rOY
- https://www.youtube.com/watch?v=v_EBiFgyQNew
Use Special Interests

Fluency

- Ability to read a text quickly and accurately
- Fluency changes with familiarity with text
- Typical Development
  - Modeling
  - Listening to familiar text
  - Sight read

Fluency

- How do children with ASD struggle
  - Miss “big picture”
  - Expressionless reading
  - Miss underlying emotional tones

- Main Strategy: Partner pairs
  - 1 minute timings
  - Switch roles
  - Practice daily with a new goal
Fluency Strategies

- Predictable Text
- Pacing Board
- Sentence Builder
- Adapted Books

Predictable Text

What is it?
Predictable texts are texts with some kind of repeated patterns. Patterns can be phonetic, thematic, rhyme, or repetition of words, phrases, or sentences.

Prosody

Reading with Expression

- Practice Exercise
  - teacher reads with errors
  - Learner listens and id’s errors
  - Learner reads passage expressively
- Use proper error correction procedure, in natural course of reading

Sound Blending Center

Fluency and Comprehension

https://www.teacherspayteachers.com/Product/Blending-sounds-Fluency-and-Comprehension-Pack-1079412
Computer-Aided Instruction
The use of computers to teach academic skills and to promote communication and language development and skills.
- Headsprout Kids Reading Program
- Language Lab
- Reading Horizons
- LightSail application
- MiniMod Reading for Details Lite

Headsprout Kids Reading Program
www.headsprout.com

Language Lab
www.aclanguagelab.com
What is Writing?

- The process of using symbols (letters of the alphabet, punctuation and spaces) to communicate thoughts and ideas in a readable form

Writing & Academics

- Used across all subject matters
- Used as a means to communicate and demonstrate knowledge
- Written output is the most frequently used method to measure academic proficiency
- Writing has become a high-stakes skill to meet National Common Core Standards

Writing Challenges for Students with ASD

- Difference in the way various aspects of the brain communicate with each other
  - Sends far fewer neural messages across areas
- Poor communication between key areas of the brain impact the ability to write
Writing Challenges for Students with ASD

- Language Processing
  - May know what they want say but unable to express appropriately
- Difficulty with receptive language
- Weak Central Coherence
- Deficits in Theory of Mind
- Deficits in Executive Functioning skills

Asaro-Saddler et al., 2017

Writing Challenges for Students with ASD

- Impairments in socializations
  - Inability to respond to social information
  - Lack of understanding of social convention
- Direct correlation between social awareness and quality of writing

Asaro-Saddler et al., 2017

Writing Challenges for Students with ASD

- Gross and/or fine motor difficulties
  - Impact on handwriting and legibility

Asaro-Saddler et al., 2017
Behavioral Strategies

• Positive Reinforcement
• Prompt (adding in & fading)

Writing Challenges for Students with ASD

• May produce:
  – briefer, less complex texts
  – Less cohesive; distinct or random thoughts
  – Less focused on main topic
  – May not be legible
  – Lack imaginative content (i.e., figurative language)
  – May use fewer mental state terms and fewer transition words

Asaro-Saddler et al., 2017
What does the research say?

- Recent increase in the number of empirical studies conducted on children with ASD in the area of writing, however there is still minimal research
- Limited amount of EBPs for writing interventions
- Research-based practices are available for students with and without disabilities

Asaro-Saddler et al., 2017

Writing Instruction Strategies

- Constructing sentences
- Scaffolding
- Visual Supports
- Writing Often
- Modeling
- Self-regulated strategy development (SRSD)

Asaro-Saddler et al., 2017

Writing Instruction Strategies

- Technology
- Allowing multiple forms of writing
- Creating meaningful writing opportunities
- Dictation and/or copying
- Teaching basic writing skills and mechanics of writing

Asaro-Saddler et al., 2017
Bottom Line:
Meet the student at the level they are at currently and build up slowly
Scaffolding

- Verbal:
  - “What is the first word of the sentence?”
  - What do you think will happen next?
  - Either/or statements

- Visual:

Visual Supports

*the five w’s*

- Who
- What
- Where
- When
- Why

Visual Supports

- D - Draw a picture.
- S - Sentence. Write a sentence.
- O - Details. Add details to the sentence.
- C - Check. Check your work.
Visual Supports

- Empirically validated model
- Helps writers:
  1. Master higher level cognitive processes in writing
  2. Monitor writing strategies
  3. Form positive attitude towards writing

Self-Regulated Strategy Development (SRSD)

6 Stages of Instruction

Asaro-Saddler, 2014
Self-Regulated Strategy Development (SRSD)

- Self-Instructions
- Self-Monitoring
- Goal Setting
- Self-Reinforcement

4 Techniques to Increase Self-Regulatory Abilities

Technology

Website: Crick Software
http://www.cricksoft.com/uk/products/content/lowa/default.aspx

Apps:
- Kids Writing Pad
- Touch and Write

Multiple Forms of Writing
Motor Adaptations for Writing

Summary

Making greater use of visual supports Each of these strategies can certainly be used for students without disabilities in inclusive classrooms but they may have the most impact on those learners who cannot learn effectively in classrooms using traditional tools and strategies. By expanding the strategies used in the classroom and specifically by expanding the use of visual supports in literacy instruction, teachers are sure to reach a wider range of learners and to give every student opportunities to hone their skills as writers and readers.

New York State Regional Centers for Autism Spectrum Disorders

http://www.albany.edu/autism/nysrcasd.php
CARD Albany is now on Facebook
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

Social Worker’s Continuing Education Online Course — “Responding to the Needs of Students with ASD”
http://www.albany.edu/autism/social_work_cpe.php

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

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