Literacy: A Target and A Tool in Intervention for Children with Autism Spectrum Disorder

Michelle Hite, M.S., CCC-SLP
Clinical Instructor
University of South Florida
mhite@usf.edu

Objectives:

- Be able to verbalize why literacy might be chosen as a priority target in intervention with individuals with ASD.
- Understand the relationship between the symptoms associated with ASD and literacy difficulties observed.
- Determine the types of written language skills which are priority targets in intervention.
- Describe effective strategies to target language concepts in both oral and written language contexts.

Literacy as a Target
Why focus on literacy?

- **READING COMPREHENSION**
- **WRITING**
- **SPELLING**
- **DECODING WORD RECOGNITION**

“The acquisition of written language skills ... is integral to academic success and ultimately determines the higher education and/or vocational opportunities that will be available to an individual.”

(Fallon & Katz, 2011, p. 3)

The National Commission on Writing (2004): Survey from 64 companies in business sector:

- “Writing is also a “gatekeeper”
- “Opportunities for salaried employment are limited for employees unable to communicate clearly”
- This requires “educators to understand writing as an activity calling for extended preparation across subject matters— from kindergarten through college.”
In addition, “written language has become progressively more important in social contexts such as text messages, e-mail, and social networks” (Fallon & Katz, 2011, p. 3)

At Risk Readers

- Children with ASD at risk for decreased written language development (Brown, Oram-Cardy, & Johnson, 2013; Jones et al., 2009; Lanter, Watson, Erickson, & Freeman, 2012; Nation, Clarke, Wright, & Williams, 2006)
- Children with language impairment in general are at high risk for decreased reading achievement (Catts, Fey, Zhang, Tomblin, 2002; Catts, Adlof, Hogan, & Ellis Weismer, 2005)

Figuring out WHAT to Target
So what is the PROFILE of Reading Development in children with ASD?

**Simple View of Reading**
Gough & Tunmer (1986)

- Decoding/Word Recognition
- Listening Comprehension
- Reading Comprehension

**Simple View of Reading Table**

<table>
<thead>
<tr>
<th>Listening Comprehension</th>
<th>Word Recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Poor</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Subtypes of Reading Difficulty (Kamhi & Catts, 2005; 2011)

---

There is not one “PROFILE”!

Meta-analysis of reading/ASD by Brown, Cardy, & Johnson (2013)
Profiles of Reading Development in Children with ASD

Varied reading profiles with wide range of abilities found among children with ASD (Brown, Oram-Cardy, & Johnson, 2013; Jones, Happe', Golden, Murden, Tregay, Simonoff, et al., 2005; Lindgren, Folstein, Tomblin, & Tager-Flusberg, 2009; Nation, Clarke, Wright, & Williams, 2006; Tonge, Mervis, Gilbert, Turner & Burgess, 2009)

• Possibly the one consistent characteristic is heterogeneity
• Many studies show that challenges in reading comprehension more common than challenges in word recognition skills (Ricketts, Jones, Happe', & Charman, 2013)
• Reading comprehension mirrors the wide range of oral language abilities (Norbury & Nation, 2011)

Reasons for Variation in the Profile

Deficits in social communication and social interaction

► Structural language deficits (phonology, grammar, vocabulary difficulties)?
► Pragmatic language deficits (social use of language)?

► Study by Lindgren, Folstein, Tomblin, & Tager-Flusberg (2009): Compared ASD + Typical structural language; ASD + SLI
► Group of Children with ASD + (Structural) Language Deficits = More likely to have difficulties with word level reading skills in addition to comprehension difficulties

Beyond the Simple View of Reading

► Recent research suggests that for children with ASD, their reading comprehension involves more than just oral language ability.
► Social functioning appears to be a factor (Brown, Oram-Cardy, & Johnson, 2013; White, Hill, Happe', & Frith, 2009).
► Ricketts, Jones, Happe', & Charman (2013)
  ▶ 100 adolescents all with ASD, varying intellectual ability
  ▶ Reading comprehension scores overall significantly lower than word recognition score (but some that still had trouble with word recognition)
  ▶ Word recognition and oral language predicted reading comprehension
  ▶ Measures of social behavior and social cognition predicted reading comprehension after controlling for word recognition and oral language
The Not-Quite-As-Simple View of Reading

Understanding text is more than just remembering content that is presented.

Background, content knowledge is combined with new information in the text.

Reader must create an overall coherent representation of text in memory.

The Case of Listening/Reading Comprehension: A Closer Look at Range of Complexity

“Broad View of Comprehension” (Catts, 2009)

Understanding text is more than just remembering content that is presented.

Background, content knowledge is combined with new information in the text.

Reader must create an overall coherent representation of text in memory.
Bloom's (Revised) Taxonomy of Educational Objectives:
The Cognitive Process Dimension

(Anderson & Krathwohl, 2001; Krathwohl, 2002)

- Higher Order Thinking Skills
- Lower Order Thinking Skills

**Level 1 (Recall)**
- Recall of a fact, information, or procedure.
- Focus is on specific facts, definitions, details.

**Level 2 (Some mental processing beyond recall)**
- Focus on use of info, conceptual knowledge.
- Use context to define unfamiliar words.

**Level 3 (Requires students to explain, generalize, & connect ideas)**
- Focus on reasoning, planning, & use of supporting evidence.

**Level 4 (Complex reasoning, thinking, and planning over extended time)**
- Use level 3 strategic thinking to long term problem.

Written Language Development in ASD: A Language Paradigm

- What are the underlying reasons for the child’s difficulty in reading and writing?
  - Language underpinnings
  - Cognitive-linguistic skills, learning style associated with ASD
“...what is written is language”
(p. 226, Catts & Hogan, 2003)

“...speaking about targeting students’ written language (vs. literacy) is much more aligned with our definition of language...”
(p. 105, Apel, 2014)

Language and literacy development are reciprocally related (ASHA, 2010; Justice, 2006)
Academic Language

- Language that is more complex and abstract
- Crosses all content areas
- Serves three functions:
  1) to describe complex concepts clearly,
  2) to describe higher-order thinking, (ex. words to compare, analyze, predict, persuade, etc.)
  3) to describe abstract concepts

We need Higher Order Language to be able to reflect on/express Higher Order Thinking

Looking below the surface

"Reading Comprehension"

- Comprehension of complex sentences
- Comprehension of complex syntactic constructions
- Understanding of multiple perspectives
- Inferencing skills
- Comprehension of cause-effect

We need Higher Order Language to be able to reflect on/express Higher Order Thinking.
Given this framework of oral and written language, it is not surprising that Brown, Oram-Cardy, & Johnson (2013) stated:

“Individuals with ASD who also have language deficits may have the most severe reading comprehension weaknesses” (p. 950).

A. Persistent deficits in social communication and social interaction across contexts

B. Restricted, repetitive patterns of behavior, interests, or activities

C. Symptoms must be present in early childhood (but may not become fully manifest until social demands exceed limited capacities)

D. Symptoms together limit and impair everyday functioning.

Graphic from Zanko & Hite (2013)

Executive Function (Perner & Lang, 2000)

“Executive functions are needed to maintain a mentally specified goal and to bring it to fruition against distracting alternatives.”

Involves:
- Goal setting
- Planning
- Sequencing
- Prioritizing
- Organizing
- Initiating
- Inhibiting

- Inhibiting
- Pacing
- Shifting
- Self-monitoring
- Emotional control
- Task Completion

Diehl & Hite, 2013

Executive Function Challenges and Reading

- Some suggest that difficulty with executive functioning highly interactive with development of social perspective issues (Jarrold, Mansergh, & Whiting, 2010)
- May focus on the act of decoding and not connect reading with meaning (Meltzer, 2007)
- Flexibility in connecting meaning
- Comprehension Monitoring
- Repair
- Organizing and integrating multiple pieces of information

Diehl & Hite, 2013
Central Coherence

- Draw together diverse information to construct higher-level meaning in context
- Focus on parts rather than the whole
  - “Tasks using local information would be easier than tasks requiring the recognition of global meaning or integration of stimuli in context” (Happe, 2000)

Diehl & Hite, 2013

Central Coherence Challenges and Reading

- Understanding ambiguous words
- Moving beyond details and understanding concepts at paragraph and text level
- Getting the gist of information; Main Idea
- Integrate information from different sources to form a whole
  - Good rote memory but poor integration
- Generalization

Social Perspective Taking

(Theory of Mind; Social Cognition; Mind Reading; Mentalizing)

- The ability to know that other people have different perspectives than one’s own
  - Sarcasm
  - Making predictions
  - Making inferences
  - Remorse
  - Taking turns
  - Pretend Play
  - Keeping secrets
  - Role playing
Social Perspective Taking and Reading Comprehension

- Difficulty with certain text because of inferencing and social understanding requirements (Brown, Oram-Cardy, & Johnson, 2013)
  - Narratives may be harder than more factual expository genres (Randi, Newman, & Grigorenko, 2010)
- Trouble with texts requiring high social knowledge (Brown, Oram-Cardy, & Johnson, 2013)
- Trouble with persuasive arguments, debating, genre requiring multiple perspectives

ACTIVITY #1

Think-Pair-Share:
1) First, complete the Cognitive Linguistic Skill Profile on a familiar child with ASD.
2) Second, complete the Reading Profile on the same child.
3) Discuss with your group:
   - How many in the group identified reading Comprehension as an area of difficulty?
   - How many in the group identified word recognition (decoding, sight word reading) and spelling of words as areas of difficulty?
   - What patterns you see between cognitive and language skills in general and reading skills (Reading Profile)

Intervention Strategies: Targeting and Using Written Language Interventions
We need a collection of interventions to target literacy!

Evidence-Based Practice
(Zen, Solis, Vaughn, & McCulley, 2014)

- Limited research in area of ASD + Reading Comprehension
- Many interventions used with children with Reading Difficulties are applicable, can be modified
- Following were recommended: explicit instruction, strategy instruction, graphic organizers, and student grouping practices (peer pairings, cooperative learning)
- Recommends looking at research with language impairment, oral and written language interventions combined
- Need to take into consideration CC, ToM, EF!

General EBP Intervention Considerations

YES
- Make it functionally relevant
  - School-age: Curriculum-relevant language-based intervention
  - Naturalistic Teaching Strategies (National Autism Center, 2015)
- Apply cognitive linguistic skills across modalities
- Encourage self evaluation, metacognitive skills
  - Self-Management (National Autism Center, 2015)
- Utilize Evidence-Based Practice (ASD, language learning, reading disability literature)

NO
- Out of context “processing” interventions
- Constantly giving evaluative feedback
- Only focusing on one aspect of reading (ex. only teaching decoding; only macrostructure of expository or narrative discourse, such as story grammar)
- Testing rather than teaching
  - (Kamhi, 2014; Wallach, 2014)
"I do not believe it is important to distinguish between language goals that focus on the spoken aspects of language from those that center on the written aspects by using different terms...I do not see a need to speak about language vs. literacy goals; I prefer speaking about spoken and written language goals" (p.105, Apel, 2014)

Examples of related language skills

Main Idea (reading)

Topic Maintenance (conversation)

Topic Cohesion (writing)

What are the cognitive-linguistic underpinnings?

Example integrated goal

The student will increase cohesion of written and oral expression of discourse by maintaining topic within a narrative or expository discourse sample with 90% accuracy given visual supports (e.g., graphic organizer completed by the child).

- State relationships between concepts as they are related by function, attribute, or category.
- Determine the main idea within written paragraphs by identifying keywords and determining their relationships. (how keywords are similar)
- Generate details related to a central main idea.
- Maintain topic within a conversation with the clinician for 5 turns.
- Write a paragraph using pre-writing visual supports such as a semantic web to initially brainstorm the central idea and supporting details.
Things can be **similar** or **different**.

If I am reading a paragraph in an expository text and it is talking about the telegraph, the newspaper, the telephone, then email…

What is the main idea of this paragraph? What are other possible details I might see discussed?

Main Idea in Text

**Fourth of July** is the best of all. I love fireworks, so this day is usually my favorite! **Thanksgiving** would be my next favorite because I get to see my family and we have a huge feast! I also love **New Year’s Day** because I always get the day off of school and we go to Disney World every year!

1) **keyword extraction**
2) relate back to similarities training
3) **Determine the main idea**
4) **Write a main idea sentence**
Each train car is like a conversation turn.

“Hello.”
“Hi.”

“How are you?”
“Fine, thanks.”

“So, did you see the storm last night?”
“Yes! The thunder scared me last night!”

How do we keep a conversation going?

We talk about the same main idea!
- Add a comment
- Ask a question

Stay on the track!

Do you like Legos?
I’m building a Lego space station. What about you?
That’s cool.

Yeah, I love Legos.
I’m building a pyramid, from a kit.

The main idea is “Legos”
Emmett finds out he is the special Lego Movie (main idea)

Wild Style is my favorite character

Batman is sometimes unexpected in the movie!

When we have a conversation, talk about the same MAIN IDEA.

SPORSTM They are cool. My favorite is hockey. I love the Lightning!

I really like watching football. It is my favorite.

When we have a conversation, talk about the same MAIN IDEA.

SPORTS

I go to watch fireworks on the 4th of July.
I like to build snowmen.
I am doing my summer reading! My teacher will be proud.
What are you wearing on Halloween?

"JULY" and "JUNE" are both months with four letters.
Writing increases Reading!

“The evidence is clear: writing can be a vehicle for improving reading.”
- From the Writing to Read report (p. 6, Graham & Hebert, 2010)

Extending across functional contexts: application across modalities

SELF MANAGEMENT

“Who’s doing the thinking?”
- Pat Rydell, PhD
Making It Meta

- Self-regulatory behaviors require *language-distancing behaviors* that lead to children being able to “separate themselves from the ongoing present” (p. 344, Stone, et al., 2014).
  - Reflect on past experiences, future possibilities
  - Requires intrapersonal ToM (what do I know? What do I believe? What do I feel about...?)
  - Metacognitive talk important in instructional discourse

“Optimal development of self-regulation is dependent on social interactions with more competent others who engaged in conversations that involve reflection, predictions, inferences, and evaluation.” (p. 344; Stone, Silliman, Ehren, & Wallach, 2014).

Joint Book Reading

- Use *language-distancing strategies* in joint book-reading sessions with young children (van Kleeck, 2006).
  - Encourage reflection, including connecting with background experiences, which is at the core of comprehension monitoring
Teach How To Think!
Make It Meta

Making the process explicit

An example of a visual cue that was created during a small group language therapy session (middle school level).

- Made the various thought processes for determining vocabulary meaning more explicit.
- Visual was used repeatedly within the therapy sessions and was utilized in the classroom by several teachers.

Comprehension Monitoring
From Whalon and Hart (2011)

<table>
<thead>
<tr>
<th>Question-Answer-Relationships (QAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right there</td>
</tr>
<tr>
<td>Think and search</td>
</tr>
<tr>
<td>Author and you</td>
</tr>
<tr>
<td>On your own</td>
</tr>
</tbody>
</table>

Making the process explicit

- Visual was used repeatedly within the therapy sessions and was utilized in the classroom by several teachers.
TEXT LEVEL SKILLS AND STRATEGIES

TEACHING SUMMARIZATION

- You just learned about the cognitive characteristics of individuals with ASD.
- How might these cognitive characteristics negatively impact the following cognitive/linguistic skill?
  - Summarization

SUMMARIZATION: An EB Intervention Target

- The National Reading Panel (2000) and Writing to Read report (Graham & Hebert, 2010) concluded summarization is an important comprehension skill.
- Focus on essential information
- Assists with recall
- Leads to a deeper understanding as students go through the process of summarizing
- Goes beyond retelling; “involves analyzing information, distinguishing important from unimportant elements and translating large chunks of information into a few short cohesive sentences” (Westby, Culatta, Lawrence, & Hall-Kenyon, 2010, p. 277)
Hierarchy of Steps leading to Summarization

- Finding key details: Teach them how to gather clues and be a detective
  - Write clues down on sticky notes/highlight
- Choosing most important details
  - Put them all together to summarize
    - includes information about character perspectives
- Determining the overall main topic

Summarizing: Highlight Tape and Sticky Notes

- Have students reread story and either highlight important words/phrases with highlight tape
  - http://www.amazon.com/Lee-Products-Company-Removable-Highlighter/dp/B001ZJ335Q
- Have students write them down on sticky notes
- Put sticky notes in order on one page
- Write summary from sticky notes

Intervention: Visual Story Maps

Diehl & Hite, 2013
### Summarizing: Who-Did-What Sequence (Gately, 2008)

<table>
<thead>
<tr>
<th>Who</th>
<th>Did what</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mike</td>
<td>1. Showed off new car</td>
</tr>
<tr>
<td>2. Sully</td>
<td>2. Checked out new car</td>
</tr>
<tr>
<td>3. Mike and Sully</td>
<td>3. Tested out the new car and all the new gadgets</td>
</tr>
</tbody>
</table>

### Intervention: Visual Sorting

<table>
<thead>
<tr>
<th>Relevant vs. Not Relevant</th>
<th>About the Story/Video</th>
<th>Not About the Story/Video</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Important</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Intervention: Visual Sorting

<table>
<thead>
<tr>
<th>Level of Significance</th>
<th>Most Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25
Main Idea: Picture or Word Walks

- Put key pictures or words from text around room have student(s) walk around and collect them
- Put them all around a semantic map with middle circle empty
- Guess main idea
- Also use pictures as discussion focus for what words mean or match to word wall

Main Idea: Picture /Word Walk

- Mike wants Sully to see his new car
- Mike drives away fast
- Sully didn’t know what the buttons were for
- Mike got stuck in the engine
- The car has a lot of buttons
- Mike has a new car
- It is fancy
- Mike crashes the new car
- Sully pushed buttons
- Sully

Similarities vs. Differences: Bridge to Main Idea

- Horse: Four legs, Tail, Ride them, Says nay, Has a mane
- Elephant: Four legs, Tail
Main Idea: Choice Bank

- Start with just picking from disparate content areas and similar language and gradually make it more difficult. Include any narrowed or restricted interests in foils so they are not just choosing what they like.

Activity: View Mike’s New Car

- This was a video about:
  - Where panthers live
  - A boy who lost his Mom
  - Mike shows Sully his new car

- This was a story about:
  - How people learn to drive
  - The fastest sportscars
  - Mike shows Sully his new car

- This was a story about:
  - Mike and Sully drive to the grocery store
  - Mike and Sully played Angry Birds
  - Mike shows Sully his new car

Summarizing: Building on Main Topic Work

- Use a variation of the word walk and put story sentence strips around the room
- Tell them they are gathering clues like a detective
- Add nonsense or unimportant strips
- Have them sort in important and unimportant boxes
- Put important ones together
- Copy to write summary

Examples of Summary Map
Intervention: Summary Powerpoint Books

- Lets them use visuals to express main ideas
- Format supports condensation of ideas
- Websites of already made
  - http://www.talkingbooklibrary.net/Matrix.htm
  - http://www.baltimorecityschools.org/Boardmaker/Results.asp
  - www.tarheelreader.com

Personal Narrative Summaries and Conversation

- Practice summaries of personal events
- Write out summaries of important events = scripts for conversation!
- Priming prior to conversation for:
  - Staying on topic in conversation
  - “Just right amount” ; not too much and not too little (turn length)
- Apply to conversational practice
- Ex. What did you do for 4th of July holiday?

STORY-BASED INTERVENTIONS

- Established intervention (National Autism Center, 2015)
- Social Stories (Gray, 2010)
- Comic Strip Conversations (Gray, 1994)
- Informational PowerPoint stories used to break down difficult concepts
Video Modeling and Scripting within Written Language

- Video Modeling and Scripting: Established Interventions according to the National Standards Project: Phase 2 (National Autism Center, 2015)
- Applied these skills to literacy contexts
- Role Plays of short stories, paragraphs within longer texts

Story-Based Interventions

- Diehl (2014) described application of Comic Strip Conversations to literacy and social communication through “Comic Strip Videos”
  - Used with any narrative (written, movie, etc.)
  - Cartoon strip panel functioned as a “story board” or script for role play / video session
  - Children filled in speech and thought bubbles
  - Self evaluation via video modeling

Visually Showing Character Perspective

- Comic Strip Conversations (Gray, 1994) technique is helpful to visually convey differences in speech vs. thought, thoughts amongst characters.
  - Can be easily and quickly drawn
Character Perspective
Use of thought bubbles
(Gray, 1994; Glaeser, Pierson, Fritschmann, 2003; Kerr & Durkin, 2004; Pierson, Glaeser, 2007; Rogers & Myles, 2001; Wellman et al., 2003)

I liked the old car. I don't think you need a new car.

I am so excited about my new car!

Character Perspective: Think Alouds
(Schellings Aarnoutse & van Leeuwe, 2006)

- Use Think Alouds with Visuals to:
  - Provide character perspective focus
  - Subjective evaluative remarks
  - Motivations for behaviors
  - Emotions
  - Show inference and prediction
  - Model comprehension checks
  - Things that are contrary to expectation
  - Alternative outcomes
  - Story Retellings

I think Sully did not think the new car was as great as Mike thought it was. Mike looked frustrated with the new car.

Example of the Storyboard
Dialogue Checklist

Self management (Lee, Simpson, & Shogren, 2007).

- Facilitates the successful inclusion of students in general education classrooms by encouraging problem solving and permitting teachers to spend more time on instructional tasks rather than behavior management (McDougall, 1991, 1998).

From Cause → Effect To Inferencing

CAUSE
- What happens FIRST
- Clue words: “because, since, so, cause, consequently, as a result, thus”

EFFECT
- What happens NEXT

Cause → Effect: Groundwork for Predictions and Inferences

CAUSE
- Children are outside playing. Rain starts to fall, what might happen next?

EFFECT
- The children were outside on the playground. They covered their heads and quickly ran inside.

?
Cause → Effect:
From Multiple Perspectives

**CAUSE**

? - What is the cause of deciding this? Depends on who you are!

If you were a 3 year old?
If you were a 17 year old?
If you were with a group of friends having a reunion?

**EFFECT**

- The person decided to go to the beach!

It helps to think of our problems on a scale... so that we can make sure we’re reacting appropriately to the size of the problem!

---

Intervention: Anaphoric Reference

(O’Connor & Klein, 2004; Roux, Dion, Barrette, Dupere, & Fuchs, 2015)

- Students with autism have difficulty:
  - Knowing what unspecified words refer to
    - He, She, It, Her, His, Us, We, You, Them, Their,
    - This, That, Those, There, Something
  - What to do about it? Suggestions include:
    - Teach students to locate clues in surrounding sentences.
    - Jack gasped as Annie held out her hand. Oh, brother. She was always trying to make friends with animals. But this was going too far (Excerpt from Magic Tree House: Dinosaurs Before Dark; p. 18, Osbourne, 1992).

---
Self-Questioning

- Evidence-Based Strategy: Question generation - readers learn to ask themselves questions about aspects of the story (National Reading Panel, 2000)
- Encourages reflection and self management!
- Higher Order Thinking strategy
  - Start with external events
  - Move towards internal conflict

TARGETING COMPLEX SENTENCES: Comprehension and Use

- Complex ideas conveyed with Complex Sentences!
- Example: Combining Sentences
- How does “and” impact the meaning?
- How does “or” impact the meaning?
- When do we use “but”?
- What does “because”, “so” signal in the sentence?

GLUE WORDS HOLD SENTENCES TOGETHER

Olaf is a snowman. Olaf likes warm hugs.

Use “and” to hold together two sentences when BOTH SIDES are true:

________________ AND __________________

Olaf is a snowman AND he likes warm hugs.
Sometimes Glue Words tell us about CAUSE (first) and EFFECT (next)

CAUSE ➔ EFFECT
- What happens FIRST
- What happens NEXT

BECAUSE

SO

Susie was hungry, so she ate her apple.

Mom was exhausted, so she took a nap.

GLUE words can tell us important things!
These words signal important meaning.
I can be an investigator and look for these signal words!
Semantic-syntactic connections

Visually “code” words that “signal” presence of clauses you are working on:

- Homer bought the pig, and ever since it left our place Fern has been going to her uncle’s to be near it.
- He still worried some about the future, as he could hardly believe that a mere spider would be able to save his life.
- Then she put on her prettiest dress because she knew she would see boys at the Fair.
- He scampered over to the crate, crawled beneath the slats, and pulled straw up over his head; he was hidden from sight.
- You will live to enjoy the beauty of the frozen world, for you mean a great deal to Zuckerman and he will not harm you ever.

Signal Words To Look For:

- Because
- So
- Since
- As
- Then
- For

VISUALLY SUPPORTING THE LANGUAGE UNDERPINNINGS

From Charlotte’s Web by E.B. White

VISUALLY SUPPORTING THE LANGUAGE UNDERPINNINGS

Graphic Organizers

From Williamson, Carnahan, Birri, & Swoboda (2015). An example of a character event map used with HS students with ASD while reading a novel (Hunger Games).
**Visually Scaffolded Language: Compare and Contrast**

**DAY**
1) Sunlight comes down to the ground
2) Sunlight turns to HEAT
3) Heat goes all around. Everything is warm.

**NIGHT**
1) Sunlight is gone!
2) No sunlight = no heat
3) At night it is cool.

---

**Expanding language expression through Writing with Visual Supports**

<table>
<thead>
<tr>
<th>WHO</th>
<th>WHAT</th>
<th>WHERE</th>
<th>WHEN</th>
<th>WHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mom</td>
<td>went</td>
<td>to the store</td>
<td>on Saturday</td>
<td>because she was missing an ingredient for her recipe.</td>
</tr>
</tbody>
</table>
Figurative Language

- Visual contrasts can be used to teach idioms.

**HOLD YOUR HORSES!**

Silly Meaning

Real Meaning

---

**WORD LEVEL STRATEGIES and EXAMPLES**

- Can be used during Priming
- Careful of Cognitive Load: Word and Text Level
  Decoding and Comprehension
  Encoding and Writing

Ex. Williamson, et al. (2015) used print + audio books due to some with decoding difficulties.

---

**Vocabulary Strategies**

- Children with ASD + SLI learn words more easily when presented with the written word (Ricketts, Dockrell, Patel, Charman, & Lindsay, 2015)
- Prime vocabulary, focusing on Tier 2 words (Roux, Dion, Barrette, Dupere, & Fuchs, 2015)
Vocabulary tiers

Tier 3: Low frequency, Domain Specific (ex. isotope, lathe, refinery)

Tier 2: High frequency, cross-curricular
Highly frequent in mature language users' vocabulary; these words offer more precise ways of referring to ideas (greater specificity) (ex. maintain, summarize, coincidence)

Tier 1: Common Words
Basic, everyday words that are a part of most children's vocabulary. Words used in everyday conversation. (ex. baby, clock, walk, big, small)

Instructional Targets

Choosing Tier 2 Vocabulary

Questions to ask yourself when choosing the words:

• Is the word useful across subjects?
• Does the word have instructional potential?
• Does the word relate to other words and allow opportunities build connections?
• Does the word provide additional dimension to ideas/concepts that the student knows or has been learning? (ZPD)

(Beck, McKeown, & Kucan, 2002)

How Do I Feel?-Afraid

I'm terrified. I need some help! I am really afraid!

I'm afraid, but I know everything is ok.

Just a little. I am cautious.

(Beck, McKeown, & Kucan, 2002)
I'm ecstatic. I am really happy!

I'm happy. I feel great

Just a little happy. I am satisfied.

How Do I Feel? - Happy

I'm depressed. I am really sad! I need help!

I'm sad, but I know everything will be okay.

Just a little sad. I am disappointed.

How Do I Feel? - Sad

I'm enraged. I need some help! I am really angry!

I'm angry, but I can fix the problem.

Just a little. I am irritated, but I can feel better.

How Do I Feel? - Angry
References

References


References


References

References

- Winner, M. G., & Murphy, L. K. (2016). *Social thinking and me*.