Evidence-Based Goal Writing for Pediatric SLPs

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Overview

- **This advanced session is aimed at assisting SLPs with creating evidence-based language and literacy goals for pediatric treatment purposes. It will describe the role of assessment tasks on popular tests and discuss their suitability or lack thereof for treatment purposes. It will explain how to meaningfully integrate literacy goals into language treatment sessions as well as how to set up contextualized language intervention sessions for treatment purposes. The process for writing measurable and academically functional treatment goals will out extensively outlined.**

Learning Objectives

- By the end of the presentation learners will be able to:

1. Discuss why treatment goals cannot be formulated based on assessment task performance
2. Describe how to create contextualized therapy interventions for optimal goal attainment
3. Explain how to create measurable goals which integrate language and literacy targets

The Damage of Wrong Treatment Goals

- *"What* is treated is more important than *how* it is taught (Kamhi, 2006, 2011b).
- Targeting the wrong goal means that the more appropriate goals are not being targeted. *As a result, the client falls farther behind his or her typically developing peers in language and literacy skills." (Kamhi, 2014)*

What is Wrong with These Questions?

- “My student has slow processing/working memory and did poorly on the (insert standardized test here), what goals should I target?”
- “Do you have sample language/literacy goals for students who have the following subtest scores on the (insert standardized test here)?”
- “What goals should I create for my student who has the following subtest scores on the (insert standardized test here)?”

Non-EBP Interventions

- **Memory Training**
  - Melby-Lervåg, Redick, & Hulme (2016) found that working memory training programs appear to produce short-term, specific training effects that do not generalize to measures of "real-world" cognitive skills and as a result do not improve performance on measures of intelligence or measures of "Far Transfer"
- **Processing Training** (“Can RAN be trained?)
  - As per Norton (2020, p. 27) training RAN does not lead to better outcomes than providing equal hours of reading intervention. Similarly, training processing speed and other executive function skills may lead to better performance on the training task (“near transfer”), but rarely leads to meaningful, generalizable improvements (e.g., Melby-Lervåg & Hulme, 2013”
- “**Brain Training**”
  - Shipstead, Hicks, & Engle (2012) found that claims made by Cogmed are largely unsubstantiated
  - Anderson et al (2018) found little evidence of any benefits of Cogmed on academic functioning 24 months post-training, as well as on working memory, attention, or executive behavior at any age up to 24 months post-training compared with the placebo program
- **Visualization** (*in the absence of strong underlying skills to support it)
  - Horowitz-Kraus, Vannest & Holland (2013) found that visualization is evident in reading in TD children ages 8-11 but not in children ages 5-7
  - How does one visualize “metamorphosis” if one does not know the word meaning?
- **Strategies Training** (*in the absence of strong underlying skills to support it)

Assessment Tasks vs. Treatment Goals: Questions to Ask

- What do we base our therapy goals on?
- What constitutes functional therapy goals?
- What role do the standardized test results play in the formulation of treatment goals?
- Is it Evidence Based Practice to separate receptive and expressive goals for therapy purposes?

Creating Treatment Goals

- Formulated based on assessment findings (NOT subtests) both standardized and clinical
- How does the student's performance compare with the performance of typically developing children on whom the taken tests were normed?
- How does the student's performance compare with the developmental norms in areas such as narratives, grade level reading and writing?

What do Assessment Tasks Actually Measure?

- **Following directions** tasks measure working memory functioning and are sensitive to **reading deficits** (Lahey & Bloom, 1994; Cowan, 1996; Baddeley, 2003)
- **Multiple Meaning/Flexible Word Use/Vocabulary Awareness** are tasks designed to measure **vocabulary breadth, depth, & quality** (e.g., *naming definitions, synonyms, relationships among semantically related words, explaining multiple meaning words,* etc.). They are sensitive to language deficits (McGregor, Oleson, Bahnsen, & Duff, 2013; Marinellie & Johnson, 2002; Norbury, 2005; Sheng & McGregor 2010) because children with DLD possess not only "fragile knowledge of the core meaning of individual words, but fragile semantic connections between words" (Nation, 2014, p.2)
- **Narrative** tasks are sensitive to both **reading** def**icits** (McCabe & Rosenthal-Rollins, 1994; Reese, Suggate, Long & Schaughency, 2010; Gilmore, Klecan-Aker, & Owen, 1999; Griffin et al., 2004; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998) and **pragmatic deficits** (Norbury, 2014; Norbury, Gemmell & Paul, 2014)

What do Assessment Tasks Actually Measure? (cont.)

- **Sentence recall and nonword repetition** tasks are sensitive to both language and literacy deficits (Dollaghan & Campbell, 1998, Alloway & Gathercole, 2005)
  - **Sentence recall** has been increasingly recognized as a useful indicator of learning difficulties including specific language impairment or SLI (relabeled Developmental Language Disorder, DLD), dyslexia, phonological short-term memory deficits, as well as reading comprehension deficits (Alloway & Gathercole, 2005)
  - **Nonword repetition** is commensurate with both spoken and written deficits as well as reflects deficits in phonology and verbal short-term memory (Ramus et al, 2013; Gathercole & Baddeley, 1990; van der Lely and Howard, 1993; Montgomery, 1995; Gallon et al., 2007).
- **Phonemic awareness and alphabetic knowledge** tasks are key indicators of emergent reading mastery during the early elementary school years (Anderson, Hiebert, Scott, & Wilkerson, 1985; Adams, 1990; Snow, Burns, & Griffin, 1998; Wood & Mclemore, 2001)
- **Rapid Automatized Naming (RAN)** tasks are consistent predictors of reading fluency in all orthographies (Landerl, et al, 2019).
  - Poor rapid automatized naming abilities (on alphanumeric and nonalphanumeric tasks) have been found to be a long-term and universal symptom of reading deficits (Araújo & Faísca, 2019).
- **Nonword reading** tasks are sensitive to phonologically based reading deficits (Herrmann, Matyas, & Pratt, 2006; Rack et al, 1992)

Principles of Learning: Statistical Learning (Seidenberg & MacDonald, 2018)

- "Statistical learning is the largely unconscious process of learning the patterns of one's environment - the probabilities that events will occur, or occur together, and in which sequences (Lany & Saffran, 2013; Seidenberg, 2017)"
- Language exhibits many statistical regularities in the use of phonology, morphology, vocabulary, and grammar and in the relations between language and the contexts in which utterances occur
  - Vocabulary learning is statistical
    - "Words are statistically linked to other words and to other levels of linguistic representation and thus carry information about the sentences in which they occur"
    - "Children with smaller vocabularies …do not simply know fewer words; they also know less about language and the world"
- Children engage in statistical learning from birth, acquiring knowledge about the patterns of common events and their co-occurrences

Types of Learning: Implicit and Explicit Learning

- Implicit learning is a process by which information is learned outside of conscious awareness (Frensch & Rünger, 2003).
- It is a process of detecting associations within an environment and storing this information in the form of abstract representations (Seger, 1994)
  - The ability to learn the complex and subtle regularities that underlie a language without even realizing it on a subconscious level
- Explicit Instruction refers to purposeful way of teaching mediated by adults (e.g., SLP, teacher, etc.)
- "Instruction that does not leave anything to chance and does not make assumptions about skills and knowledge that children will acquire on their own" (Torgesen, 2004)
- "A systematic method of teaching with emphasis on proceeding in small steps, checking for understanding, and achieving active and successful participation by all students" (Rosenshine, 1987)
- Students with language and learning needs require explicit teaching opportunities to acquire the necessary language abilities. They need teaching of concepts which their peers acquire automatically/without active thinking. Thus they require not just more effort but targeted goals to continue meeting ever increasing academic demands

Performance vs. Learning (Kamhi, 2014, p. 93)

- *Performance* is the short-term context-specific occurrence of some behavior.
- *Learning* is the long-term context-independent occurrence of the particular behavior (E. Bjork, 2004)
- SLPs typically characterize short-term, context-specific performance as learning and long-term, context-independent occurrence of the particular behavior as generalization. However, this is an outdated behavioral view of learning which mischaracterizes learning problems as having a difficulty with generalization (Kamhi, 1988)
- It is not particularly useful, theoretically or clinically, to characterize children's learning difficulties as a problem with generalization. A generalization problem implies that there is some deficiency in the transfer mechanism or in the ability to transfer knowledge from one domain to another or from one context to another. However, what have difficulty with is transferring narrow limited rules to new situations.
- Children with language and learning problems will have difficulty acquiring broad-based rules and modifying these rules once acquired, and they also will be more vulnerable to performance demands on speech production and comprehension (Kamhi, 1988).

Cognitive Load Theory

- All humans have limited capacity at any given time to use their auditory, visual, and tactile inputs (independently or collectively) to acquire new information and store it in long-term memory.
- When available cognition is overwhelmed – which can be caused by any number of reasons – learning cannot occur
- Cognitive load theory assumes that knowledge is stored in long-term memory in the form of 'schemas' which organize elements of information according to how they will be used.
- According to schema theory, skilled performance is developed through building ever greater numbers of increasingly complex schemas by combining elements of lower-level schemas into higher level schemas. There is no limit to how complex schemas can become. An important process in schema construction is automation, whereby information can be processed automatically with minimal conscious effort. Automaticity occurs after extensive practice (Sweller, van Merrienboer & Paas 1998, p. 256).

Learning to Read: Schema Construction and Automation

- Children learn to read by constructing schemas for symbols on a page (letters)
- They then use the schemas for letters to construct higher order schemas by combining them into words
- These will in turn be combined into higher order schemas for sentences
- This process of creating complex schema construction will lead to readers looking at a symbol filled page to gain meaning from it.
- With repeated long-term practice, readers can derive meaning from print with minimal conscious effort (Sweller, van Merrienboer & Paas 1998, pp. 255-258)

Components of Effective EBP Interventions

- Social interactionist framework of language learning (Ukrainetz, 2006)
  - Learners are self-regulated
  - Internalize language
  - Learn through scaffolded interactions
  - Meaningful contexts
  - Activities are naturalistic and functional
  - Interactions are salient and repeated
  - Support is systematic
  - Skills are targeted explicitly

What Makes Pediatric Language Intervention Functional?

- Intervention with school aged students (PreK-12) should be contextually based and educationally relevant (Whitmire, 2002)
- SLPs must target academic language goals which will produce “robust and generalizable impact on educational outcomes” (Kelley & Spencer 2021, p. 102)
- Targeting academic language in intervention “produces meaningful effects on academic performance” (Kelley & Spencer 2021, p. 102)
- Instead of focusing only on short-term, situation-specific isolated intervention session skills, EBP interventions aim to accomplish long-term, situation-independent, generalizable skills learning (Kamhi, 2014)
- Targeting language in meaningful contexts increases saliency and allows the students to better integrate new information with what they already know (background knowledge), which in turn promotes deeper vs. shallow knowledge and greater retention of information.

Is it Functional to Separate Receptive and Expressive Goals? Nelson et al, 2022

- **We need to move away from viewing disorders of receptive and expressive language as separate syndromes as oral and written language share dimensionality**
- It is common to view oral language as foundational, implying that it does not require formal attention in general education during the school-age years. That view does a disservice to both typical and special needs students, compared to a model that includes oral language as a system that is thoroughly intertwined with reading and writing.
- Oral language, although biologically primary (Geary, 2008), can continue to develop into adulthood and should not be neglected in formal education or language intervention. This would include explicit instruction in sophisticated word-level knowledge (Henry, 2010), as well as practice using higher level forms of oral discourse.
- Verbal memory plays a unique contribution as an added dimension of language processing, especially when working memory capacity is challenged by auditory-only tasks
- Neurodevelopmental disorders cannot be ruled in or out by any single deficit, or even by specific combinations of deficits, contrary to what modular or single-deficit models imply. Rather, multiple predictors contribute to shape diverse neurodevelopmental disorders in probabilistic ways

Should We Treat Listening Comprehension Deficits? Rinaldi et al, 2021

- Research indicates that therapy with a focus on standalone listening comprehension goals such as following directions, repeating words and sentences, as well as answering listening comprehension questions without the benefit of visual or written support will not functionally carry over into either therapeutic or academic language gains.
- That is because poor listening comprehension occurs secondary to oral language deficits in the areas of (including but not limited to) vocabulary knowledge, background knowledge, inferencing abilities, as well as syntactic, morphological, and lexical deficits in comprehending the presented information.
- These abilities will functionally improve in the context of contextualized language therapy focused on measurable oral language as well as literacy goals

Language and Literacy: Two Sides of the Same Coin

- If a child experiences any deficits in the foundational language areas such as listening and speaking, s/he will most certainly experience difficulties in the more complex areas of language such as reading and writing
- Many children with language disorders are later classified with a learning disability because their "later learning difficulties [took on] the form of problems acquiring higher levels of spoken language comprehension and expression as well as reading and writing" (Sun & Wallach, 2014)
- Language and literacy cannot be artificially separated but need to be addressed meaningfully together in sessions
- Integrating literacy into language goals shortens time spent in therapy and improves outcomes
- Beginning with 4th grade knowledge is attained from books vs. teachers
  - Students without basic literacy competency are at a significant disadvantage as compared to learning disabled but reading peers receiving therapy services
  - We should start addressing literacy as soon as the child enters school
  - Waiting till 4th grade is far too late

Contextualized Language Intervention (CLI)

- EBP treatment approach in which specific teaching steps are used to train multiple linguistic targets (Ukrainetz, 2006), with key being topic continuity across activities
- Children with learning disabilities (LD) and developmental language disorder (DLD) require explicit skill instruction before they are able to generalize new knowledge in contextually relevant contexts (Fuchs & Fuchs, 2001)
- Language intervention is contextualized when multiple language targets are addressed simultaneously in meaningful, connected activities.
- Intervention emphasizes improving multiple areas of language at once (e.g., form, content, and use) through purposeful, functional activities in salient context that have purpose beyond instructional objectives aka generalization to other areas of academics. (Harris-Schmidt & McNamee, 1986; Gillam et al, 2012)
  - Thematic
  - Literacy based
  - Narrative/Discourse Based
  - Salient
  - Contextual
  - Continuous
  - Generalizable to other contexts
- CLI is most effective when we inject **variability** and **modify** various aspects of our instruction including context, composition, duration in order not to limit our students' long-term outcomes

Goal Target Selection

- It’s not about the choice of the materials
- Goals are not based on materials
- Materials should be selected based on what goals the therapist needs to target
  - Those goals are always a result of a targeted and comprehensive assessment results (whether standardized or clinical)
- Goal selection is always prioritized based on student needs
- While approaches do matter for improvement, it’s the knowledge and skills of the treating specialist that make a difference in both the selection and implementation process

Duration for Goal Achievement

- The greater is the deviation from the normal range the more therapy time will be required
- If children received therapy before their past goal achievement may predict present therapy outcome and how much time it might take
- Time duration may also be further influenced by
  - Commitment of caregivers (attendance, homework)
  - Developmental spurts
  - Progress in therapy
  - Changes in clinician and/or approaches to therapy over time

Determining “Best Performance"

- 3 interacting factors are very important in creating goals
  - ❑The discrepancy between the students current functioning and what is expected for their age
  - ❑The number of impaired behavioral systems maintaining the disorder (see slide on maintain factors)
  - ❑The degree to which each system can be “repaired”/compensated for
- The greater the difference between the baseline performance and the mean-level of performance of age-level peers, the lower the probability that the child will eventually perform within the typical range
- The difference in performance is determined based on
  - ❑Standardized scores obtained from formal testing
  - ❑Developmental profiles derived from clinical assessments

Maintaining Factors (Klein & Moses, 1999)

- Factors that may maintain the disorder and delay therapy progress
  - Cognitive
  - Psychosocial
  - Sensorimotor
  - Linguistic
- Clinicians must create thoughtful interventions accounting for the above maintaining factors in order to make progress with clients in therapy.
- These will include successful management of the physical space, session structure, students' behavior as well as session materials in order to make academic progress.

Cognitive

- Intellectual Disability
- Attention deficits
- Memory deficits
- Verbal reasoning deficits

Psychosocial

- Psychiatric diagnoses
  - ADHD
  - Anxiety
  - Depression
  - Mood Disorder
- Pragmatic deficits

Sensorimotor

- Impaired hearing
- Impaired vision
- Limited limb mobility
- Poor handwriting

Linguistic

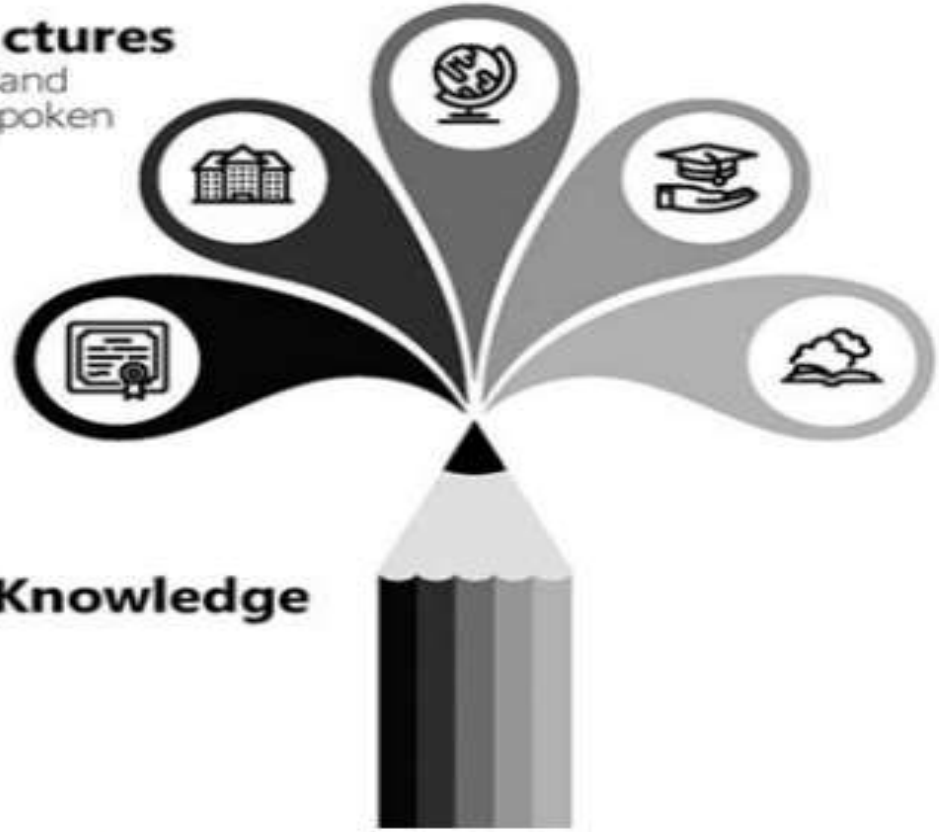
- Low vocabulary knowledge
- Impaired sentence formulation
- Poor story-telling abilities
- Poor reading, writing, and, spelling

Targeting Appropriate Goals

- SLPs must target academic language goals which will produce “robust and generalizable impact on educational outcomes” (Kelley & Spencer 2021, p. 102)
- Targeting academic language in intervention “produces meaningful effects on academic performance” (Kelley & Spencer 2021, p. 102)
  - Academic language is characterized by formal-language skills including metalinguistic and metacognitive vocabulary, complex syntax, discipline-specific terminology, sophisticated writing mechanics, etc., which allow students to acquire knowledge and more advanced academic skills while successfully completing reports and assignments meeting academic expectations, and ultimately college readiness.
- Kelley & Spencer 2021, recommend that school-based SLPs select academic language goals and intentionally, strategically, and intensely teach academic language during language intervention
  - Address vocabulary, discourse structures, complex sentences, morphological knowledge, and inferential thinking (p. 103)

ACADEMIC LANGUAGE

SPECIALIZED LANGUAGE, BOTH ORAL AND WRITTEN, USED TO ACQUIRE AND USE KNOWLEDGE



Discourse Structures
Patterns of narrative and informational texts (spoken or written).

Inferential Thinking
Predicting, problem-solving, hypothesizing, and making connections based on knowledge.

Morphological Knowledge
Knowledge of units of meaning with words.

Complex Sentences
Use of adverbial clauses, transition words, and elaborative noun phrases.

Vocabulary
General academic words that are used more frequently in school than in non-academic settings and domain-specific words.

Figure 1 Academic language: specialized language, both oral and written, used to acquire and use knowledge.

Kelley E, Spencer T. (2021) Feasible And Effective Language Intervention Strategies That Accelerate Students' Academic Achievement. Seminars In Speech And Language, 42(2):101-116.

A Brief Word on Materials Selection

- Highly Salient
- Attractive and Engaging
- Contextual
- Possessing Continuity
- Versatile Goal Formation Wise

- Picture Books
- Animated Films (CGI)
- Thematic Units on Current Events
- Common Core Related Materials https://www.coreknowledge.org/
- Grade Level Reading Passages (1-2 pages)
- Common Lit

High Impact Intervention Targets

Vocabulary & Semantic Flexibility Skills	Metalinguistic Awareness	Syntax and Grammar	Narrative Competence
Verbal Reasoning	Pragmatics & Social Cognition	Reading	Writing

Prioritizing Intervention Targets

- We need to look at the student's most significant areas of need to determine what needs to be addressed in therapy first.
- First-grade student speaks in fragmented sentences?
  - Addressing their syntax and grammar should be the top priority!
- Student is illiterate in 5th grade?
  - We need to work on their reading abilities since no amount of oral language input will produce the same learning effect as the steady acquisition of vocabulary and concepts from written texts as is received by the student's literate age-level peers.
- Twelve-grade student aces standardized tests but is significantly socially isolated
  - Thoughtfully designed neuroaffirming higher-order pragmatic intervention, will be monumentally important for the student

What Can Be Meaningfully Measured?

- We can effectively measure expressive language output (vocabulary, grammar, syntax), narrative components (e.g., story grammar elements) pragmatic elements (e.g., identification of irony and sarcasm), as well as reading, spelling, and writing competence. Measurable goals in these areas will functionally result in academic gains.
- What should we not measure?
- Anything related to receptive language and listening skills. For example, it is not functional to read a story to the student and then ask the student questions without any visual support.
- This will create a very quick cognitive overload situation and will not result in functional carryover of outcomes. It is much more functional to:
  1. Use a picture book
  2. Use a video
  3. Ask the student to read themselves if they are able to (teach them to read if they are not).
- This will result in far more functional information delivery (more salient and memorable) and allow the student to effectively use visual and written support to answer questions, define vocabulary, etc.

Writing Measurable Goals: Putting it all Together

- Break it down into measurable parts
- Given ___time period (1 year, 1 progress reporting period, etc)
- Student will be able to (insert specific goal)
- **With ___accuracy/trials**
- **Given ___ level of**
- **Given _____type of prompts**

A Word on Calculating Accuracy in Sessions

- What accuracy is acceptable for carryover?
- Frequency of trials per session?
  - 8/10 trials is very different from 4/5 trials
- Over a period of which number of sessions?
- Ensure spontaneous performance vs. any levels of prompting
- Sessions
  - Trials are much easier to measure
- Progress Notes
  - Percentages calculates as averages

Prompts, Cues & Levels of Support

- Prompt
  - Verbal request to perform an action
- What level of support will be provided?
  - Minimal prompts (1 repetition)
  - Moderate prompts (2-3 repetitions)
  - Maximum prompts (4+ repetitions)
- Cue
  - Nonverbal signals given to client
- Frequency
  - How often?
- Intensity
  - How much?

Types of Prompts & Cues

- **Phonemic**
  - First sound/syllable to help with the word
- **Semantic**
  - Short descriptions that will aid the client in producing the desired word/definition (‘its long and its green and it grows in the garden)
- **Cloze sentences**
  - ‘You sleep on a ____”
  - The continent in the middle of a map made up of 4 letters is ___”
- **Question prompt** follow up makes it easier for the client to respond to the original question
  - “Do you think…? Where is…?”
- **Visual**
  - Picture cards
  - Photos
  - Comics
- **Written**
  - Text support
- **Gestural**
  - Motioning up or down
  - Spreading hands to indicate size

Vocabulary Instruction

- Wright & Neuman (2014) found that teachers explained word meanings during “teachable moments” in the context of other instruction:
  - Gave one-time, brief word explanations
  - Engaged in unsystematic word selection
  - Spent minimal time on vocabulary devoted to subject areas (e.g., science and social studies in which word explanations were most dense)
  - Teachers serving in economically advantaged schools explained words more often and were more likely to address sophisticated words than teachers serving in economically disadvantaged schools.
  - They concluded that “these results suggest that the current state of instruction may be CONTRIBUTING to rather than ameliorating vocabulary gaps by socioeconomic status.”
- "Teachers with many struggling children often significantly reduce the quality of their own vocabulary, unconsciously, to ensure understanding." “It's like having a buffet table but removing everything except a bowl of peanuts..." (Anita Archer)

Vocabulary Selection

- According to Beck et al (2002) TIER II words should be the primary focus of vocabulary interventions since they would make the most significant impact on the child's spoken and written expression
- Most important words for direct instruction as they facilitate academic success
  - High frequency words which occur across a variety of domains conversations, text, etc.
  - Useful across a variety of settings and taught in a variety of ways
  - Contain multiple meanings
  - Descriptive in nature
    - Hostile, illegible, tolerate, immigrate, tremble, despicable, elapse, etc.
  - Polysemous words
    - Words that have different meanings that derive from a common origin
  - Homographs
    - Words that have different meanings with unrelated origins
  - Metacognitive and metalinguistic verbs
  - Adverbs

Vocabulary Instruction Tips

- Make it thematic
- Embed it in current events (e.g., holidays, elections, seasonal activities)
- Classroom topic related (e.g., French Revolution, the Water Cycle, Penguin Survival in the Polar Regions, etc.)
- Select difficult/unknown words that are critical to the passage meaning, which the students are likely to use in the future (Archer, 2015)
- Select words used across many domains
- **Do not select more than 4-5 words to teach per unit to not overload the working memory (Robb, 2003)**
- Spend more than one session working with the same words
- **Research indicates that language disordered children require 36 exposures (as compared with 12 exposures for typically developing children) to learn new words via interactive book reading (Storkel et al, 2016)**
- Discuss vocabulary words before, during, and after the book reading, by asking the children to both repeatedly define and then use selected words in sentences so the students can solidify their knowledge of these words
- Ask to define novel vocabulary words only at the end of each session

Formulating Vocabulary Targets

- Animated films offer a range of flexibility with vocabulary selection due to being wordless
- The clinician has a range of options with respect to creating literate vocabulary goals with a focus on breadth and depth of vocabulary words
- The clinician has the added bonus of using synonyms, multiple meaning words, metalinguistic and metacognitive verbs, etc., in context in order to increase the salience of presented information
  - Metalinguistic verbs include words that refer to acts of speaking (e.g. said, exclaim, tell)
  - Metacognitive verbs, which are those that refer to acts of thinking (e.g. decide, guess, know) (Nippold, 2016)
    - Know, think, learn, understand, perceive, feel, guess, recognize, notice, want, wish, hope, decide, expect, prefer, remember, forget, imagine, and believe.
- Literate vocabulary: “Made with Love”
  - Pediatric
  - Oncology
  - Chemotherapy
  - Recreational
  - Thoughtful
  - Regretful
  - Responsibilities

Oral Language Competence

- Strongly predicts reading comprehension and written composition outcomes particularly as related to narrative production
- Poor discourse and narrative abilities place children at risk for learning and literacy-related difficulties including reading problems (McCabe & Rosenthal-Rollins, 1994)
- Language produced during story retelling is positively related to bilingual reading achievement (Miller et al, 2006)
- Narrative analyses help to distinguish children DLD from their typically developing peers (Allen et al 2012)
- Narrative weaknesses significantly correlate with social communication deficits (Norbury, Gemmell & Paul, 2014)
- Students with decreased narrative abilities evidence numerous social communication deficits
  - Decreased gestalt processing characterized by difficulty summarizing main ideas and grasping the 'gist' of books and films(Loveland & Tunali, 1993; Jolliffe & Baron-Cohen, 2000)
  - Decreased organization and coherence of verbal output (Landa et al. 1995; Diehl et al. 2006)
  - Fewer use of perspective taking terms denoting mental states (Capps et al. 2003; Begeer et al. 2010)
  - Use of irrelevant, inappropriate, or "bizarre utterances" (Diehl et al., 2006; Loveland, McEvoy, & Tunali, 1990; Hogan-Brown-et al, 2014; Diehl et al. 2006)

Metalinguistic Awareness Goal Targets

- The ability to talk about, analyze and think about language and words particularly as decontextualized entities
  - Word analysis and manipulation goals
- Interpretation of Ambiguity (lexical, structural, phonological, morphophonemic, etc.)
- Interpretation of figurative language
- Assumptions of perspectives of others
- Comprehension of polysemous words
- Manipulation of speech styles to address different audiences

Narrative Abilities and Reading Development

- Children with reading disabilities demonstrate difficulties in production and comprehension of oral narratives (Roth & Spekman, 1986; Snyder & Downey, 1991)
- Findings from large scale studies reveal “consistent but moderate correlations between children’s oral language and reading” (Reese et al, 2010)
- Feagans and Appelbaum (1986) found that learning impaired children’s performance on a story retelling task was a better predictor of their later reading achievement than were other aspects of their oral language, such as their vocabulary and syntax.
- Children’s oral narrative skills were correlated with reading skills at older ages (2-3 years of formal reading instruction)(Reese et al, 2010; Storch & Whitehurst, 2002)
- Children with poor oral language competence display poor reading comprehension and written composition abilities even in the presence of relatively intact non-word reading as well as reading fluency skills
- Strong discourse and narrative abilities significantly positively correlate with reading comprehension abilities (Catts, Fey, Tomblin, & Zhang 2002; Dickinson & McCabe, 2001; Griffin, Hemphill, Camp, & Wolf, 2004)

Narrative Interventions and Academic Performance

- Narrative intervention found to be effective for students with significant disabilities (Gillam, 2009)
- Narrative intervention was 40-60% more effective as compared to traditional therapy using commercially packaged games and situational question cards by Linguisystems (Gillam, 2009)
- Petersen (2011) found that all narrative intervention studies reviewed with children with language impairments had positive effects
- Improving narratives facilitates improvements in written composition even for children with significant deficits (Kirby et al., 2020; Petersen et al., 2019; Spencer & Petersen, 2018)

Effectiveness of Narrative Interventions

- Peterson (2012) conducted a systematic review of the literature pertaining to narrative intervention for preschool or school-age children with language or learning disabilities and found moderate to large effect size for both macrostructure and microstructure (.73 to 1.57).
- Spencer and Slocum (2019) evaluated the effects of a narrative intervention on story retelling and personal story generation skills of preschoolers with risk factors and narrative language delays.
  - Participants made substantial gains in narrative retelling, demonstrated improved pre-intervention to post-intervention scores for personal story generations, and maintained improvements when assessed following a 2-week break
- Pico et al 2021 performed a systematic review with meta-analyses to examine interventions that aimed to improve narrative language outcomes for preschool and elementary school-age children in US. A variety of effective interventions were found that improve narrative production and comprehension outcomes in children with diverse learner characteristics.
  - Some common characteristics across these interventions include manualized curricula, opportunities to produce narrative language, verbal and visual supports, direct instruction of story grammar, and use of authentic children's literature
- Oral narrative language interventions have been found to improve both the macro- and microstructural features of oral narratives for children with language impairment (e.g., S. L. Gillam, Gillam, & Reece, 2012; Hayward & Schneider, 2000; Hessling & Schuele, 2020).

What Makes Discourse Linguistically Sophisticated?

- As per Westby (2005) there are four integral components:
- Conjunctions
  - Words used to connect clauses or sentences or to coordinate words in the same clause (e.g., and, but, if, etc.)
- Elaborated noun phrases (ENP) (Eisenberg et al, 2008)
  - Noun phrase with two or more modifiers preceding the main noun (e.g., cat-glorious gray cat; enemy–a devious dastardly enemy), or with qualifiers (e.g., prepositional phrases, appositives, relative clauses, etc. following the noun ("the dog, a hairy flea-covered mongrel; the friend who is like a sister") (Benson, 2009 as described in Cooper, 2013)
- Metalinguistic and metacognitive verbs
  - Metalinguistic verbs include words that refer to acts of speaking (e.g. said, exclaim, tell)
  - Metacognitive verbs, which are those that refer to acts of thinking (e.g. decide, guess, know) (Nippold, 2016)
    - Know, think, learn, understand, perceive, feel, guess, recognize, notice, want, wish, hope, decide, expect, prefer, remember, forget, imagine, and believe.
- Adverbs
  - Concordant and discordant (Nippold & Undlin, 1993)

Treating Grammar

- Children with Developmental Language Disorder (DLD) do not have difficulty acquiring all grammatical morphemes.
- Studies have shown that they have difficulty learning grammatical morphemes that reflect tense and agreement (e.g., third-person singular, past tense, auxiliaries, copulas, etc.).
- Measures developed by **Hadley & Holt, 2006**; **Hadley & Short, 2005** (e.g., **Tense Marker Total & Productivity Score**) can yield helpful information regarding which grammatical structures to target in therapy.

Grammar and Language Modeling

- Research indicates that when clinicians are attempting to expand children's utterances, they need to **provide well-formed language models**. Studies show that children select strong input when its surrounded by weaker input (the surrounding weaker syllables make stronger syllables stand out). As such, clinicians should expand upon/comment on what clients are saying with grammatically complete models vs. telegraphic productions. (Bedore & Leonard, 1995)
- Bredin-Ojaand & Fey (2014) directly compared the effects of tele-graphic versus grammatically complete models and found that providing a telegraphic prompt to imitate does not offer any advantage as an intervention technique.
- Use of highly variable input in a therapeutic context to facilitate grammatical morpheme learning is highly important (Plante et al, 2014)

Treating Syntax (Kamhi, 2014)

- Many SLPs erroneously believe that complex syntax should be targeted when children are much older.
- As per the Common Core State Standards (CCSS) complex syntax should be targeted 2-3 grades, which is far too late
- Typically developing children begin developing complex syntax around 2 years of age and begin readily producing it around 3 years of age
- As such, clinicians should begin **targeting complex syntax in preschool years** and not wait until the children have mastered all morphemes and clauses
- Syntax Targets:
  - Independent and Dependent Clauses
    - Nominal, relative, and adverbial clauses
  - Elaborated noun phrases
  - Coordinating and subordinating conjunctions
  - Cohesive ties and temporal markers

EBP Interventions for Syntax

- Explicit Grammatical Intervention for Developmental Language Disorder provide tools to help professionals make grammatical rules visual and explicit when providing grammatical intervention (2 out of 3)
  - **SHAPE CODING™ System** (Ebbels, 2007; Ebbels et al., 2014, 2007)
    - Extensive visual coding of language structures and rules using colors, shapes, and arrows for students ages 5+
      - (a) shapes (for phrases, such as noun phrase, verb phrase, and adjective phrase), which are linked with questions such as "who," "what doing," "what like," and "how feel"; (b) colors (for parts of speech); (c) single/double lines (for marking singular and plural); and (4) arrows (for verb tenses).
  - **Complex Sentence Intervention (CSI)** (Balthazar & Scott, 2017, 2018)
    - Explanation of language structures and how they support specific meanings and functions
    - The CSI (for ages 10+ but can be used with younger students) protocol teaches adverbial clauses, object complement clauses (clauses in object position), and relative clauses

Narrative Retelling Targets

Teaching organizational aspects of story telling provides structural foundation for carryover of skill into the classroom (Klecan-Aker, 1993)

Improving narrative ability facilitates improvements in written composition even for children with significant deficits (Kirby et al., 2020; Petersen et al., 2019; Spencer & Petersen, 2018)

Focus on aspects of macrostructure via teaching how to effectively identify story grammar elements

Use visuals to teach story grammar elements and their definitions

After solid comprehension of story grammar elements begin building basic retelling abilities in short manageable retell increments

Pause books/videos at appropriate intervals to explicitly identify story grammar elements

For emergent learners move in very brief increments with the focus on "What is happening in this frame?" when retelling the story

Story Grammar Elements

Subjective	Student was picked up from his class by the SLP. He was cooperative and participated in session tasks. Throughout the session Student was excessively chatty and required some redirections to pause his questions and comments and allow the clinician to speak and ask him questions.
Objective Materials: Picture Book "Bear Wants More" by Karma Wilson Story Grammar Elements Cards	1. Student will retell the story spontaneously in his own words in 1 out of 1 trials. 2. Student will identify the story grammar element characters in 9/10 trials spontaneously 3. Student will identify the story grammar element *setting in* 1 out of 1 trials spontaneously 4. Student will identify the story grammar element *problem* 1 out of 1 trials spontaneously 5. Student will identify the story grammar elements *feelings* in 9/10 trials spontaneously 6. Student will identify the story grammar elements *plan* in1 out of 1 trials spontaneously 7. Student will identify the story grammar elements *actions* in 8 out of 10 trials spontaneously
Assessment	1. Student retold the story in his own words in 1 out of 1 trials with maximal clinician support. Student stated *"Eating food."* He required maximal clinician support to add more detailed information to his retell such as *"Bear was starving and hungry because he was hibernating."* 2. Student identified the story grammar element characters (e.g., *Bear, owl, hen, badger, etc.*,) in 5/10 trials with moderate clinician prompting . Student remembered the main character bear as well as badger and mouse but needed a moderate clinician prompting to identity the other characters. 3. Student identified the story grammar element *setting (e.g., "in the forest in the bears den.") in* 1 out of 1 trials. 4. Student identified the story grammar element *problem (e.g., "He woke up starving.")* 1 out of 1 trials with maximal clinician prompting. 5. Student identified the story grammar elements *plan (e.g., "Bear ate strawberries but he was still hungry so he ate cookies, strawberries, etc.")* in 8/10 trials with maximal clinician prompting. 6. Student identified the story grammar elements *ending (e.g., The other characters were still hungry but the bear was full.")* in1 out of 1 trials with moderate clinician prompting. 7. Student identified the story grammar elements *actions (e.g., nibbling, jumping, laughing, et c.)* in 8 out of 10 trials spontaneously **Student required maximal prompting for almost all of the story grammar elements. His responses were often vague and required prompting in order to gain more information. Student also often gave answers that were not related to the book and needed reminders to give appropriate answers.**
Plan	Continue targeting story grammar elements

Pragmatics + Social Cognition = Social Competence

Pragmatics is the use of language for a variety of effective social interactions with others in a variety of social settings (home, school, and community) or 'the ability to use language appropriately in various social contexts'

Social cognition refers to the abilities related to theory of mind, such as verbal and nonverbal inferencing including experiencing empathy or emotional states of others, as well as understanding affective and emotional aspects of selves and others (Adams, 2005)

Pragmatic Goals Focus

Recognizing complex emotions
Perspective taking based on body language and facial expressions
Summarization
Synthesis and analysis of the presented information
Comparisons (similarities and differences between scenarios, characters, etc.)
Application of sympathy/empathy
Social relatedness
Interpretation of ambiguous situations
Rendering of positive or negative social judgements
Drawing meaningful conclusions

Goal To Improve Social Competence with Corresponding Examples

Identification of higher-order emotions of characters in presented films

("The dad feels dejected because he cannot fix the music box") (Windup)

Provision of supportive statements towards the characters plight

("I feel sorry for him because his dad left him at an orphanage") ("Umbrella)

Interpretation of nonverbal body language of others (facial expressions, postures, gestures) in films

Invention of dialogue for the characters

Interpretation of facial expressions, body language, and gestures via visual clues

("He is smirking") ("Brain Divided")

Assumption of perspectives (e.g., infer mental states of others and interpret their knowledge, intentions, beliefs, desires, etc.).

Pragmatic Goals

Subjective	Student was picked up from his classroom by the SLP. Student was compliant for the majority of the session, however, required maximum clinician prompting to provide answers for questions. Student also appeared to be tired evidenced by closing his eyes throughout the session.
Objective Materials: **Social Squad Videos: Empathy**	1. Student will verbalize thoughts of individuals based on non-verbal body language and facial expressions in a social situation in 4/5 trials spontaneously. 2. Student will verbalize feelings of individuals based on non-verbal body language and facial expressions in a social situation in 4/5 trials spontaneously. 3. Student will verbalize what went wrong in a social situation in 4/5 trials spontaneously. 4. Student will verbalize what could have been done better in a social situation in 4/5 trials spontaneously. 5. Student will identify the use of empathy in presented situations in 4/5 trials spontaneously.
Assessment	1. Student verbalized the thoughts of individuals based on non-verbal body language and facial expressions in social situations in 1/1 trial with minimal clinician prompting (e.g., *When asked what the friends were thinking when their friend made a rude comment, Student stated, "Why would he say that?"*). 2. Student verbalized feelings of individuals based on non-verbal body language and facial expressions in social situations in 3/3 trials with moderate clinician prompting (e.g., *When asked how the girl felt after her friend used a condescending tone of voice, Student stated that she felt, "Aggravated" and later stated the girl probably felt "disrespected" when her friend made an inappropriate comment about her grandmother's passing*). 3. Student verbalized what went wrong in a social situation in 3/4 trials with moderate clinician prompting (e.g., *When asked what went wrong after the girl told her friend about failing a test and her friend told her "You should study more, I got an A", Student said "The girl is being mean" instead of identifying that the friend was not being empathetic).* 4. Student verbalized what could have been done better in a social situation in 4/4 trials with moderate clinician prompting (e.g., *When asked what the boy in the video could have said instead of asking about the girl's grandmother's age, Student stated that he could have said, "I'm sorry for your loss.").* 5. Student identified the use of empathy in presented situations in 4/4 trials with moderate clinician prompting (e.g., *Student identified that the boy was being empathetic towards his friend when he offered to study together and said he was sorry).*
Plan	Continue targeting pragmatic skills.

Decoding Goals

Subjective	Student was picked up from her classroom by the SLP. She participated cooperatively and compliantly throughout the session.
Objective Materials: **Raz Plus Lessons 6-8** **A Tap and a Pat** **The Tot and the Pot** **Don and Dots**	1. Student will spontaneously decode CVC words containing short vowel /a/ with 90% accuracy. 2. Student will spontaneously decode CVC words containing short vowel /o/ with 90% accuracy. 3. Student will spontaneously decode high frequency words (e.g., *on, the, with, this, at, are, saw)* with 90% accuracy.
Assessment	1. Student spontaneously decoded CVC words containing short vowel /a/ with 75% accuracy. Student decoded words including, *'Sam'*, *'pad'*, *'pan'* and *'mat.'* She demonstrated difficulty decoding words including, *'tan'*, *'Pam'* and *'taps'*. Student required moderate clinician support with decoding words. 2. Student spontaneously decoded CVC words containing short vowel /o/ with 75% accuracy. Student decoded words including *'Tom'*, *'mop'*, and *'tot'*. Student demonstrated difficulty decoding words including *'not'*, *'got'*, and *'Don'*. Student required moderate clinician support with decoding words. 3. Student spontaneously decoded high frequency words (e.g., *on, the, with, this, at, are, saw*) with 75% accuracy. Student decoded high frequency words including, *'and'*, *'the'*, and *'with'*. She demonstrated difficulty decoding the words *'this'*, *'at'*, *'are'*, and *'saw'*. Student required moderate clinician support with decoding high frequency words. After reading words multiple times, Student continued to demonstrate difficulty (e.g., *this, are*).
Plan	Continue targeting decoding of CVC words containing a variety of vowel sounds

Reading Comprehension Goal Examples

- Effective pausing for text punctuation (commas, periods, etc.)
- Effective definitions of literate, text-embedded vocabulary (abstract nouns and metacognitive verbs) using text context
- Effective use of background information to interpret text when defining unknown vocabulary, answering comprehension questions or dealing with less familiar/unfamiliar topics
- Improve morphological awareness abilities via effective recognition of stems and affixes (prefixes and suffixes) of presented words
- Make text based and knowledge-based inferences

Writing Goal Examples

Student will create written compositions utilizing a variety of compound and complex sentences.
Student will correctly use parts of speech (e.g., adjectives, adverbs, prepositions, etc.) in compound and complex sentences for writing purposes.
Student will correctly use past, present, and future verb tenses (e.g., subject-verb agreement) for writing composition purposes.
Student will appropriately use different sentence types for story composition purposes (e.g., declarative, interrogative, imperative, and exclamatory sentences).
Student will appropriately use a variety of conjunctions to connect parts of sentences together.
Student will write sentences with a variety of appositive, participial, adjective, adverb, and prepositional phrases.
Student will utilize appropriate punctuation at the sentence level (e.g., apostrophes, periods, commas, colons, quotation marks in dialogue, and apostrophes in singular possessives, etc.).

Writing

Subjective	Student was picked up from his classroom by the SLP. He presented to be in good spirits and participated cooperatively and compliantly throughout the session. He was occasionally distracted as noted by off topic conversations and playing with the pencil, but was highly redirectable.
Objective Materials: Proofreading and editing Worksheets	1. Student will spontaneously revise presented sentences for appropriate punctuation with 90% accuracy. 2. Student will spontaneously revise presented sentences for appropriate capitalization with 90% accuracy. 3. Student will spontaneously revise presented sentences for appropriate spelling with 90% accuracy.
Assessment	1. Student spontaneously revised the presented passage and corrected 17/28 errors. 2. Student spontaneously corrected punctuation in sentences in 2/8 trials. He was able to add question marks when needed and remove them when unnecessary but struggled to place commas appropriately. 3. Student spontaneously revised the presented passage for appropriate capitalization in 9/9 trials. He correctly capitalized words at the beginning of sentences where necessary and changed them from upper to lower case if they were in the middle of sentences. 4. Student spontaneously revised the presented paragraph for spelling in ⅖ instances. Student corrected words "wonce → once and grate → great"
Plan	Continue targeting proofreading and editing through worksheets.

Conclusion

- When planning make your goals make sure that they are functional, realistic, and measurable
- When executing your sessions make sure that materials and interactions are on the child's cognitive level.
- Goal target selection will include integrating both language and literacy targets in sessions in order to effectively improve academic performance outside the therapy room
- Contextual interventions can effectively address numerous language goals in context
- Contextual interventions tend to be more salient and memorable to the students in question resulting in more functional clinical outcomes

Presenter Feedback

- Your feedback is every important
- Please use this link https://tatyanaelleseff.com/speaking-engagements/ to rate the quality of this presentation so you could continue to receive future quality content

Helpful Related Resources

- Visit https://www.smartspeechtherapy.com/shop/ online story to view related materials such as
- Evidence Based Narrative Interventions via Use of Picture Books
- Evidence Based Use of Animated Films to Target Therapy Goals
- Teaching “Insight” to Students with Social Pragmatic and Executive Function Deficits
- Improving Critical Thinking Skills via Picture Books in Children with Language Disorders

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