Five Evidence-based Intervention Techniques for SLPs Working with School-aged Children Targeting Grammatical Forms

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Acknowledgements

• Grant Funding:
  – NIH NIDCD, R03 (1R03DC011365-01)
  – NIH NIDCD, R01 (R01 HD 074346)
  – Internal Funding from The University of Minnesota

• All of the families and children who have participated in our studies and others!

• We have no financial or nonfinancial conflicts of interest to disclose.
Learner Outcomes

By the end of this symposium, clinicians will be able to:

1. Describe five evidence-based grammatical intervention techniques,
2. Identify verb forms to utilize in intervention that facilitate learning of grammatical forms, and
3. Apply therapeutic techniques, such as auditory bombardment, verb placement, and explicit teaching to their grammatical interventions with school-aged children.
Why Grammar?
Typical Language Development

- Produce First Words: 12 mo
- Combining Words: 24 mo
- Begin Producing Morphemes: 27-30 mo
## Brown’s 14 Grammatical Morphemes (Brown, 1973)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Morpheme</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>II (27-30 mo)</td>
<td>Present progressive -ing, Plural -s, in</td>
<td>Me playing. That books. Cookie Monster in there.</td>
</tr>
<tr>
<td>III (31-34 mo)</td>
<td>On, Possessive ‘s</td>
<td>Doggie on car. Mommy’s shoe.</td>
</tr>
<tr>
<td>V (41-46 mo)</td>
<td>Regular past, Irregular past, Regular 3\textsuperscript{rd} person singular, Articles a, the, contractible copula be</td>
<td>He walked. She came. She plays. The cat. That’s a puppy.</td>
</tr>
<tr>
<td>V+ (47-50 mo)</td>
<td>Contractible auxiliary be, Uncontractible copula be, Uncontractible auxiliary be, Irregular 3\textsuperscript{rd} person singular</td>
<td>They’re playing. I am coming. Who’s here? I am. Who’s playing. I am. She has. He does.</td>
</tr>
</tbody>
</table>
Link Between Grammar and Reading

The Many Strands that are Woven into Skilled Reading
(Scarborough, 2001)

LANGUAGE COMPREHENSION

BACKGROUND KNOWLEDGE
(facts, concepts, etc.)

VOCABULARY
(breadth, precision, links, etc.)

LANGUAGE STRUCTURES
(syntax, semantics, etc.)

VERBAL REASONING
(inference, metaphor, etc.)

LITERACY KNOWLEDGE
(print concepts, genres, etc.)

WORD RECOGNITION

PHONOLOGICAL AWARENESS
(syllables, phonemes, etc.)

DECODING (alphabetic principle, spelling-sound correspondences)

SIGHT RECOGNITION
(of familiar words)

SKILLED READING:
Fluent execution and coordination of word recognition and text comprehension.
Grammaticality Judgment: Comprehensive Assessment of Spoken Language (Carrow-Woolfolk, 1999)

Why Grammar?

• One area of language that is particularly difficult for many children to master is grammatical language.
  – developmental language disorder/specific language impairment
  – Down syndrome; fragile X syndrome
  – autism spectrum disorder
Current Practice - 2018
(https://pubs.asha.org/doi/pdf/10.1044/2018_AJSLP-17-0168)

Purpose: The aim of this study was to better understand current grammatical intervention approaches. Despite grammatical language being a common weakness among children with language impairment, relatively little is known about current grammatical intervention practices of speech-language pathologists. Our study is the first to survey these practices. Intervention setting and dosage if resources were unlimited.

Results: We grouped participants based on the ages of children that represent the largest percentage of their caseload resulting in an early education group (n = 114) and an elementary
Current Practice

- 23 Question online survey
- Completed by 338 SLPs
  - 114: Early Education
  - 224: Elementary
Percent of Caseload with Expressive Grammatical Language Goals
Treatment Time Spent Targeting Grammatical Forms

Preschool: 57%
Elementary: 48%
### Forms Targeted

<table>
<thead>
<tr>
<th>Target</th>
<th>Early Education ($n = 114$)</th>
<th>Elementary ($n = 224$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjectives</td>
<td>5%</td>
<td>14%</td>
</tr>
<tr>
<td>Articles “a,” “an,” “the”</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>Auxiliary verbs</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>Copula “be”</td>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>Expanding utterances</td>
<td>25%</td>
<td>43%</td>
</tr>
<tr>
<td>Negatives</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Nouns</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Plural –s</td>
<td>56%</td>
<td>50%</td>
</tr>
<tr>
<td>Possessive –s</td>
<td>28%</td>
<td>12%</td>
</tr>
<tr>
<td>Prepositions</td>
<td>21%</td>
<td>15%</td>
</tr>
<tr>
<td>Present progressive verbs</td>
<td>55%</td>
<td>35%</td>
</tr>
<tr>
<td>Pronouns</td>
<td>38%</td>
<td>51%</td>
</tr>
<tr>
<td>Questions</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Regular and irregular past tense</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Regular and irregular third person</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Syntax (nonspecific)</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Verbs (nonspecific)</td>
<td>17%</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>24%</td>
<td>26%</td>
</tr>
</tbody>
</table>

*Note:* Bold-faced values indicate the targets with the greatest number of participant responses.
Clinicians need efficient and effective strategies to use when targeting grammatical forms.
Today’s Agenda

1. Auditory Bombardment
2. Verb Variability
3. Verb Complexity
4. Verb Placement
5. Explicit Approaches
Treatment Approaches

- Discrete Trials
- Imitation
- Modeling/Focused Stimulation
- Recasting
- Clinician Directed
- Hybrid
- Child Directed
Today’s Agenda

1. Auditory Bombardment
2. Verb Variability
3. Verb Complexity
4. Verb Placement
5. Explicit Approaches
Auditory Bombardment

• What is it?
  – A brief period of high-density modeling (2-4 min)
  – The child is prompted to listen carefully
  – No other demands are placed on the child

• When should you do it?
  – Before treatment session
  – After treatment session
What does the research say?
(https://pubs.asha.org/doi/pdf/10.1044/2017_LSHSS-17-0077)

Effective Use of Auditory Bombardment as a Therapy Adjunct for Children With Developmental Language Disorders

Elena Plante, Alexander Tucci, Katrina Nicholas, Genesis D. Arizmendi, and Rebecca Vance

Purpose: Modeling of grammatical forms has been used in conjunction with conversational recast treatment in various forms. This study tests the relative effect of providing bombardment prior to or after recast treatment.

Method: Twenty-eight children with developmental language disorder participated in daily conversational recast treatment for morpheme errors. This treatment was either preceded or received auditory bombardment before or after enhanced conversational recast treatment. However, there was a difference in the number of children who could be considered treatment responders versus nonresponders, favoring those who received auditory bombardment after recast treatment.
What does the research say?

- Plante et al. (2018)
  - To determine the relative effect of providing auditory bombardment prior to or after treatment
  - 28 preschool children aged 4;3-6;2 with DLD
  - Half in Bombardment First and half in Bombardment Last
  - Auditory bombardment consisted of 24 short clinician utterances
    - Joe tripped.
    - The boys raced.
    - She scared him.
What does the research say?

- Plante et al. (2018)
  - Pairing auditory bombardment with conversational recast produced significant effects for children with DLD
  - No significant differences between Bombardment First and Bombardment Last
  - More children in Bombardment Last than in Bombardment First (12 vs. 8) showed a minimum treatment response
Clinical Considerations

- Auditory bombardment may be presented in a variety of short activities as long as they hold the child’s attention (= looking at the clinician)

- Keep the overall duration as brief as possible

- Easy to execute and incorporate into therapy
Verb Variability

• What is it?
  – High verb variability facilitates grammatical morpheme learning

• How many is enough?
  – 24 different verbs in each session
What does the research say?

Variability in the Language Input to Children Enhances Learning in a Treatment Context

Elena Plante, a Trianna Ogilvie, a Rebecca Vance, a Jessica M. Aguilar, a Natalie S. Dailey, a Christina Meyers, a Anne Marie Lieser, a and Rebecca Burton a

Purpose: Artificial language learning studies have demonstrated that learners exposed to many different nonword combinations representing a grammatical form demonstrate rapid learning of that form without explicit instruction. However, learners presented with few exemplars, even when they are repeated frequently, fail to learn the underlying grammar. This study translated this experimental generalization probes as well as spontaneous use of trained morphemes was tracked throughout treatment.

Results: The high-variability condition only produced significant change in children’s use of trained morphemes, but not untrained morphemes. Data from individual children confirmed that more children in the high- than the low-variability condition showed a strong treatment...
What does the research say?

- Plante et al. (2014)
  - To test the efficacy of increasing exemplar variability
  - 18 preschool children aged 4;0-5;11 with DLD
  - 12 vs. 24 unique verbs during recasts for 6 weeks
  - More children in the high- than the low-variability condition showed a strong treatment effect
  - The high-variability condition produced significant change in children’s use of targeted morphemes
Clinical Considerations

• Mix and match your Supper Dupper cards
  – Shuffle the cards into sets of 8 or 12
  – Select 2 or 3 sets for each session
Today’s Agenda

1. Auditory Bombardment
2. Verb Variability
3. Verb Complexity
4. Verb Placement
5. Explicit Approaches
Verb Complexity

• Clinicians often take a developmental approach when teaching grammar, starting with easier (early acquired) targets.

• However, children may benefit from models and recasts that include “hard” verbs over “easy” verbs first.
Research Article

Do the Hard Things First: A Randomized Controlled Trial Testing the Effects of Exemplar Selection on Generalization Following Therapy for Grammatical Morphology

Amanda Jean Owen Van Horne, Marc Fey, and Maura Curran
Verb Complexity

Research Article

- Randomized control trial
- 18 children with DLD between 4-10 years
- Target was increasing use of regular past-tense \(-ed\)
- Treatment groups: easy first \((N = 10)\) and hard first \((N = 8)\)
- Hard-first group made greater gains in accuracy
But what makes verbs easy or hard?

- Teolecity
- Phonological complexity
- Frequency of stem form
Telecity

Telic
- Directed toward a definite end (easier)
  - jump
  - trip
  - spill

Atelic
- Shows that an action is incomplete (harder)
  - walk
  - run
  - cry
Phonological complexity

Number of sounds in a cluster

Unusual phonological combination

Manner and place of sound production

/mpt/ in jumped vs. /nd/ in stunned

Stems that end with -t and -d and then add -ed are more difficult

Obstruent and alveolars more difficult
Frequency

- Verbs heard frequently without being inflected are harder to inflect.

  **Fish ➔ Fishing**

- Verbs that are rarely inflected with past tense harder to inflect with past tense, rarely inflected in –ing are harder to inflect with –ing, etc.

  **I am wanting an ice cream**
“Hard” Verbs

- Owen Van Horne & Green Fager, 2015

### Appendix B

Phonological codes and unstandardized frequency and telicity values for each verb along with the predicted percentage correct use from the regression model in Table III for the SLI group. Verbs are presented from easiest/most accurate (close) to hardest/least accurate (exercise).

<table>
<thead>
<tr>
<th>Verb stem</th>
<th>Manner</th>
<th>Place</th>
<th>Telicity</th>
<th>Log past frequency</th>
<th>Log lemma frequency</th>
<th>SLI predicted percentage correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>close</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>3.92</td>
<td>2.39</td>
<td>2.99</td>
<td>0.87</td>
</tr>
<tr>
<td>play</td>
<td>Other</td>
<td>Other</td>
<td>1.71</td>
<td>1.28</td>
<td>2.33</td>
<td>0.86</td>
</tr>
<tr>
<td>scare</td>
<td>Other</td>
<td>Alveolar</td>
<td>3.00</td>
<td>2.22</td>
<td>2.42</td>
<td>0.86</td>
</tr>
<tr>
<td>answer</td>
<td>Other</td>
<td>Alveolar</td>
<td>3.75</td>
<td>1.15</td>
<td>2.21</td>
<td>0.85</td>
</tr>
<tr>
<td>jump</td>
<td>Obstruent</td>
<td>Other</td>
<td>2.75</td>
<td>2.01</td>
<td>2.87</td>
<td>0.84</td>
</tr>
<tr>
<td>carry</td>
<td>Other</td>
<td>Other</td>
<td>2.29</td>
<td>1.46</td>
<td>2.61</td>
<td>0.84</td>
</tr>
<tr>
<td>cry</td>
<td>Other</td>
<td>Other</td>
<td>1.79</td>
<td>1.94</td>
<td>2.99</td>
<td>0.83</td>
</tr>
<tr>
<td>slip</td>
<td>Obstruent</td>
<td>Other</td>
<td>3.31</td>
<td>1.45</td>
<td>1.99</td>
<td>0.83</td>
</tr>
<tr>
<td>trip</td>
<td>Obstruent</td>
<td>Other</td>
<td>3.44</td>
<td>1.04</td>
<td>2.21</td>
<td>0.83</td>
</tr>
<tr>
<td>walk</td>
<td>Obstruent</td>
<td>Other</td>
<td>2.19</td>
<td>2.10</td>
<td>3.06</td>
<td>0.82</td>
</tr>
<tr>
<td>remember</td>
<td>Other</td>
<td>Alveolar</td>
<td>2.33</td>
<td>1.68</td>
<td>3.30</td>
<td>0.82</td>
</tr>
</tbody>
</table>
# “Hard” Verbs

<table>
<thead>
<tr>
<th>Verb stem</th>
<th>Manner</th>
<th>Place</th>
<th>Telicity</th>
<th>Log past frequency</th>
<th>Log lemma frequency</th>
<th>SLI predicted percentage correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>wiggle</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.56</td>
<td>1.32</td>
<td>1.58</td>
<td>0.71</td>
</tr>
<tr>
<td>clap</td>
<td>Obstruent</td>
<td>Other</td>
<td>2.00</td>
<td>0.70</td>
<td>1.81</td>
<td>0.71</td>
</tr>
<tr>
<td>squish</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>2.42</td>
<td>1.11</td>
<td>1.48</td>
<td>0.69</td>
</tr>
<tr>
<td>bounce</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>2.25</td>
<td>1.04</td>
<td>1.93</td>
<td>0.69</td>
</tr>
<tr>
<td>yawn</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>2.87</td>
<td>0.30</td>
<td>1.66</td>
<td>0.69</td>
</tr>
<tr>
<td>snore</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.81</td>
<td>0.70</td>
<td>1.23</td>
<td>0.68</td>
</tr>
<tr>
<td>whisper</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.81</td>
<td>0.48</td>
<td>1.72</td>
<td>0.68</td>
</tr>
<tr>
<td>scratch</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>2.00</td>
<td>1.20</td>
<td>2.08</td>
<td>0.68</td>
</tr>
<tr>
<td>dance</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.79</td>
<td>1.20</td>
<td>2.64</td>
<td>0.68</td>
</tr>
<tr>
<td>float</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>2.38</td>
<td>0.70</td>
<td>1.65</td>
<td>0.67</td>
</tr>
<tr>
<td>growl</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.88</td>
<td>0.00</td>
<td>1.40</td>
<td>0.65</td>
</tr>
<tr>
<td>listen</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.44</td>
<td>2.43</td>
<td>4.22</td>
<td>0.64</td>
</tr>
<tr>
<td>sail</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.44</td>
<td>0.48</td>
<td>1.49</td>
<td>0.64</td>
</tr>
<tr>
<td>hum</td>
<td>Obstruent</td>
<td>Other</td>
<td>1.44</td>
<td>0.00</td>
<td>2.44</td>
<td>0.63</td>
</tr>
<tr>
<td>paddle</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.69</td>
<td>1.04</td>
<td>2.94</td>
<td>0.63</td>
</tr>
<tr>
<td>rake</td>
<td>Obstruent</td>
<td>Other</td>
<td>1.75</td>
<td>0.00</td>
<td>1.41</td>
<td>0.63</td>
</tr>
<tr>
<td>giggle</td>
<td>Other</td>
<td>Alveolar</td>
<td>1.69</td>
<td>0.00</td>
<td>1.23</td>
<td>0.63</td>
</tr>
<tr>
<td>fish</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.56</td>
<td>0.30</td>
<td>2.97</td>
<td>0.61</td>
</tr>
<tr>
<td>imagine</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.75</td>
<td>0.00</td>
<td>1.90</td>
<td>0.57</td>
</tr>
<tr>
<td>rest</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.25</td>
<td>0.00</td>
<td>2.65</td>
<td>0.55</td>
</tr>
<tr>
<td>exercise</td>
<td>Obstruent</td>
<td>Alveolar</td>
<td>1.50</td>
<td>0.00</td>
<td>1.75</td>
<td>0.55</td>
</tr>
</tbody>
</table>
Easy to Hard

1. Close 16. Yell
2. Play 17. Crawl
4. Answer 19. Sneeze
7. Cry 22. Guess
8. Slip 23. Work
10. Walk 25. Point
11. Remember 26. Turn
12. Kiss 27. Bake
13. Climb 28. Roll
15. Help 30. Smile

31. Whistle 32. Clean 33. Count 34. Stir
39. Bark 40. Wiggle 41. Clap 42. Squish
43. Bounce 44. Yawn 45. Snore

46. Whisper 47. Scratch 48. Dance
49. Float 50. Growl 51. Listen
52. Sail 53. Hum 54. Paddle
55. Rake 56. Giggle 57. Fish
58. Imagine 59. Rest 60. Exercise
Today’s Agenda

1. Auditory Bombardment
2. Verb Variability
3. Verb Complexity
4. Verb Placement
5. Explicit Approaches
Verb Placement

- What position in the sentence does the verb occur?
- Making the verb more salient by manipulating sentence position
Verb Placement

• Making the verb more salient by manipulating sentence position

The loud boy shouted.

He shouted for his mom.
Verb Placement

- 10 children between ages 4-6 with DLD
- Sentence imitation task with past tense –ed verb in sentence internal and sentence final positions
- Omission errors only occurred in sentence internal position
Verb Placement

• It’s a good idea to shuffle verb placement around in treatment!
Today’s Agenda

1. Auditory Bombardment
2. Verb Variability
3. Verb Complexity
4. Verb Placement
5. Explicit Approaches
Explicit Approaches

• Draw the learner’s attention and consciousness to language use and the rules and patterns guiding language forms.

“When you talk about something that already happened, you added a /t/ sound or a /d/ sound to the end of the action word.”
Continuum of Explicitness...

- **Implicit**
  - Models Recasts
  - Feedback: “Oops that isn’t right”
  - Feedback Re Why: “No, that isn’t right because you forgot…”

- **Explicit**
  - Rule Presentation
<table>
<thead>
<tr>
<th>Intervention component</th>
<th>Early education (n = 114)</th>
<th></th>
<th></th>
<th>Elementary (n = 224)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Sometimes</td>
<td>Frequently</td>
<td>Never</td>
</tr>
<tr>
<td>Procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Models</td>
<td>0%</td>
<td>2%</td>
<td>98%</td>
<td>0%</td>
</tr>
<tr>
<td>Recasts</td>
<td>2%</td>
<td>21%</td>
<td>74%</td>
<td>3%</td>
</tr>
<tr>
<td>Requests for imitation</td>
<td>0%</td>
<td>25%</td>
<td>73%</td>
<td>2%</td>
</tr>
<tr>
<td>Explicit presentations</td>
<td>4%</td>
<td>31%</td>
<td>64%</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>6%</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>
Evidence Supporting Rule Presentation

Finestack & Fey, 2009
32 6-9 year-olds with DLD; 5 sessions; 1 novel form
Implicit: 19% “Pattern-users”, Explicit: 63% “Pattern-Users”

Finestack, 2018
25 5-8 year-olds with DLD; 5 sessions per form; 3 novel forms
Implicit: 23% “Pattern-users”, Explicit: 83% “Pattern-Users”

Finestack, Engman, Huang, Bangert, & Bader, 2019
3 5-9 year-olds with ASD; 6-17 20-min sessions; 1 true form
All participants learned target form
Figure 1. Results of Multiple-Baseline Study Targeting True Grammatical Forms
Example of Explicit Presentation
## Explicit Presentations

<table>
<thead>
<tr>
<th>Target</th>
<th>Sample Presentation Platforms</th>
<th>Example Explicit Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Person -s</td>
<td>The kangaroo hops. The kangaroos hop. The toy works with batteries. The new toys work with batteries.</td>
<td>When you talk about what one person or thing does, you add an /s/ sound to the end of the action word. Listen, ‘He walks to the store,’ When you talk about what more than one person or thing does, you don’t add anything to the end of the action word. Listen, ‘They walk to the store,’</td>
</tr>
<tr>
<td>Past Tense -ed</td>
<td>The cat stretched. The cat will stretch. He baked a pie. He will bake a pie</td>
<td>When you talk about something that already happened, you added a /t/ sound or a /d/ sound to the end of the action word. Listen, ‘He jumped,’ ‘They paddled.’</td>
</tr>
<tr>
<td>Aux is/are Statements</td>
<td>The dogs are growling. The dog is growling. They are turning the crank. He is turning the crank.</td>
<td>When you talk about what one person or thing is doing you use ‘is’ and add /ng/ to the action word. Listen, ‘She is walking.’ When you talk about what more than one person or thing is doing, you use ‘are’ and add /ng/ to the action word. Listen, ‘They are walking to the store,’</td>
</tr>
<tr>
<td>Aux do/does Questions</td>
<td>Does he exercise? Do they exercise? Does he rake the leaves? Do they rake the leaves?</td>
<td>When you ask a question about one person or thing, begin with ‘does.’ Listen, ‘Does he want more?’ When you ask about more than one person or thing begin with ‘do.’ Listen, ‘Do they want more?’</td>
</tr>
</tbody>
</table>
Explicit Grammar Treatments

**Focused Silencing/Recasts** - These approaches involve repeating a child’s utterance back to them with the target morpheme produced correctly. Assumes that building on the child’s utterance allows them to focus on the grammatical change & low task demands reduce anxiety. SR & Meta Analysis: Clewe et al. 2015

**Auditory Bombardment** - Most commonly used in phonology, but applicable in grammar too. Ask child to listen passively to several models presented rapidly. Appears to be beneficial, though magnitude is unclear and has only been tested in combination with other approaches. Leonard, 1979; Plante et al., 2001

**Syntax Stories** - Stories loaded with the target syntactic frame. Most often read prior to focused stimulation but evidence from typical children is that they work alone & for complex syntax when presented daily for 2 weeks. TD work by Vasilyeva et al. and Serratrice et al. B.L.D work by Fey, Leonard and colleagues.

**Use a Hook: Toy Talk** - Say the toy’s name; talk about what the toy is doing. Encourages caregivers to use tense/agreement markers with their child. Key author: Hadley

**Cognitive Verbs** - Teaching cognitive verb vocabulary as a way to enhance complement clause use in caregivers. The word of the week is... consider/tell/plan/decide/imagine/remember... Evidence from Owen Van Hone et al. w/ Head Start teachers.

Implicit Grammar Treatments

**Enhanced Input +**

**Attention Listening**

**META SKILLS**

**RULES**

**Production Practice**

**Shape Coding/Meta Taul** - These approaches use visual symbols (logs, shapes, colors) to make the patterns of language clear. Require meta-linguistic skills. Evidence of effectiveness for a wide range of structures. Well tested with school-age kids. Key authors: Ebbels, Zwisterlood

**Elicited Imitation/Elicited Production** - Child is prompted to produce the target structure with varying levels of coaching. Described in Eisenberg, 2013; evidence is limited (few studies done). Meta-phonology literature suggests production practice is critical for learning so worthy of future research.

**Sentence Combining** - This strategy focuses on complex syntactic use, usually in writing. Students practice rewriting sentences using as few sentences as possible, often assisted by graphic organizers w/ lists of conjunctions. See work by Scott & Balfanz for oral language.

**Explicit rule instruction** - Explain the rule to the child (e.g., to talk about things that are ever, add ‘ed’). Previously assumed to be uninformative for children, but growing evidence that older kids find this beneficial. Equal benefit for kids w/ high and low IQ. Key Author: Fienerack

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Conclusions

Auditory Bombardment

Explicit Teaching

Verb Placement

Verb Complexity

Verb Variability
Putting it all together!

• Here’s how you could integrate all 5 techniques into practice!
Each 30-min session

- Sentence Imitation
- Model Story 1
- Post-story Production 1
- Model Story 2
- Post-story Production 2
- Auditory Bombardment
Each 30-min session

Sentence Imitation

Model Story 1

Post-story Production 1

Model Story 2

Post-story Production 2

Auditory Bombardment
Each 30-min session

- Sentence Imitation
- Model Story 1
- Post-story Production 1
- Model Story 2
- Post-story Production 2
- Auditory Bombardment
Sentence Imitation: 5 min

Utilizing verb variability, complexity, placement and explicit teaching techniques!

- Drill activity
- Child imitates 7 contrastive sentence pairs
- Pairs will vary in the syntactic platform so target is in medial or final position
# Example Sentence Imitation Items

<table>
<thead>
<tr>
<th>Target</th>
<th>Sample Presentation Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Person -s</td>
<td>The kangaroo hops. / The kangaroos hop. The toy works with batteries. / The new toys work with batteries.</td>
</tr>
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</tr>
</tbody>
</table>
Sentence Imitation: 5 min

- **Child Correct:** Clinician provides positive feedback and hear the sentence again (e.g., “That was right. The kangaroo hops”).

- **Child Not Correct:** Clinician provides corrective feedback, repeats the sentence, and asks the participant to try again (e.g., “That wasn’t what I said. Listen. The kangaroo hops. Try it again.”).
Sentence Imitation: 5 min

- Clinician also provides the child with the rule (e.g., “That was right. When you talk about what one animal does, you add an /s/ sound to the end of the action word. Listen, ‘The kangaroo hops.’”).

- **Dosage:** 7 unique verbs; at least 28 models or recasts of target; 14 rule presentations.
Each 30-min session

Sentence Imitation

Model Story 1

Post-story Production 1

Model Story 2

Post-story Production 2

Auditory Bombardment
Model Story: 4 min

• Clinician models target forms using a naturalistic story-sharing focused stimulation approach.
• Each short story contains at least 5 unique verbs following the Owen Van Horne “Hard to Easy” verbs assigned to the session.
Model Story: 4 min

• Clinician uses toys to model elements of the story and to help maintain the participant’s attention during the story presentation.

• Only demand placed on the child is to pay attention to the story as best as possible.

➢ **Dosage/story**: 5 unique verbs; at least 5 models of target
Sample Story

Verbs: Bake, Work

Toy food – rolls, bread, mixing bowls, pretend cakes and cookies.
Toy cleaning supplies and “shop” things.
A and B owned a bakery. A likes to do all the baking. B does other kinds of work. They baked things for customers.
    Last week they worked on a different thing every day.
On Monday, A baked croissants. “I love rolling the dough,” said A.
B worked on the floors.
On Tuesday, B worked on cleaning display cases. “Everything looks shiny,” said B.
A baked bread. “It smells so good,” said A.
On Wednesday, A baked cookies. “I think cookies are yummy,” said A.
B worked at the cash register. “I sold lots of things,” said B.
On Thursday, A baked cakes. B decorated birthday cakes that A had baked! “It’s so fun decorating the tops,” said B.
On Friday, they both took a break. “We worked hard all week! It’s time to rest.”
What would you like to do in a bakery?
Each 30-min session

Sentence Imitation
Model Story 1
Post-story Production 1
Model Story 2
Post-story Production 2
Auditory Bombardment
Post-story Production: 5-7 min

• Clinician creates at least five opportunities for child to produce the target form using a play format.
• Prompt child to attempt to produce the target form using one of the “Easy/Hard” verbs:
  – Directly related to the story (e.g., “What does the kangaroo do to get attention?”)
  – Related to the play toys (e.g., “Look at the kangaroo. What does he do?”)
  – Related to another area of interest directed by the child.
Post-story Production: 5-7 min

- Clinician provides a recast after each target production or attempt.
- Clinician also provides the child with the rule (e.g., “That was right. When you talk about what one animal does, you add an /s/ sound to the end of the action word. Listen, ‘The boy works.’”).

Dosage: at least 10 models or recasts of target; 5 rule presentations
Each 30-min session

- Sentence Imitation
- Model Story 1
- Post-story Production 1
- Model Story 2
- Post-story Production 2
- Auditory Bombardment
Auditory Bombardment: 3 min

- Clinician present child with sentence pairs containing the target and a contrast (similar to those in Sentence Imitation activity).
- Child prompted to listen carefully; no other demands will be placed on the child.
Auditory Bombardment: 3 min

- Clinician also presents the guiding rule at the beginning of the activity and after the second and fifth sentence set.

 Dosage: 7 unique verbs; at least 14 models of target or contrast; 3 rule presentations
Dosage per Session

- 24 unique verbs
- At least 72 models or recasts per session
- 27 rule presentations

**Note:** Can fade the rule prompts across sessions as child gains mastery.
Key References

THANK YOU!!

Questions?

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https://www.finestackclil.com/presentations/