It's Never Too Late: Working on Phonological and Word Structure Skills with Adolescents

Kansas Speech-Language-Hearing Association, Topeka, KS
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OUTCOMES

Following this session, participants will be able to--
1. Describe application of the quadrant model and the simple view of reading to understand the relationships between oral and written language disorders, including dyslexia.
2. Discuss positive examples and limitations in using formal and informal assessment data to guide intervention planning.
3. Outline a clinical session for adolescents with dyslexia to illustrate how to combine explicit intervention focused on sound/word-level skills with context-based intervention focused on sentence/discourse-level skills for an authentic communicative purpose.

INTRODUCTION

Dr. Marble-Flint

• Introduction to problem
• Introduction to Ian, the student who helped us study this problem
• Evidence from oral-written language models and the TILLS
• Principles of explicit structured intervention contrasting with context-based intervention
• What Ian helped us learn
• Q and A

DISCLOSURES

• Dr. Nelson is an author of TILLS and the SLS, for which she receives royalties.
• Dr. Anderson is an author of the SLS, for which she receives royalties.
• Standardization of the TILLS and SLS was supported by a grant from the U.S. Institute of Education Sciences; however, ideas are those of the TILLS authors (Nelson, Plante, Helm-Estabrooks, & Hotz); and SLS authors (Nelson, Howes, & Anderson), and are not the responsibility of the federal government.
• Ian and his mother have granted permission for sharing his clinical experiences under a research protocol approved by WSU-IRB, #4479.
• Dr. Jan Wasowicz, author with financial interest in Learning by Design, Inc., has granted permission to share images and reports from the SPELL-2 (none of the presenters has a financial interest in SPELL-2 or related products)
• Danielle Pate, a graduate student at WSU, contributed to the development of the case study reported here.
Introduction to the Problem

• Phonological awareness is a predictor of reading decoding & spelling abilities. (Carroll & Snowling, 2004; Catts, Fey, Zhang, & Tomblin, 2001)
• Children perform PA tasks in early elementary.
  • What if they struggle in high school?
• If a student still struggles with PA in adolescence,
  • Is it too late to teach PA and word structure knowledge? (Robertson, 2013)
• How can we assess PA skills with adolescents?
• Where should we start with intervention & should it look different?

Adolescent developmental traits

• Physical
  • Rapid growth – body & brain
  • Unusual tastes & need for sustenance
• Intellectual
  • Understanding & reasoning
  • Abstract thought
• Moral/ethical
  • Analytical thought
  • Reflection & introspection
• Emotional/psychological
  • Independence & identity
  • Seeking peer approval, self-esteem
• Social
  • Group belonging important
  • May lag behind physical & intellectual

Adolescents: Challenges & Solutions

• Challenges:
  • Cycle of Neglect (Reed, 2002; 2018)
    • Focus on Early Intervention
    • Lack of Research
    • Dismissal Processes
    • Level of Services Available
• Solutions:
  • SLPs know language & literacy & have the tools to make significant contributions (Ehren, 2018).

Introduction to Student Participant

• High school junior
• Age 17
• Attends private school
• History of intervention
• Had expressed reluctance
• Came with a “get ‘er done” attitude
• Requested we use “Ian”

“Let’s get ‘er done!”

Evidence from oral-written language models and TILLS

Dr. Anderson

Simple View of Reading

Pattern of Dyslexia: Listening comprehension > Reading comprehension
Badian, 1999; Stanovich, 1994

Vocabulary
Part of C

Word Recognition

Oral Language Comprehension

Reading Comprehension

D

C

R

Assessing integrated language skills:
SOUND and WORD STRUCTURE KNOWLEDGE & SKILL

Sample broadly but efficiently to identify difference from normative group across abilities (PA + others).

- Select most discriminative PA tasks and items across TILLS age-range (6-18 years)
- Piloted two:
  - Initial phoneme deletion (stig → tig)
  - CVC reversal (bip → pib)
- The second did not add enough to justify the time it took
- Removed items that were less discriminative or biased

Assessment Choices—Phonemic Awareness
2. Phonemic Awareness

“If the word is bip, and we take away the first sound, the word becomes [hesitate]... ip.”

“If the word is stig, and we take away the first sound, the word becomes... fig.”

### Phonemic Awareness Subtest

<table>
<thead>
<tr>
<th>Item</th>
<th>Phonetic spelling</th>
<th>Spoken response</th>
</tr>
</thead>
<tbody>
<tr>
<td>bip</td>
<td>/bɪp/  → /ɪp/</td>
<td></td>
</tr>
<tr>
<td>stig</td>
<td>/stɪɡ/ → /ɪɡ/</td>
<td></td>
</tr>
</tbody>
</table>

### Sample broadly but efficiently to identify difference from normative group.

- **Nonwords**
  - Assess word structure knowledge; not memorized words
  - Allow for alternate spellings
    - Phonologic
    - Orthographic
    - Morphologic

### Assessment Choices—Word Structure using Nonwords

- **Nonword Repetition Subtest**
  - Say, “I am going to play a voice recording for you. The person on the recording will say a pretend word that is not a real word. You will only hear the word once. Listen carefully so you can say the word just like the person you hear.”

- **Nonword Spelling Subtest**
  - Administer immediately after Nonword Repetition.
  - Say, “I am going to play another voice recording of pretend words. These are the same words you said before. This time your job is to spell the words.”
  - “Remember, these are not real words, but they are like real words...”
Sample efficiently to identify difference from normative group.

- Real words in context
  - Original composition tasks authentic, but norm-referencing difficult
  - Sentence-combining tasks more controlled and can be normed, but allow possibility of copying
  - Sentence-combining assesses morphosyntactic ability to spell inflected words to fit a syntactic context:
    - Authentic look at linguistic word knowledge and skills beyond spelling
    - But hard to know whether some “word errors” represent dialectal difference or a proofreading problem, OR a spelling problem, morphosyntax problem, or both

Assessment Choices—Word Structure using Real Words

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Say, “Here are some facts that tell a story. First, read the title out loud.”

“Now read the facts.”

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The Principal’s Daughter

We have a principal. The principal has a daughter. Her name is Sara. She wants to be a clown. She came Monday. She came to our school. She had on makeup. She had on a wig. A ball was on her nose. It was red. It was big. She looked scary. She walked into a class. The children were young. The children saw her. Some children cried. They were scared. She took off her wig. The children were happy. They knew Sara.

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Now it’s your turn to put the facts together to make it sound less choppy and more interesting.”

---

“A little brown and white dog almost got hit by a car in front of our school. He was scared, but he was okay.”

Now it’s your turn to put the facts for your story together in a way that sounds less choppy and more interesting.”

---

Here’s another story. It has facts about a little dog. It’s okay, but it sounds choppy. Here is an example of how you could put the facts together to make it sound less choppy and more interesting.”

“Now it’s your turn to put the facts for your story together in a way that sounds less choppy and more interesting.”

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Assessing integrated language skills: LANGUAGE COMPREHENSION and EXPRESSION

Written Expression – 3 Scores

Discourse Score: 18/20 content units = 90%
WE-Disc SS = 10
Sentence Score: 18 content/7 T-units = 2.57 WE-Sent SS = 11
Word Score: 74/88 wds without error = 84%
WE-Word SS = 0

Assessing vocabulary

• Constructs assessed
  • Real words “known vocab” (highly sensitive to culture and SES)
  • Semantic relationships among words
    • Same category
    • Functionally related
    • Part – whole
  • Awareness of word meanings
    • Multiple meaning words
    • Semantic flexibility
    • Talking about word meaning

Vocabulary Awareness Subtest

“Here are three words. Let’s read them together.”
“dog–cat–bone”
Say, “Tell me two words that go together.”
Then ask, “Why?”
Assessing language comprehension and formulation at the sentence/discourse level

- Meaningful sentences using complex syntax
  - Embedded dependent clauses
  - References across sentence boundaries
  - Inferences that show understanding
- Comprehension monitoring and proofreading
- Discourse genres
  - Conversational
  - Narrative
  - Expository
  - Procedural (direction following)

Narrative Discourse Assessment

- Ability to tell or retell a story
  - Story grammar: Setting, Initiating Event (often a problem), Internal Response, Plan, Action, Outcome, End (conclusion that wraps up the Initiating Event)
  - Inclusion of key content units
  - Ability to infer nonexplicit or nonliteral meanings – theory of mind (awareness of what people might be thinking based on what they are aware of at the time)
  - Ability to answer questions about the story: Evidence of comprehension on literal and inferential levels

Story Retelling Subtest

Select the age-appropriate story and say, “I’m going to read you a story. Listen carefully. Your job is to tell the story back to me just like I tell it to you.”

Language Comprehension Assessment – Expository Discourse

- Minimize influence of prior world knowledge (makes it difficult to assess expository text)
- Therefore, use the complex syntax of expository texts, but with fictional (but plausible) content, emphasizing demands of:
  - Coherence (pronoun reference, word replacement, etc.)
  - Inference (logical relationships, paraphrases, congruence, mutual exclusivity, etc.)
- Executive skills
  - Attention and visualization of relations represented by vocabulary and syntax
  - Comprehension monitoring
  - Awareness of whether information is adequate to answer a question with confidence: Yes – No – Maybe
Say, "I'm going to read some very short stories. Your job is to listen and pay careful attention. Then I'll ask you some questions about the story. Tell me 'yes' if you are sure the answer is 'yes.' Tell me 'no' if you are sure the answer is 'no.' If the story doesn't clearly tell you the answer, tell me 'maybe.'

Practice Item:

Teresa has a gray and white kitten that likes to play with string. The kitten's name is Fluffy.

a. Is Teresa's kitten black? Y N M
b. Does Teresa's kitten like to play with string? Y N M
c. Does Teresa have a dog? Y N M

Listening Comprehension Subtest

Administer immediately following Listening Comprehension:

"Now, it's your turn to read some short stories and answer the questions in your Student Book. Circle yes if you are sure the answer is yes. Circle no if you are sure the answer is no. If the story doesn't clearly tell you the answer, circle maybe."

Reading Comprehension Subtest

Following Directions Subtest

"I'm going to give you some directions to follow with your pencil in your Student Book. Listen carefully because I can only say them once. When I say 'go,' move the card and use your pencil to follow the directions."
"This activity is about acting a scene, like from a show on TV or a movie. Your job is to be an actor."

Say, "I'll give you a really short scene. Then I'll ask you to tell me what one of the people would say. This is important—you should say it how the person would say it in the scene. Remember, you're the actor! Let's try one. I'll do the first one to show you."

"It is red. It is my favorite color, and I will kiss you if you buy it."

David always uses hints to get his grandmother to buy him things. David is out shopping with his grandmother and sees some boots he wants. What do you think David would say?
• Evidence does not support receptive and expressive factors  
  (Tomblin & Zhang, 2006; TILLS Technical Manual, 2016)
• Evidence does support a “simple view”  
  (Gough & Tunmer, 1986; Tunmer & Chapman, 2012)
Core Subtests for Identification by Age

- **Age 6-7**
  - Core subtests
  - Vocab Aware
  - Phoneme Aw
  - NW Rep
  - Sensitivity 84%
  - Specificity 84%

- **Age 8-11**
  - Core subtests
  - Vocab Aware
  - NW Spell
  - NW Read
  - WE-Discourse
  - Sensitivity 88%
  - Specificity 85%

- **Age 12-18**
  - Core subtests
  - Phoneme Aw
  - NW Spell
  - Rdg Comp
  - Rdg Fluency
  - WE-Word
  - Sensitivity 86%
  - Specificity 90%

Summary and Interpretation

**Identification Chart**

<table>
<thead>
<tr>
<th>Identification Core</th>
<th>Core Test</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-7</td>
<td>24</td>
<td>81</td>
<td>84</td>
</tr>
<tr>
<td>8-11</td>
<td>34</td>
<td>81</td>
<td>85</td>
</tr>
<tr>
<td>12-18</td>
<td>42</td>
<td>86</td>
<td>90</td>
</tr>
</tbody>
</table>

- This score is consistent with the presence of a language/reading disorder.
- If this score is not consistent with the presence of a language/reading disorder.

Purpose 2: Profile skills

**Sentence/Discourse Ability**

- **Dyslexia** (Low/Wd < Sent/Disc)
- Average in both
- Normal Language (Both ave or above)

**Sound/Word Ability**

- Low Reading + Low Oral Language
- High sound/word skills + Good reading comprehension

**Specific Comprehension Deficit** (Low/Wd > Sent/Disc)

**Oral-Written Language Disorder** (Both below ave)

(Bishop & Snowling, 2004; Catts, Adlof, Hogan, & Weismer, 2005; Catts, Adlof, & Weismer, 2006; Kavanau, Marshall, Reaves, & van der Lely, 2013)

Ex: Profile of Dyslexia
- Lower sound/word
- LC > RC

Purpose 2: Profile skills

Profile strengths & weaknesses

(Bishop & Snowling, 2004; Catts, Adlof, Hogan, & Weismer, 2005; Catts, Adlof, & Weismer, 2006; Kavanau, Marshall, Reaves, & van der Lely, 2013)
Consider teacher, parent, and student input on the SLS.

Correlation between Items 3-4 and Sound/Word Composite:
Teachers = .671**
Parents = .595**

How to Score the SLS

- Are 2 or more ratings <5? → High sensitivity
- Are all (but 1) ratings >5? → High specificity

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>61/68 = .90**</td>
<td>182/203 = .90**</td>
</tr>
<tr>
<td>Parent</td>
<td>203/239 = .85*</td>
<td>1065/1290 = .83*</td>
</tr>
<tr>
<td>Student</td>
<td>66/90 = .73</td>
<td>257/419 = .61</td>
</tr>
</tbody>
</table>

Correlation between Items 1-8 and total TILLS for Teachers = .752** Parents = .613**

Principles of Intervention:
Not all intervention is alike, nor should it be.

Dr. Nelson

Structure based
Meaning based
Principles for Planning Individualized Interventions

1. Start with good assessment data
   - Test broadly
     - Consider student’s profile
   - Test deeply

2. Select methods and materials to match student’s language level needs…and age
   - Sound/word level problems
     - Phonemic
     - Orthographic
     - Morphological
     - Mental orthographic images
   - Sentence/discourse level problems
     - Original ideas and ownership
     - Discourse organization
     - Vocabulary
     - Complex sentence structures for communicating complex ideas
     - Executive skills and processes to review, revise, and edit using language skills at all levels

Implications

- Keep things moving
- Teaching is not testing
- Provide opportunity for break, snacks, and choice
- Use age-appropriate materials
- Encourage original thought and executive functions – writing
- Foster ownership of ideas
- Teach to explain special needs
- Scaffold perspective taking
Gather information from those who know student:

A: Obtain adequate sample for each spelling pattern within student’s developmental spelling level

B: Identify and select spelling patterns most frequently misspelled

C: For each identified and selected spelling pattern, analyze nature of errors to determine/develop hypothesis about nature of underlying deficit

D: Conduct follow-up testing to confirm/refute hypotheses

E: Write instructional goals to target selected spelling patterns with appropriate instructional methods


Note: This slide was created by Jan Wasowicz (Learning by Design, and SPELL-2), and it and reports are shared with permission.

Example of how to sample deeply within target area:

SPELL-2 Results Report (accuracy by pattern)

SPELL-2 Goals in Recommendation Report (type of intervention needed for each pattern)
Methods for a Multi-Level Treatment Session

Focus on Form (~40 min)
- Make targeted patterns explicit
- Use repeated and contrasting examples (statistical learning)
- Expect increasing responsibility for independent responses
  - Counting sublexical parts
  - Matching and sorting
  - Generating correct spelling of real words

Focus on Meaning (~20 min)
- Engage student in reciprocal writing processes (constructive learning)
  - Generating ideas with audience in mind
  - Planning and organizing
  - Drafting
  - Revising and editing
  - Presenting / publishing
- Work through processes while creating a product for an authentic audience and purpose
  - Ideas first, correctness later

Planned by Graduate Clinician: Danielle Pate

Goals for a Multi-Level Treatment Session

Focus on Form
1. Student will demonstrate phonemic awareness by repeating a target word slowly and then producing the initial and final phoneme (8/10 both correct)
2. Student will demonstrate awareness of orthographic/morphemic pattern by
   - Placing word example in correct category for contrasting patterns (18/20)
   - Generating spellings to fit the pattern (9/10)

Focus on Meaning
1. Student will use all stages of the writing process to create an original PPT presentation in which
   - Student shows awareness of self-advocacy regarding his disability and how to communicate about it
   - Generates at least 2 bullet points under each main heading
   - Demonstrates ability to correct 2 or more spellings using word-structure patterns he has studied

Planned by Graduate Clinician: Danielle Pate
**Example: PA warm-up activity in Treatment session 4**

PA activity: Initial and final phoneme identification. Goal = 80% accuracy
1. Drive: /dr/ & /aɪv/: verbal prompt, self-corrected
2. Flight: /f/ & /t/
3. Brave: /b/ & /v/
4. Stake: /s/ & /k/
5. Flame /f/ & /m/
6. Dice: /d/ & /s/
7. Twice: /s/ & /s/
8. Cage: /k/ & /dʒ/
9. Place: /p/ & /s/
10. Made: /m/ & /d/

Percentage accuracy: 90%

**Example: Session change following mini lesson on pattern –fy, –fies, –fied**

<table>
<thead>
<tr>
<th>Target word</th>
<th>Session Pre-Test Spelling</th>
<th>Session Post-Test Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unify</td>
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<td>Verify</td>
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<tr>
<td>Specified</td>
<td>Spesifyd (2/15)</td>
<td>Spesified (8/15)</td>
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</table>
Evidence of change over 6 sessions

Dr. Marble-Flint
With input by Danielle Pate

Session Targets: Spelling Patterns/Rules

1. Long a (e.g. a-Consonant-e, eigh, ea), long i (e.g. i-Consonant-e, -y, -igh)
2. Long e (e.g. ie, ea, ee, e-Consonant-e)
3. Plurals: changing -y to i & add –es
4. Change with inflection: -ify to –ies & -ied
5. Review of all patterns
6. -ion

“Live & Learn”

• We violated our own rules of generating ideas first & correction later
  • Sound out the word “suggestion”
  • Reflection

Spelling Pattern Progress

Number of Correct Words

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</tbody>
</table>

Which part of the sessions did you like best?

Learning about spelling patterns

Stop by our poster presentation

Message to peers

Ian’s project
I don’t want future generations to go through what I had to went through

• Don’t let other kids get you down
• You can’t give up when people say you suck or when they say you’re stupid.
  You need to tell a teacher when they start picking on you because they might not know what you went through so tell a teacher or someone that’s in charge

Why can they read better then I can

Why is school harder for me then everyone else?
Why can’t I understand someone when they are talking?

1. School-age language/literacy abilities involve BOTH:
   - Sound/word level skills
   - Sentence/discourse skills

2. Intervention should target individual profiles

3. Select methods and materials that match student’s needs by level
   - Sound/word level problems require structured, explicit instruction
   - Sentence/discourse level problems require contextualized, meaning based, constructive learning opportunities

4. Consider developmental needs of adolescents

Questions?
Comments?

Thank you!