How we define a problem usually determines how we analyze it. It sends us in a particular direction. And how we analyze a problem — the direction we take — absolutely determines whether we find a solution and what the quality of that solution is.

Advance Organizer
- A BRIEF LSA History
- LSA use
- Changes to LSA
- What is robust sampling and how do you do it?
- What is SUGAR
- SUGAR QUICK Analysis
Seminal study of early language development, entitled *A First Language* (1973)*

Revolutionized the study of child language development studies

Changed the assessment of communication abilities of children with language impairment (LI).

SLP’s have changed the basic methodology very little in the intervening four decades.


Brown

- Collected extensive language samples
- Each sample consisted of at least 700 utterances per month
- Sample size only included 3 children
- Documented information on early language form between ages 2 and 4
- Different grammatical stages described by mean length of utterance (MLU)

Brown's Participants

- Three typically developing (TD) children
  - Adam: 27 months old; parent's education level- college
  - Eve: 18 months old; father's education- college; mother's education- high school
  - Sarah: 27 months old; parent's education level- high school
- Children were typically developing (TD)
- All from Cambridge, Massachusetts
- Parent occupations: Minister, Harvard graduate student, and clerk
Methods
• Transcriptions of the mother and child were collected
• Samples were collected in the home
• A minimum of two hours of transcription per month
• Two examiners per language sample
• Examiners used a video recorder to collect the samples

How do SLPs conduct LSA?

Pavelko, Owens, Ireland, & Hahs-Vaughan, 2016

1,399 school-based SLPs
- 88% were ASHA certified
- 95% held a master’s degree in CSD
- Over 75% had caseloads of 21 or larger
  - 21-40 students 29%
  - 41-60 students 44%
  - 61-80 students 16%
LSA Research Questions

- Do school-based SLPs use LSA in their clinical practice
- What are the characteristics of the language samples SLPs collect?
- What are the methods of analysis?
- What are the barriers that school-based SLPs identify in using LSA?

Do SLPs use LSA?

- Not so much…
  - 33% did not use LSA AT ALL the 2013-2013 school year…

Frequency of LSA

- 10 or fewer Samples: 55%
- 11-20 Samples: 23%
- 21-30 Samples: 9%
- > 30 Samples: 11%

* Of the 67% who reported using LSA during the 2012-2013 school year
Length of Samples Collected

1-5 Minutes 27%
6-10 Minutes 46%
11 minutes or longer 27%

Number of Utterances Collected

Less than 25 utterances 11%
26-50 utterances 42%
51-100 utterances 35%
More than 100 utterances 12%

Recording Sample

Audio 43%
Video 17%
Neither* 52%

Transcribe what the child is saying while the child is talking*
Method of Analysis

<table>
<thead>
<tr>
<th>Method/Protocol</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assigning structural stage</td>
<td>3%</td>
</tr>
<tr>
<td>Lahey’s content/form analysis</td>
<td>10%</td>
</tr>
<tr>
<td>Computerized language analysis</td>
<td>0%</td>
</tr>
<tr>
<td>Developmental sentence scoring</td>
<td>9%</td>
</tr>
<tr>
<td>Index of productive syntax</td>
<td>0%</td>
</tr>
<tr>
<td>Local/district language sample protocol</td>
<td>14%</td>
</tr>
<tr>
<td>Systematic analysis of language transcripts</td>
<td>24%</td>
</tr>
<tr>
<td>State language sample protocol</td>
<td>5%</td>
</tr>
<tr>
<td>Self-designed protocol</td>
<td>45%</td>
</tr>
<tr>
<td>Other</td>
<td>23%</td>
</tr>
</tbody>
</table>

Barriers to LSA

- Too Time Consuming: 79%
- Limited Resources: 35%
- Limited Training/Expertise: 20%
- Limited Recognition as a Valid Assessment Measure: 17%

An Alternative Method

- Best general indication of language use
- More naturalistic than testing
- Correlates well with results from many test formats
- Only way to elicit some language features
- Potentially represents everyday use

So... how do we make LSA more clinician friendly?

SUGAR!!
SUGAR changes
- Robust Sample
- Transcription Rules
- Analysis Rules

Robust Sampling Study
Can we change the quality of samples?
- 22 students each collected a language sample from a child ($\bar{x} = 51.36$ months, $SD = 12.14$)
- Small group of student trainers
  - Prepared handout on collecting sample emphasizing narrative elicitation
  - Trained same 22 students via role-playing in elicitation techniques
- Six months after 1st sample, same 22 students each collected a second language sample from a different child ($\bar{x} = 57.81$, $SD = 13.2$)

Child Utterance Length

- Without Training
- With Training
Conversational Strategies

- Turnabouts = Comment + Cue for child to talk
- Process Questions
  - How did...
  - What happened...
  - Tell me...
  - I wonder what you...
  - Why did...
  - More than one-word "why" questions
  - Not appropriate for kids below 4.5 yrs
Conversational Strategies

- Use narrative elicitation instead of yes/no questions
- Build on what the child says or on what you know
- Begin with...
  - Your mom says you.... That sounds like fun. Tell me what happened.
  - I know that you.... Tell me what happened.
  - Did you ever.... Tell me what you did.

Example of Robust Sample

- Listen to the following sample (transcript of examiner's utterances will be on the next slide)
- What do you notice about how the adult interacts with the child?
  - How long does she wait?
  - How many comments does she make?
  - How many examiner utterances?
What is a more robust sample?
- Engages the child in a conversation that gives the child the opportunity to produce complex language
- Allows the child to control the interaction
- Children are more communicative and use more complex language
  (Lapadat, 1983; Norris & Hoffman, 1990)

Conversational Strategies
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Questions??

BREAK!

SUGAR Method
- Robust Sample
- Transcription Rules
- Analysis Rules
Rules for Transcribing

SUGAR Quick Analysis: *Transcription*
- Type in plain English as spoken.
- Omit punctuation to save time.
- Do NOT embellish the student’s utterance. In other words, don’t add morphemes that are missing.

SUGAR Quick Analysis: *Transcription*
- Type words in full even when pronunciation omits portions as follows:
  - *Talkin’* should be transcribed as “Talking”
  - *Gonna, wanna, gotta, hafta* should be transcribed as “going to, want to, got to, have to”.
- Type contractions as is. In other words, *don’t* should be typed as “don’t” and *I’m* as “I’m”.
SUGAR Quick Analysis: *Transcription*

- Do NOT include fillers (uhhhh, ummm, like, you know).
- Do NOT include disfluences. **Only include the fullest form of what the student actually said.** Example: “He said…he says…he tell me secrets” becomes “He tell me secrets.”
- Do NOT include repeated words unless it is for emphasis, as in “He went down down down in the cave.”

SUGAR Quick Analysis: *Transcription*

- If the entire utterance is unintelligible, omit it. If a word is unintelligible, type nonsense, such as “XXX” in place of the word.
- Transcribe the sample directly into your computer.
- Only type the student’s utterances, NOT yours.
- Do NOT include identifying data.

SUGAR Quick Analysis: *Transcription*

- Set “Numbering”, found on the tool bar in the “Paragraph” section, to ensure that you only type 50 utterances.
- Remember that an utterance is a sentence or less, separated by a pause, drop in voice, inhalation or combination of these.
SUGAR Quick Analysis: *Transcription*

- Make three copies
  - One for TNW and MLU
  - a second for words per sentence and clauses per sentence
  - a third for complete analysis

SUGAR Quick Analysis: *Transcription*

- If an utterance contains more than two clauses joined with *and*, consider it a run-on sentence and divide as follows:
  
  *We went to the circus and I saw clowns and there were elephants and I got this sweet sticky stuff.*
  
  Becomes…
  
  *We went to the circus and I saw clowns.*
  
  *There were elephants and I got this sweet sticky stuff.*

- Do **NOT** do this with other conjunctions.

Example
HOW TO ANALYZE

FOUR METRICS

Quick Analysis Metrics
• Quick Analysis Includes
  1. Total Number of Words
  2. Mean Length of Utterance (MLU₃)
  3. Words per Sentence
  4. Clauses per Sentence
Let's Review the SUGAR Method Handout

Total Number of Words (TNW)

On copy 1
- Before doing any actual analysis, make sure the “Numbering” function is off.
- Turn “off” the “Numbering function by highlighting the entire document (Control-A or Apple-A), going to the “Paragraph” section of the toolbar and clicking on “Numbering”.

Total Number of Words (TNW)

On copy 1
- Nothing else should be on the page except the child’s 50 utterances.
- Word count is on the tool bar at the bottom of your screen.
- Record the number of words before moving on.
SUGAR Quick Analysis: MLUₜ

• Words are already separated by a space.
• Now set off bound morphemes in the same way.
• Examples:
  • "unhappily" would be "un happi ly,"
  • "bunnies" would be "bunnie s,"
  • "can’t" will be "ca n’t" or "can ’t".

SUGAR Quick Analysis: MLUₜ

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SUGAR Quick Analysis: MLUₜ

• Record the number of morphemes, double it and add two decimal places.
• Example: 203 x 2 = 406 = 4.06 MLU
• Close the document
• DO NOT SAVE THE CHANGES!
SUGAR Quick Analysis: Words Per Sentence

• Make sure the “Numbering” function is off.
• Delete all utterances that are NOT sentences.
• Both a sentence and a clause contain a subject and a verb, as in Mommy walked. A sentence can have more than one clause, as in “Mommy walked but I ran”. (2 clauses, 1 sentence).
• The critical element in a sentence is a verb.

SUGAR Quick Analysis: Words Per Sentence

• Once you have only sentences represented, record the total words from the word count section on the toolbar at the bottom of the screen.
• Switch on the “Numbering” function again.
• With this on, you can tell how many sentences you have.
• Record this value for future use.

SUGAR Quick Analysis: Words Per Sentence

• Divide the number of words by the number of sentences to get the mean words/sentence. Record this value somewhere. This is the number of words per sentence.

Words = 150
Sentences = 50
Words per sentence (150/50)=3
Time is of the essence. No one is looking over your shoulder to see if each clause is exactly correct or that the remainder may be a partial clause.

Example: "The boy who’s in my class is yukky" consists of two clauses, "The boy is yukky" and "Who is in my class." Separate these as follows:

- The boy
- Who’s in my class is yukky

When you have separated the clauses, note the number and divide it by the number of sentences from the previous step. Example:

- Number of Clauses: 56
- Number of sentences: 50
- Clauses per sentence = 56/50 = 1.12

Questions?