Progress monitoring: Tying it to the curriculum

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This presentation will cover various methods by which narrative discourse may be measured for monitoring progress toward curricular goals.

Story structure and specific literate language features that contribute to narrative proficiency will be discussed.

The presentation will also address some of the factors that contribute to how rubrics may best be designed to measure aspects of language intervention in school-based settings.

Learning Outcomes

After completing this program, you will be able to . . .

Describe story elements and literate language features

Describe measures for monitoring change in the use of story grammar elements and literate language features during story telling & story composition

Describe factors and issues that contribute to outcomes using progress monitoring tools

Sandi Gillam has a financial interest in Supporting Knowledge in Language and Literacy (SKILL), sold by USU, and the progress monitoring tools associated with the intervention program.

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Curriculum-based assessment & intervention

IDEA ensures access to general curriculum for children with speech and language needs

What does this entail?

- Children and adolescents with disabilities and their teachers are accountable for student progress in the general education curriculum.
- Specific instruction should be designed to ensure access of the child to the general curriculum so that he or she can meet the education standards that apply to all children.

These changes are designed to lead to integrated speech and language service delivery that includes curriculum-based assessment and intervention.

Because the heart of the IEP has changed, its design and implementation have also changed.

Fundamental to this paradigm shift is the underlying assumption that educators and parents must collaborate & work together on the student’s behalf.


This leads to a need for...

Contextually based assessment

Educationally relevant intervention

Collaboration


Shifting focus for monitoring progress requires:

Contextually based assessment


The curriculum has to be the driving force behind what we assess and monitor.
Improve expressive language skills to be developmentally appropriate (measured by (EOWVT)
Improve receptive language skills to be developmentally appropriate (measured by PPVT)
Improve general language proficiency (measured by CELF)

Carlos will produce the conjunction word "and" to connect two SVO clauses in 8 out of 10 sentences produced in obligatory contexts during play given clinical models and growth-relevant recasts.

Steve will point to pictures representing nouns, verbs, and adjectives from his vocabulary list with 80% accuracy when two foils are present.

Steve will produce nouns, verbs, and adjectives from his vocabulary list with 80% accuracy given picture cues and clinician questions.

In the 90's, I taught students to write learning goals - to make them think about what children would have to learn rather than just what they do. Here are some examples. R. Gillam

Learning Goal: John will learn that assertions expressing possibility beliefs based on inferences about narratives are produced with the surface form "NP + Modal could + V + (NP)." in response to predictive questions posed while reading a book.

Behavioral Goal: To increase expressive use of the modal could as demonstrated by the ability to produce "NP + Modal could + V + (NP)" given auditorily repeated texts, visual cues, clinician questions, and peer models with 80% accuracy over 20 trials.

Learning Goal: John will learn that the modal "can" can express the ability to perform an action in the form "NP + can + VP."

Behavioral Goal: To increase use of "can" as demonstrated by the ability to produce "NP + can + VP" with 90% accuracy given auditory and visual cues.

Learning Goal: Susan will learn that the semantic notion of intention can be expressed by the catenative "gonna" in the sentence construction "N + catenative + V + N."

Behavioral Goal: To increase use of "gonna" as demonstrated by the ability to produce "N + catenative + V + N" with 95% accuracy given clinician models.
What are the language skills that need to be targeted to get us to retelling?

Retell stories with detail
- Memory for story elements
- Memory and attention to the causal framework connecting the character to his or her goals and motivation
- Attention to the actions taken by the character as a result of his or her goals and motivation
- The success or failure of the actions taken to achieve the goal
- Details that contribute to the quality of the story
  - What did the character look like?
  - Was he nice, mean, funny?
  - Attention to the internal response of the character as he or she carried out actions in service of the goal
  - Knowledge of words that signal temporal & spatial relationships
  - Knowledge of pronouns and how to use them to refer to characters
  - Knowledge of vocabulary specific to the content of the story

Broader goals situated in authentic contexts

Contextualized skill intervention involves identifying the skills needed to participate in communicative activities for particular reasons under specific conditions (Wolter, Ukrainetz, & Ross, 2016).

Broader goals situated in authentic contexts


| 1. Bounce a ball | 1. Play a chaotic, poor, but fun whole basketball game |
| 2. Dribble a ball | 2. Work on a dribbling drill, a passing drill, a shooting drill |
| 3. Dribble and shoot | 3. Play a less chaotic, but still fun basketball game |
| 4. Dribble, move, and shoot | 4. Work on skill drills a bit more |
| 5. Dribble, move, and pass | 5. Play an almost orderly, almost skillful, fun game |
| 6. Dribble and pass with an opposing player | 6. Work on dribbling in the game, passing in the next game, shooting in the next game |
| 7. Dribble, move, and pass with an opposing player | 7. Take a break and just play the game |
| 8. Dribble, move, and pass with three on each side | 8. Back to skill drills, but no worries, another game is coming up… |
| 9. Play the game — uhoh, too late, the year is over, maybe next year… | |

Collaboration

- Who are the members of the team? Parents, teachers, siblings, peers

Where to start?

The purpose of this presentation is to focus on assessment & monitoring of narrative proficiency

Recognition & Response

Buysse et al., (2015) used a process of identifying students who were struggling using one or more standardized measures (recognition) and then providing them with targeted instruction and measuring their response to that instruction

For narrative discourse we might use the TNL-2 as our measure of recognition, and then use language sample, narrative analysis, and holistic judgement procedures to determine the student’s response to intervention

Recognition

Ages 4-15
Components of Language - Language Use

Formats:
- Script-like stories (no picture cues)
- Personal narratives (sequence pictures)
- Fictional narratives (single picture of a scene)

Modality:
- Comprehension (literal and inferential questions)
- Oral Narration

Validated against story grammar analysis (NSS)
- .70 correlation (production scale)

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**Scoring**

No transcription - scored while listening to audiotapes

Comprehension vs. Production

Macrostructure and Microstructure elements

Scores
- Narrative Comprehension
- Oral Narration
- Narrative Language Index

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**Table 5.6 Summary of TNL-2 Reliability Relative to Three Types of Reliability (Decimals Omitted)**

<table>
<thead>
<tr>
<th>Type of reliability coefficient</th>
<th>TNL-2 values</th>
<th>Coefficient alpha</th>
<th>Test-retest</th>
<th>Scorer</th>
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<td>85</td>
<td>99</td>
<td></td>
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<tr>
<td>Production</td>
<td>87</td>
<td>82</td>
<td>99</td>
<td></td>
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<tr>
<td>Narrative Language Ability</td>
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<td>93</td>
<td>99</td>
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<td></td>
<td>Content sampling, content heterogeneity</td>
<td>Time sampling</td>
<td>Interscorer differences</td>
<td></td>
</tr>
</tbody>
</table>


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**Script-like narrative format**

McDonalds Story
- Comprehension
  - Examiner tells a script-like story
  - There is an unsolved problem at the end
  - Solve problem
  - respond to literal and inferential questions
Personal Narrative format

Shipwreck

- Comprehension
- Sequence of 5 pictures
- Examiner reads a story
- Child answers literal and inferential questions about the story
Personal Narrative Format

Late for School

○ Production

◆ Sequence of 5 pictures about a boy who is late for school.
◆ Child creates a story.
Fictional Narrative Format

Dragon Story

- Story comprehension
  - Fantasy picture (single scene) about a dinosaur in a cave.
  - Examiner tells a story
  - Child answers literal and inferential questions
Fictional Narrative Format

Aliens story
- Production
- Fantasy picture with Alien family.
- Child creates story
The TNL-2 can function as a measure of Recognition to identify narrative discourse level issues
- Standardized instructions & scoring procedures
- Norms
- Valid items related to narrative discourse

Measuring discourse skills with criterion referenced measures
- **Language sample analysis** has been the “gold standard” for evaluating oral language skills in children
- Measures that have been used to analyze language change
  - mean length of utterance (MLU)
  - total number of words (TNW)
  - total number of different words (TDW)

*(Heilmann et al., 2008)*

Monitoring progress
Now we need reliable, consistent, valid measures for measuring progress in discourse level skills, in authentic contexts
- Language Sample Analysis
- Narrative Sample Analysis
- NAP
- NSS
- MSL
- Holistic Scoring

Measuring discourse skills with criterion referenced measures
- **Language sample analysis**
  - percent grammatical utterances
  - percent of complex sentences (or subordination index)
    - SI is a measure of syntactic complexity which produces a ratio of the total number of clauses to the total number of C-units (or modified C-units for samples of bilingual Spanish/English speakers). A clause, whether it is main or subordinate, is a statement containing both a subject and a predicate.

*(Heilmann et al., 2008)*
### Hurdles for LSA

- Factors that contribute to time spent in LSA:
  - Intelligibility, mazing, pausing, errors, and overlapping speech
  - Familiarity with transcription conventions
  - Play back equipment
  - Typing skill
  - Quality of the recording
  - Sample length
  - Context (retell, spontaneous)
  - Number of nonstandard features that are coded


- Hurdles for LSA:
  - 4-6 minutes per each minute of audio is required to transcribe samples from typically developing speakers
  - 7-8 minutes per each minute of audio is required to transcribe samples from speakers being evaluated for services or receiving services

### Advantages of LSA

Listening to the sample provides the clinician with greater insight into strengths and weaknesses

- Clinical observations can shape our approach to analysis, to attend to details that might have been overlooked during elicitation
- SALT staff have worked with districts to set up transcription services by SLP aides or assistants using de-identified samples and secure websites
  - Dedicated transcriber
  - http://saltsoftware.com/transcription/services
  - ($35 an hour; you upload your file, they transcribe it; 9, 9S, and custom coding available)
- New news: samples do NOT have to be 100 utterances or be 15 minutes in length in order to accurately capture and assess natural language
  - Rule of thumb: a 5 minute conversational sample, 40-50 utterances is sufficient to yield meaningful results (Heilmann, Nockerts, & Miller, 2010).

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**Systematic Analysis of Language Samples**

- https://www.saltsoftware.com/

- SALT 16 for Windows® and Mac includes a transcription editor, standard reports, and reference databases for comparison with typical peers.
- Accessories include the SALT reference book and elicitation materials.
- Free! Online training courses take you through each step in the language sample analysis process.
  - https://www.saltsoftware.com/case-studies/
  - http://saltsoftware.com/training/self-paced-online-training
  - http://saltsoftware.com/training/howtovideos/si
Narrative sample analysis

Advantages

Eliciting a narrative is an authentic context to obtain a language sample for school age children
Tends to yield more complex language (than conversation)
Representative information from a much shorter sample
You can calculate TNW, TDW, MLU, grammaticality and syntactic complexity from a narrative sample
You can “control” the content of the narrative by choosing the stimuli for assessment
You gather information specifically relevant to the curriculum (in order to design educationally relevant intervention)

(Justice et al., 2010; Leadholm & Miller, 1992)

The length of a narrative has often been used as an estimate used diagnostically, however, it is not always a good predictor of story quality
Stories that are concise and contain specific structural and linguistic features may be shorter and more sophisticated than longer, windy, disorganized stories.

https://www.saltsoftware.com/case-studies/

Case Study - Alex

- 16 years 7 months old
- Mental adjusted age 13
- Conversational sample

13

Can elicit a story retell (Frog stories) in 4 minutes on average, to generate reliable estimates of spoken language skills (Miller, et al., 2016).

Interview format – time efficient, promote more advanced language structures than unstructured conversational samples

3 blocks:

Blocks 1 & 2 = 4 minutes each, conversational protocol to elicit conversation, personal narratives and expository discourse in the form of explanations of games and sports

Block 3 – 4 minutes, narrative protocol to elicit retellings of stories, programs or movies

Block 3

Students watch Frog, Where are You video

Students retell story to clinician, answer comprehension questions about it, generate a new episode or ending to the story and then retell it to a peer or family member

There is a protocol in Appendix B that is used for conducting this part of the assessment process.

121 TD children ages 3-4, 4-5, and 5-6 asked to listen to a story while looking at pictures on the iPad, and then answer questions related to inferring the problem, internal response, predictions, & resolution.

Children’s responses were also coded as expected, incomplete, low contingency or inadequate (off topic).

The ability to infer the problem of the story, the internal response of a character, and predictions were easier starting at age 4 years. Then, the 5- to 6-year-olds were better able to infer the goal, the attempt to solve the problem, and the resolution.

Elicitation methods

Retelling
- Entire story (with and without illustrations)
- Literature
- Wordless books
- Sequenced pictures (increasing length)
- Page by page

Spontaneous composition
- Single scene without an obvious initiating event (OIE)
- Single scene with an obvious initiating event (OIE)
- Verbal or written prompt
- Story starter

You can shoot yourself in the foot if you aren’t careful!
There was a boy and a girl.
And three aliens (came off) came off it.
And the girl went home.
And the boy didn't want to.

They came home and they were hungry.
Then the mother said they were going to eat out somewhere.
And they said McDonalds.
And the girl didn't know what she wanted.

It's a boy.
Just got out of a bed.
And he want to get some cereal.
And he waste it all over the floor and the table.

And the teacher was standing waiting for him coming class.
And the bus left.
And his mom carried him to school.
And the boy ordered.
And his mom ordered a salad.
And the boy ordered.

Sequenced pictures

It's a boy.
Just got out of a bed.
And he want to get some cereal.
And he waste it all over the floor and the table.
And (when) when he got his clothes on he tried put his (sh) shoes on.
And he broke his string.
And he got ready for the bus.
And the bus left.
And his mom ordered a salad.
And the boy ordered.

Single scenes

No obvious initiating event

http://www.readingrockets.org/booklists/our-favorite-wordless-picture-books
http://saltsoftware.com/resources/eilcides/npnpphotos
http://www.readingrockets.org/booklists/our-favorite-wordless-picture-books
Resources for Story Starters


Free online Story Starters Collection

http://saltsoftware.com/resources/elicaids/protocols/

General hierarchy from easiest to hardest

- If you ask a student to retell a story with picture prompts at pre-test, then continue to use the same context for the next few data collection points until the student demonstrates consistent, stable knowledge and use of the structures you are teaching.

- Introduce the next hardest prompt (story retell, no pictures) and follow the same plan as you move up the hierarchy.

Hierarchy disclaimer

There is always a student who doesn’t necessarily fit into this scheme.

- Some students find retells harder than single scenes for various reasons:
  - Unfamiliar vocabulary
  - Contain concepts and ideas they have no background knowledge in
  - Low interest in the topic
  - Memory load issues
  - Generating one’s own story may be easier because the student can remain in his or her comfort zone with respect to vocabulary
  - The presence of a model may make generating spontaneous stories easier.

Elicitation context considerations


Asked 22 TD preschool children to tell stories from color or black and white pictures.

Two story sets of 5 pictures each.

Children were observed to tell stories that were similar in narrative content, length (TNW), and word diversity (TDW) regardless of whether the pictures used to elicit stories were in color or black and white.

Only 4 children stated that color contributed to why they chose color over black and white.

The remaining children gave content related reasons for their preferences.

29 preschoolers aged 4;2-5;6 randomly assigned to modality presentation condition

Children were asked to retell the story to an unfamiliar listener and to answer 9 questions about it (provided in Appendix of the article)

- **Modality**
  - Audio only
  - Audio-visual (video of puppets acting out the story)
- **Task**
  - Retelling
  - Question-answering

Groups did not differ in terms of the # of utterances, TNW, TDW, MLU

- Mean length of utterance longer, more complete & complex grammatical structures than in question answering
- Number of utterances and different words used higher than in retelling task

The direct questioning task significantly expanded on the amount of talk and story understanding but the presence of the video was not necessarily helpful in eliciting stories from children

Does this suggest that clinicians should NOT use visuals to support story retelling?

Not necessarily.

- The study was small, recruited typically developing Caucasian boys only, and they were young (4;2 to 5;6)
- Students with ASD are well known to benefit from visual cues


16 participants between the ages of 5;7 and 9;9, LI

Pictures only – put pictures in front of child, child told story to researcher, then to unfamiliar listener

Oral followed by pictures - read story to child with the pictures visible, then child was asked to tell story to unfamiliar listener

Oral & pictures – read story with pictures present, pictures visible when child told story to unfamiliar listener

Oral only – read story to child with no pictures, no pictures were provided as child was asked to tell story to unfamiliar listener
Measures of length (no significant differences between conditions)
- Mean length of T-unit in morphemes
- Number of words
- Number of utterances

Measures of content
- Story grammar units
- Different/relevant information
- Different/irrelevant information

Pictures only – fewer SG units than oral followed by pictures & oral only, the most irrelevant & original information
Oral followed by pictures & Oral & pictures – fewer SGs than oral only
Oral only – greatest number of SG units, more likely to qualify as a complete episode


12 bilingual children ages 4;0 to 6;11 told stories in English and Spanish
- Retell Task
  - Produced narratives of equal complexity whether told in English or Spanish
  - Used more IEs and attempts in Spanish
  - Used more consequences in English
  - Used more Spanish influenced English utterances for the book task than they did English influenced Spanish utterances suggesting that the retell task was more challenging than the picture task
- Static picture (birthday party)
  - Tended to yield a personal narrative rather than a fictional narrative making it difficult to compare the two conditions

Fiestas & Pena, 2004

<table>
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<tr>
<th></th>
<th>Book</th>
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<tr>
<td></td>
<td>Spanish</td>
<td>English</td>
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<tr>
<td>C-units</td>
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<td>33.75</td>
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<tr>
<td># words</td>
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<td>186</td>
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Clinical Implications
The retell task using a wordless picture book was more reliable in eliciting a narrative sample containing story grammar elements, but the language samples were fairly comparable for productivity and grammaticality.


2 narratives were elicited from 40, 5, 8 and 11 year olds
- TNL
  - Picture sequence (Late for School)
  - Single picture (Alien story)

Coded for:
- Simple designating noun phrases = 1 pre-noun element (the boy) Pre1
- Simple descriptive noun phrases + a descriptive element and a determiner (a small girl) Pre2
- Complex descriptive noun phrases = 2 or more descriptive elements and a determiner (the crazy yellow bus) Pre3
- Complex noun phrases = noun postmodification a face like aliens, a girl named Alianidad Post

Noun phrase elaboration was assessed by age (5, 8, 11), syntactic position (object or subject) and narrative context (single scene or sequenced picture)
Children ages 5-11 used more noun phrase elaboration when asked to tell stories using a single scene (Alien) than in a picture sequence context (Late for School).

Complex Pre3 and postmodification may not be present until age 11
- The crazy yellow bus
- A face like aliens

What do we want to see in a progress monitoring tool?

- Reliable & Valid

If we stick to the curriculum, we can find specific, relevant and time-based goals.

The two most difficult parts of the goal involve measurability and attainability.

Is this goal SMART?

Matching the author to book title is observable, enjoying literature is not
- Identifying the major events in a story is observable, improving story knowledge is not

Are any important conditions included (given a story starter, after hearing a story read)
- Will retell stories isn’t enough information.

Are there measurable criteria that specifies the level of performance that is expected (will tell a story that contains a basic episode)
- Jerry will retell a story with 85% accuracy.
- How do you retell a story with 85% accuracy? Why would the goal be to be less than 100% accurate? What elements are required? This is not measurable.
Present level of performance: When asked to compose a story from a single scene picture, Jeremy describes that picture, rather than creating a story that contains characters, settings and major events (no use of story grammar elements). When asked to retell a story, Jeremy leaves out these elements as well.

Objectives:
Jeremy will retell stories that include stated characters, settings, and initiating event and the attempts and consequences that are causally linked to the IE.

When given a single scene picture with an obvious initiating event, Jeremy will compose stories that include well-specified characters, settings (uses proper nouns), and initiating event and the attempts and consequences that are causally linked to the IE.

Goal: Describe characters, settings, and major events in stories using key details.