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FUNDAMENTALS OF DYNAMIC ASSESSMENT: SPEECH/LANGUAGE DISORDERS

Amy M. Glaspey, Ph.D., CCC-SLP

Associate Professor and Chair
Department of Communicative Sciences & Disorders
The University of Montana
amy.glaspey@umontana.edu | 406-243-2106

SpeechPathology.com
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Disclosures

- Financial Relationships
  - Employed by the University of Montana
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LEARNER OUTCOMES

Learner Outcomes

Participants will be able to:

- 1) Define differences between static and dynamic assessments
- 2) Describe two broad categories of dynamic assessment
- 3) Describe dynamic assessments that have been used specific to speech and language disorders
- 4) List the benefits of using a dynamic assessment approach
- 5) Explain how data collected using dynamic assessment can be used to support Evidence Based Practice

INTRODUCTION

Problems in Assessment

- Measures are often based on a final product rather than the developmental process that leads to accurate production
- Distinguishing a difference from a disorder can be challenging in clients from diverse backgrounds
- Capturing change may be a slow process during the treatment process
- Measures may be insensitive to change across small increments of time

Treatment Implications

- Over- or under-diagnosis for clients from diverse backgrounds
- Misconception that a child has made no progress
- When comparing two treatment programs, misconception that two treatments have the same effect
- Inaccurate conclusions regarding the response to intervention may lead to poor decision making in the treatment process

Solutions

- Employ dynamic assessment
- Sample treatment strategies, engage in instruction, and observe
- Create sensitive measures based on the emergence of skills rather than a final product.
- Support Evidence Based Practice

DYNAMIC ASSESSMENT

Assessment Comparison

- Static
- Dynamic

Static Assessment

- No assistance given (Glaspey & Stoel-Gammon, 2005, 2007)
- Summation of what the child already knows; performance oriented
- Clinicians are trained to avoid any type of support, assistance, or reinforcement that may skew results
- Most standard assessments
- Procedures and approaches originate from cognitive testing

Static Tests of Cognitive Skills
(Sternberg & Grigorenko, 2002)

- IQ Tests, SATs, ACTs, GREs, LSATs, other
- Alfred Binet (1909)—creator of static testing
- Developed to predict future success
- Quantify developed abilities
- Incomplete
- Factors for success: amount of education, test taking skills, parental support (p.21)

Dynamic Assessment

- Also, historically from the cognitive assessment
- Although many researchers have contributed to the current model of dynamic testing, the individual most often credited with its origin is Lev Vygotsky.
- Vygotsky's Model of Cognitive Development (Vygotsky, 1978)

Dynamic Assessment

- Zone of Proximal Development (ZPD)
  - Distance between where an individual performs with assistance and without
  - Where optimal learning occurs
- A measure of learning potential
- Links assessment with treatment
- Scaffolding given within the ZPD

Types of Dynamic Assessment

Sternberg & Grigorenko, 2002

- Sandwich
- Cake

Types of Dynamic Assessment

Sternberg & Grigorenko, 2002

- Sandwich
  - Testing is separate from instruction
  - Pre-test and post-test (bread)
  - Instruction in between (filling)
  - Perhaps similar to Response-to-Intervention approach
- Cake
  - Teaching and instruction occur simultaneously
  - Modifications or instruction occur after each item is tested and produced in error (add layers of cake, frosting)

Create your own Dynamic Assessment

What kind of dynamic assessment should you design?

- Consider the purpose and the information that you want to gather.
  - Diagnostic?
  - Qualify for services?
  - Determine starting point for instruction?
  - Progress monitoring?
  - Differentiate learners?

SANDWICH

Pre-test/teach/post-test approach

Assessing Language Diversity

- Differentiate a language difference from a language disorder
- Developed for English Language Learners
- Lack of experience vs. compromised language learning ability (Peña, Gillam, & Bedore, 2014)
- Reduce assessment bias
- Decrease over-identification and under-identification

Dynamic Assessment: Sandwich

- Pre-test
  - Collect data for domain of interest
- Teach
  - Attempt to increase task performance
- Post-test
  - Complete within a short period of time of pre-test (1-5 sessions)

Teach: Mediated Learning Experience

- Intentionality
- Meaning
- Transcendence
- Competence

Observe Modifiability

- Compare pre- and post-test abilities
- Assess examiner qualitative ratings of responsiveness
- Modifiability
- Child Responsivity
- Transfer
- Examiner Effort

DA: NARRATIVE

Pre-test/teach/post-test approach

DA: Narrative

- Pena, Gillam, & Bedore (2014) studied the use of dynamic assessment of narrative ability for bilinguals (Spanish/English) in English to identify language impairment in English Language Learners

DA: Narrative

- Compared three groups of kindergarten children with and without language impairment who were Spanish-English speakers engaged in learning English as a Second Language
- Interested in differentiating children
- Three session process: Pre-test & instruction, Instruction, and Post-test
- Goal to increase length and complexity of narratives

DA: Narrative Test

- Children given the wordless picture books *Two Friends* (pretest) and *Bird and His Ring* (posttest); told stories in English to the examiner
- Analyzed with several narrative measures
- Grammaticality (percent ungrammatical utterances)
- Complexity (number of main verbs)
- Total Number of Words
- Number of Different Words
- Mean Length of Utterance in words
- Qualitative scores with total score range from 10-52; high score better
  - Story components: setting, character information, temporal order of events, causal relationships (5-point rating scale)
  - Story ideas and language: complexity of ideas, knowledge of dialogue, complexity of vocabulary, grammatical complexity and creativity (5-point rating scale)
  - Episode structure: initiating event, internal response, attempt, reaction, resolution (7-point rating scale)

DA: Narrative — MLE

- Two 30-minute sessions
- Targeted complete/complex episodes with modeling/practice
- Session 1: Targeted the child's pre-test story
- Session 2: Created a second story
- Used key MLE elements using a scripted approach

DA: Narrative — MLO

Rated responsivity from 1-5 at the end of one session on each of the following; low score = better

- Affect: anxiety, motivation, persistence
- Behavior: responsiveness to feedback, attention, compliance
- Arousal: task orientation, metacognition, nonverbal self-reward
- Elaboration: problem solving, flexibility, verbal mediation

Results/Discussion

- DAI total story scores: All three groups scored higher on posttest
- No pretest – posttest changes in the productivity and complexity measures
- MLOs highly robust for group differentiation
- Combination of modifiability scores, DA story scores, and ungrammaticality measures best for classification

WORD LEARNING

Pre-test/teach/post-test approach

DA: Word Learning

- Kapantzoglou, Restrepo, & Thompson (2012) created a dynamic assessment of word learning to accurately classify bilingual children with primary language impairment (PLI) vs. typically developing (TD)
- Participants: Two groups, 4-5 year olds, Spanish and English speaking
- One 30-40 minute session of dynamic assessment for a word learning task

DA: Word Learning ID Testing

Preliminary Identification Measures

Two 30-40 min sessions

- Parent Report
- Teacher Report
- Vocabulary tests: EOWPVT-SBE (both languages)
- Language Samples/Language Proficiency
  - Story re-telling with wordless books in both languages
  - Coded with SALT, segmented in T-units, grammatical errors per T-unit calculated
  - Sentence length, complexity, grammaticality, vocabulary, fluency with a 1-5 point scale with 0.5 intervals

DA: Word Learning Stimuli

- 3 unfamiliar target items (an animal, seeds, bubble level) and 3 familiar items (flower, pizza, sunglasses)
- Unfamiliar items were given non-words (fote, depa, kina)
  - CVCV format that followed Spanish phonological rules
  - Low neighborhood density, high phonotactic probability
- Dynamic assessment was administered in Spanish

DA: Word Learning Test

- Pre-test: children asked to name all items
- Probes: Children asked to name all of the items, then asked to identify
- Three Phases: Script, Test, Script, Test, Script, Test

DA: Word Learning MLE

- Consistent across participants
- Established Rapport
- Used puppets with a script
- Employed MLE principles
- Communicated purpose
- Children developed a plan for remembering the words
- Gave children reminders to remember the names

- Taught two familiar words, two unfamiliar, then alternated
- Each word presented 9 times in script

DA: Word Learning MLE cont.

Learning supports

- Examiner reported category of each item
- Talked about function/use
- Used a gesture
- Provided a description
- Allowed manipulation
- Asked child to imitate 3 times

DA: Word Learning MLO

- End of Phase 3
- Used the Learning Strategies Checklist to assess child's strategies
  - 13 items scored on 3-point scale (0, 1, 2) range of 0-26 points
  - Attention/discrimination, planning, self-regulation/awareness, application, motivation
- Used the Modifiability Scale
  - Judgment of child's response to intervention
  - Examiner's effort, child's responsivity, and transfer
  - Three items with a 4-point Likert scale
  - One item with 3-point scale
- Calculated the modifiability index

Results

- Children with TLD learned words at a faster rate than children with PLI
- Dynamic assessment was promising when differentiating between children with TLD and PLI
- Classification was best when combining Phase 1 scores and LSC scores

Let's make a sandwich!

- What kind of sandwich do you want to make?
  - Determine the skill(s) to be assessed and taught
- Choose your bread –
  - Construct your test; static
- Choose your fillings – (a lot of good sandwiches can be made from different fillings; each of us has preferences)
  - List your instructional strategies that you will test out
  - Determine how much instruction you will do

CAKE

Graduated Prompt Approach

DA: APHASIA

Graduated Prompt Approach

Boston Naming Test

- Purpose
  - Confrontational naming task (not vocabulary)
  - Graduated prompt approach
- Administration
  - Show a picture, ask client to name the picture
- Cues
  - Spontaneous
  - Semantic Cue
  - Phonemic Cue
- Additional Information
  - Multiple choice identification
  - Categorize error type
  - Record latency

house (home)
(a kind of building)
"hou"

DA: MORPHOLOGY

Graduated Prompt Approach

DA: Morphology

- Morphological Analysis in School-age Children: Dynamic Assessment of a Word Learning Strategy (Larsen & Nippold, 2007)
  - 6th graders
  - DATMA
- Morphological Analysis in Context vs. Isolation: Use of a Dynamic Assessment Task with School-Age Children (Ram, Marinellie, Benigno, & McCarthy, 2013)
  - 3rd and 5th graders
  - DATMA-M

DA: Morphology

- Studies of derivational morphemes
  - Suffixes and affixes added to lexical morphemes (root words) to produce new words (Larsen & Nippold, 2007)
  - Employ morphological analysis—to determine meanings of unfamiliar words from knowledge of root words and affixes.
- Purpose
  - How well do children use morphological analysis?
  - How much and what kind of assistance does a child need to be successful?
  - How does this ability relate to literacy skills?
  - How does performance in isolation compare to within context? (Ram, et.al, 2013)

DA: Morphology

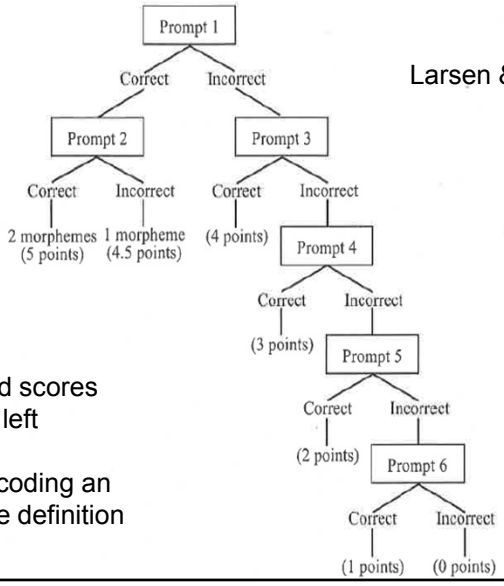
- Conclusions
  - Both studies showed a range of skills that differentiated children's abilities
  - Some children needed minimal assistance, others required more scaffolding
  - Both studies showed a relationship between ability in morphological analysis and other literacy skills
- Large variability in the children's performance on the DATMA-M
- Children in grade 5 achieved significantly higher grades than their grade 3 counterparts
- Overall, children performed better with contextual clues than when the word was presented in isolation
- Correlation found between reading frequency and DATMA-M scores
- Most participants required at least one or two prompts to provide an acceptable definition of the target word.

DA: Morphology

Beast-ly
Puzzle-ment
Flower-y

- Task
  - Children asked to explain the meanings of morphologically complex words.
  - Target words
    - Low-frequency derivatives of high-frequency root words
    - Presented randomly
    - 15 words (Larsen & Nippold, 2007); 20 words (Ram, et. al., 2013)
  - DATMA: Dynamic Assessment Task of Morphological Analysis (DATMA) (Larsen & Nippold, 2007)
  - "I am going to say some words and your job will be to tell me what you think they mean. I'll also show you a written copy of each word. If some of the words are hard, I'll give you some help. Are you ready?" (Larsen & Nippold, 2007)

DATMA: Prompt Decision Flow Chart



Larsen & Nippold (2007)

Associated scores shown on left

Rules for coding an acceptable definition

DATMA Cues

- Series of 6 prompts that are progressively more helpful

Prompts included:

1. Asking the child what the derived word means
2. Asking the child ***how*** he/she knows what the word means
3. Asking if the word has smaller parts and what they are
4. Telling the child the smaller parts
5. Using the word in a sentence
6. Giving a multiple choice question with three choices

DATMA-M Cues

- Series of 6 prompts
- Prompts included:

1.A Asking the child what the derived word means.

1. B Asking the child to listen to the sentence and tell what the derived word means.

1. Asking the child how he/she knows what the word means
2. Asking the child whether the word has smaller parts and what they are
3. Telling the child the smaller parts of the derived word.
4. Telling the child the meaning of the word ending.
5. Giving a multiple choice

DA: PHONOLOGY

Graduated Prompt Approach

Glaspey Dynamic Assessment of Phonology (GDAP)

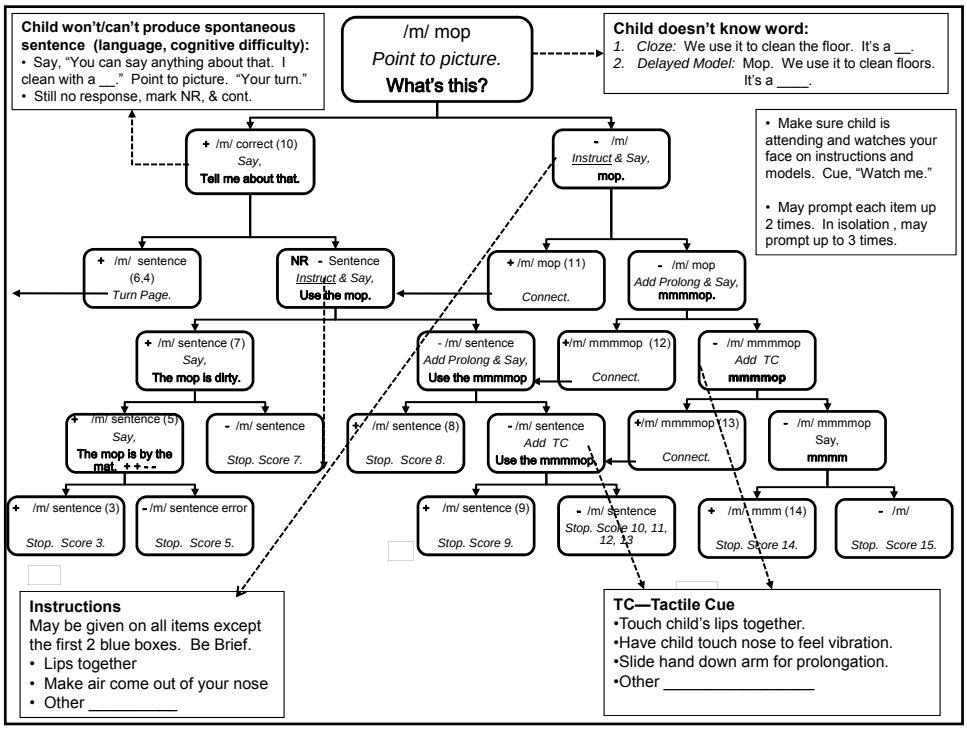
- Each sound is first elicited without assistance
- Help is systematically added one step at a time
- Help includes manipulation of:
  - Cues
  - Environments

Speech Adaptability

- Combination of stimulability and dynamic assessment (Glaspey, 2012)
- Responsiveness to cues across a wide range of systematically varied linguistic contexts

Glaspey Dynamic Assessment of Phonology (GDAP)

Environments ↓ / Cues →	Level 0 No instruction or verbal model	Level 1 Instruction & verbal model	Level 2 Instruction, Verbal model, Prolongation, Segmentation	Level 3 Instruction, Verbal model, Prolongation, Segmentation, Tactile
A. Connected Speech	1			
B. 2-target sentence	2	3		
C. 4-word Sentence	4	5		
D. 3-word Sentence	6	7	8	9
E. Word	10	11	12	13
F. Isolation				14
Not Stimulable				15



DA: REQUEST FOR INFORMATION

Pre-test/teach/post-test approach

DA: Request for Information

- Donaldson and Olswang (2007)
- Investigating requests for information in children with autism spectrum disorders: Static versus dynamic assessment

Methods

- Participants: 14 more able children with ASD and 12 typically developing peers (TPD)
  - Ages 5;0 – 6;11 enrolled in an integrated kindergarten or first grade classroom
  - Nominated by classroom teachers
  - Measured participant's use of RI during social interactions with peers and the examiner
- Initial static assessment observation session
  - Ex. "How are you?", "Will you push me?", "Can I have the red crayon?"
- Three dynamic assessment sessions completed in school environment
  - Manipulation of contextual variable → linguistic variables → physical setting variables
  - Highly preferred objects/activities

Linguistic Prompting Hierarchy

- Spontaneous
  - Natural interaction
- Adult or peer Model
  - What are you building?
- Adult indirect prompt
  - You could ask Billy what he is building.
- Adult direct prompt
  - Say, what are you building Billy?

Results

- During SA, the ASD group produced fewer RI than the TDP group
  - ASD-HI and TDP demonstrated similar performance across all assessment sessions
  - ASD-LOW produces significantly fewer RI than TDP
- ASD-LOW and TDP performed similarly during DA1

Let's make a cake

- What kind of cake do you want to make?
  - Choose the skill that you want to measure
- What are the layers you want create?
  - List the cues that you would use to support the client
  - Sequence your cues (as best you can)
  - Create a tally/notation system

EVIDENCE

Advantages of Dynamic Assessment

- Provides an abundance of information (Larsen & Nippold, 2007)
- Shows degrees of knowledge within the child (Palinesar et al., 1994 in Larsen & Nippld, 2007)
- Offers a starting point for instruction (Larsen & Nippold, 2007)
- May not observe quantitative changes in accuracy, rather qualitative changes observed to inform treatment (Gutiérrez-Clellen & Peña, 2001)
- Attributes significance to the interpersonal interaction—offers a more naturalistic exchange, reduces test anxiety (Kapantzoglou, Restrepo, & Thompson, 2014)

Disadvantages of Dynamic Assessment

- Procedural reliability may be lower than that of a static assessment.
- Score depends partially on clinician skill
- May not provide a normative score
- Time?

Evidence Based Practice

- DA provides improved evidence regarding client skills
- Many studies in the literature support using DA
- DA practices improve decision making

SUMMARY & CONCLUSIONS

Dynamic Assessment

- Differentiate learners and their skills
- Measure learning potential rather than summation of what child already knows
- Measure change over time with greater sensitivity to change
- Complement static, normative measures