



Assessing Language Skills of Multilingual Children with Variable Experiences: A Convergent Evidence Approach

Kerry Danahy Ebert, Lizbeth H. Finestack, Elizabeth Johnson, & Eugene Wong



Disclosures

Kerry Danahy Ebert

- Financial disclosures:
 - Paid full-time employee of the University of Minnesota -Twin Cities, 2019-present
 - Principal Investigator on NIH R01DC019613, 2021-present
 - Co-author of *Language Disorders in Bilingual Children and Adults – 3rd Edition*
 - Principal Investigator on NIH R01DC019895, 2023-present
- Nonfinancial disclosures: None

Lizbeth H. Finestack

- Financial disclosures:
 - Paid full-time employee of the University of Minnesota -Twin Cities, 2009-present
 - Principal Investigator on NIDCD R01DC019374, 2021-present
 - Co-Investigator on NIH R01DC019895, 2023-present
 - Multiple Principal Investigator on R21HD111807, 2023-present
- Nonfinancial disclosures:
 - Board member of the Raising Awareness of Developmental Language Disorder International Committee

Elizabeth Johnson

- Financial disclosures:
 - Ph.D student at the University of Minnesota -Twin Cities, 2023-present, with partial support for convention travel
 - Research assistantship supported by NIH R01DC019895, 2023-present
- Nonfinancial disclosures: None

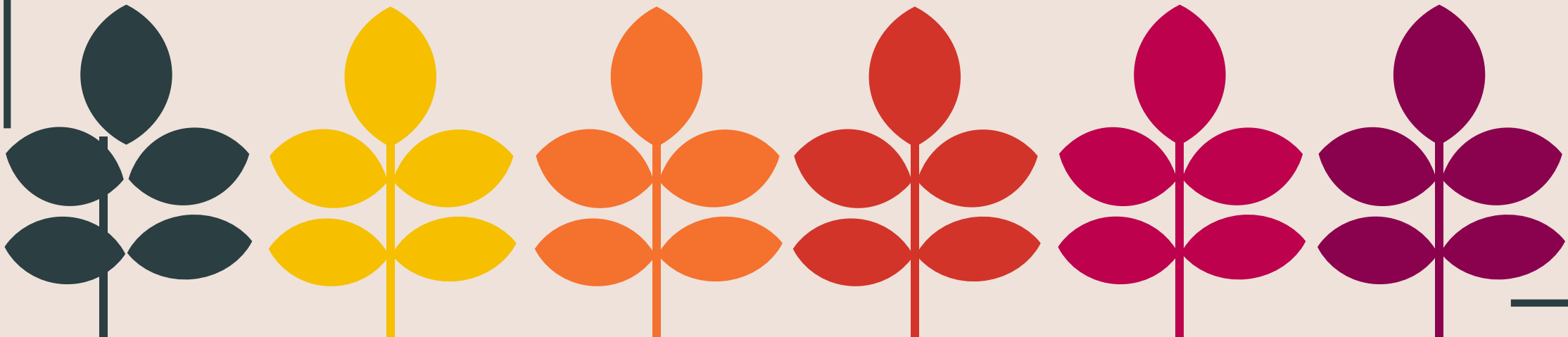
Eugene Wong

- Financial disclosures:
 - Research assistantship supported by NIH R01DC019895, 2024-present
- Nonfinancial disclosures: None



Access our slides!

<https://z.umn.edu/9vqh>



Our Focus



Agenda

Nonword repetition &
sentence repetition

**Processing-
based**

Measures, collection
contexts, & assessment
purposes

**Language
Samples**

Challenges in language
assessment & the
convergent evidence
framework

Overview

Application

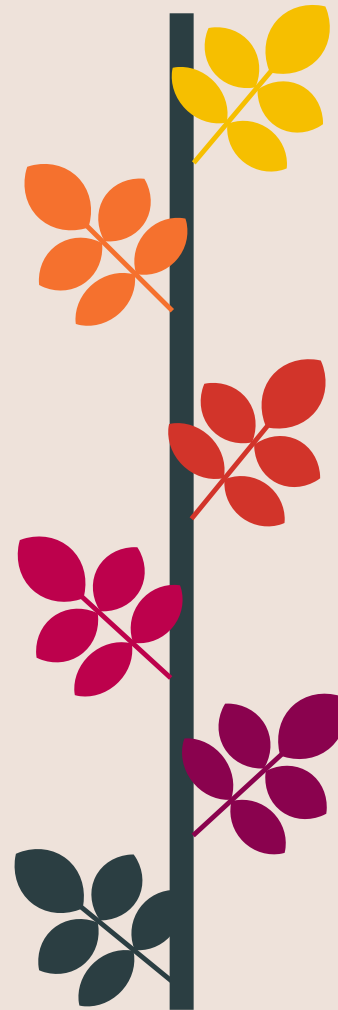
Case studies within the
converging evidence
framework

**Dynamic
Assessment**

Morpheme-level and
narrative-level tasks

Surveys

Parent & teacher report
measures



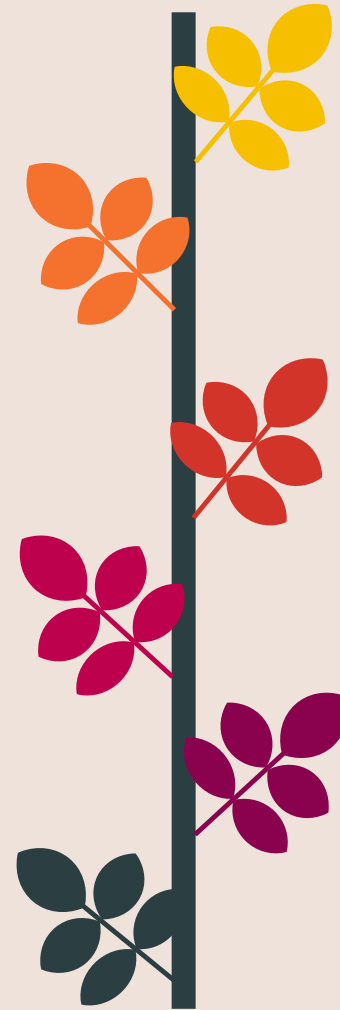


Challenges & solutions in language assessment for multilingual children

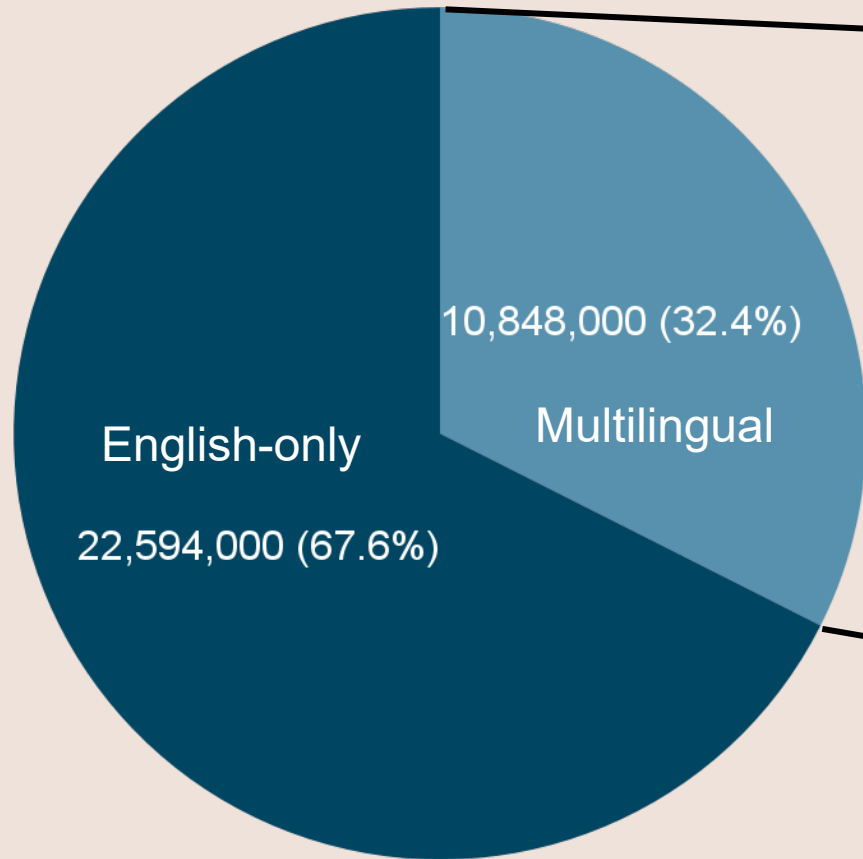
Agenda

**Challenges in language
assessment & the
convergent evidence
framework**

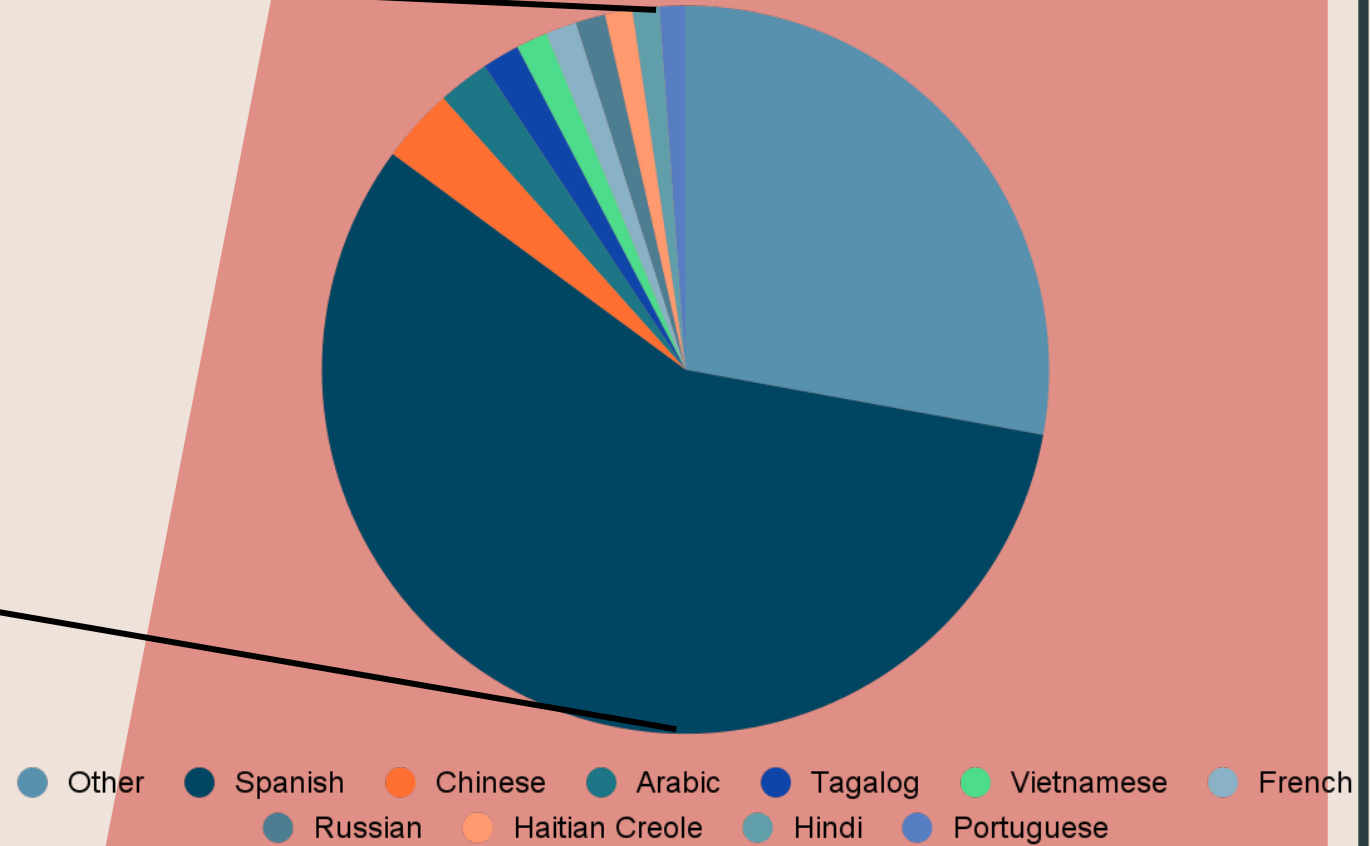
Overview



Multilingual Children in the US, aged 0-8 yrs



8.4% of ASHA service providers identify as multilingual ASHA, 2024



Migration Policy Institute, 2024

Even when children share a home language, they are heterogeneous

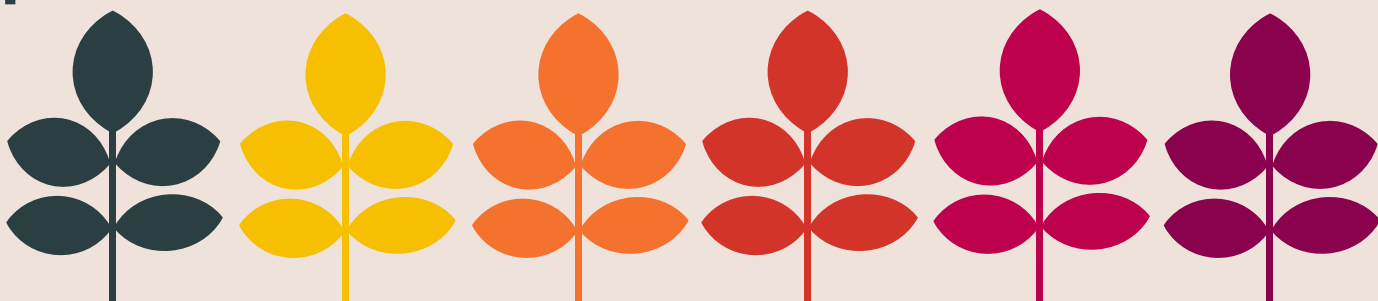
- Number of languages
- Which languages
- Varieties/dialects within languages
- Age of exposure
- Overall quantity of exposure
- Communication partners & contexts
- Societal prestige

e.g., Paradis, 2023



What are our assessment options?

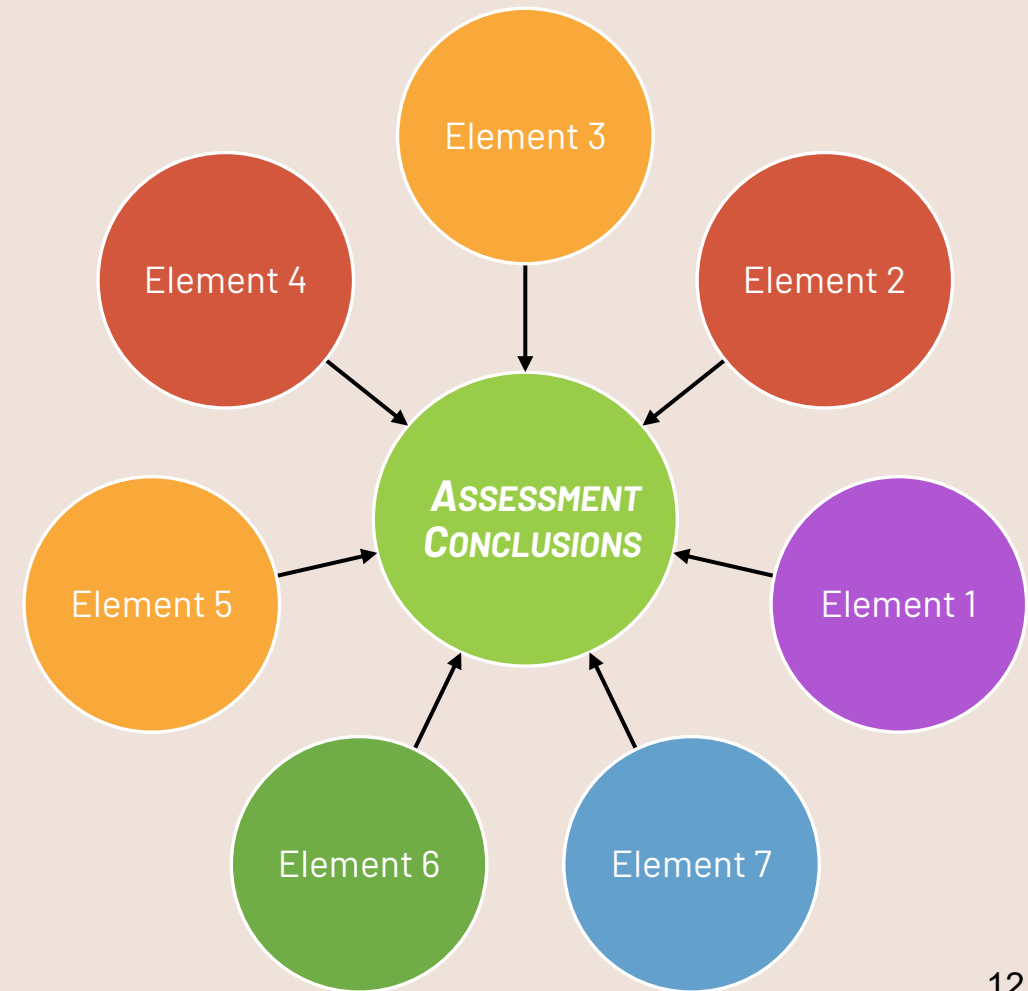
- Norm-referenced tests
 - Normed on monolinguals → problematic
 - Normed on bilinguals → better but still challenging
- Single measures may not represent varied experience and distributed abilities well
- Bi-/multilingual assessment is recommended but often infeasible



“Convergent evidence” in multilingual language assessment

- Examine data from multiple sources
- Look for patterns
- Make team-based decisions

OK, how??



Overview of Our Project

- Children entering kindergarten
- Speak any non-English language at home

INITIAL ASSESSMENT

- Parent & teacher reports
- Dynamic assessments
- Language samples
- Processing-based measures

Language growth

END OF 1ST GRADE

Risk of DLD

What can we do when the provider does not share the child's home language?

Funded by NIDCD
R01DC019895

Case 1

- Female aged 6 years, 2 months
- Identified by parents as Hispanic, no race
- Tested in November of kindergarten year
- Lives at home with both parents and 7 year old sister

Case 2

- Female aged 5 years, 7 months
- Identified by parents as Hispanic, no race
- Tested in November of kindergarten year
- Lives at home with both parents, 2 grandparents, and infant sibling



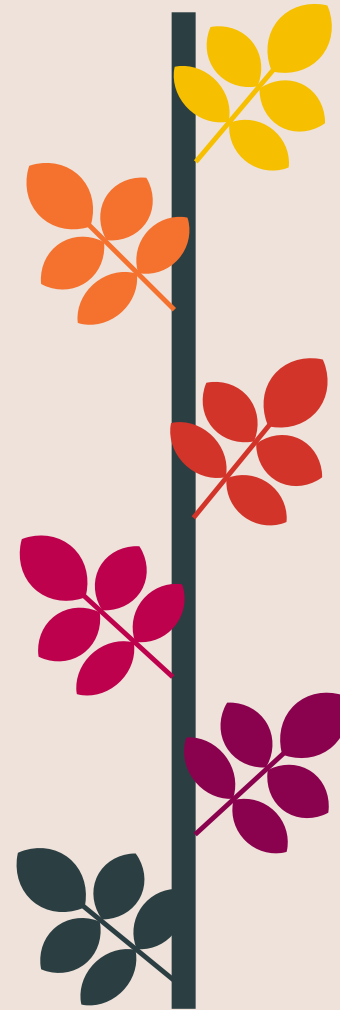
Agenda

Challenges in language
assessment & the
convergent evidence
framework

Overview

Surveys

**Parent & teacher
report measures**



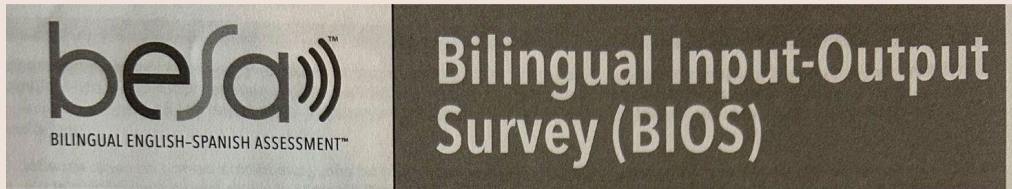
Why parent report?

Parents are a critical source of information about a child's:

- ❑ Development, in language & other areas
- ❑ Language environment, current & historical
- ❑ Communication abilities in the home language
- ❑ Ability to meet functional communication needs



Some Options



Alberta Language and Development Questionnaire (ALDeQ)©

Page 1 26/03/10

ALBERTA LANGUAGE ENVIRONMENT QUESTIONNAIRE (ALEQ)



See Kaščelan et al. (2021), for a review of tools

De Cat et al., 2020; Paradis, 2011; Paradis et al., 2010; Peña et al., 2018a; Peña et al., 2018b



A Few Challenges

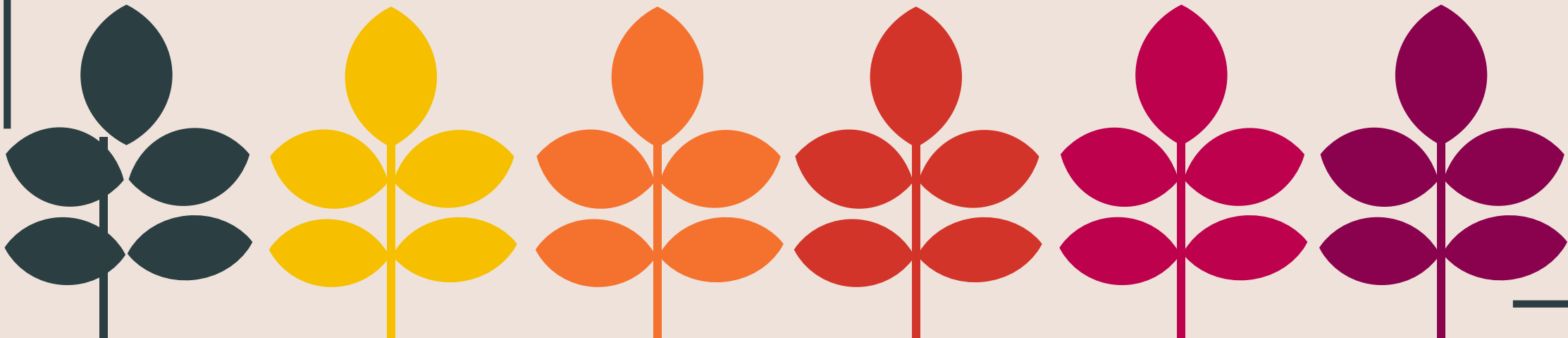
- May need interpreter to communicate with parents
- May need cultural or linguistic adaptations to questionnaires
- Difficulty rating language(s) the parent doesn't use with the child
- Parents may not always recognize **language** difficulty (i.e., limited sensitivity; Ebert et al., 2019; Paradis et al., 2010)



Teacher input helps too!

- Ratings vs. referrals
- Language of the classroom
- Best in combination with other information

Gregory & Oetting (2018), Pratt et al. (2022)



“she is behind in understanding compared to her older sister”

Parent & Teacher Surveys

Suggested cut-score for concern on ITALK: ‘best language’ < 4.19

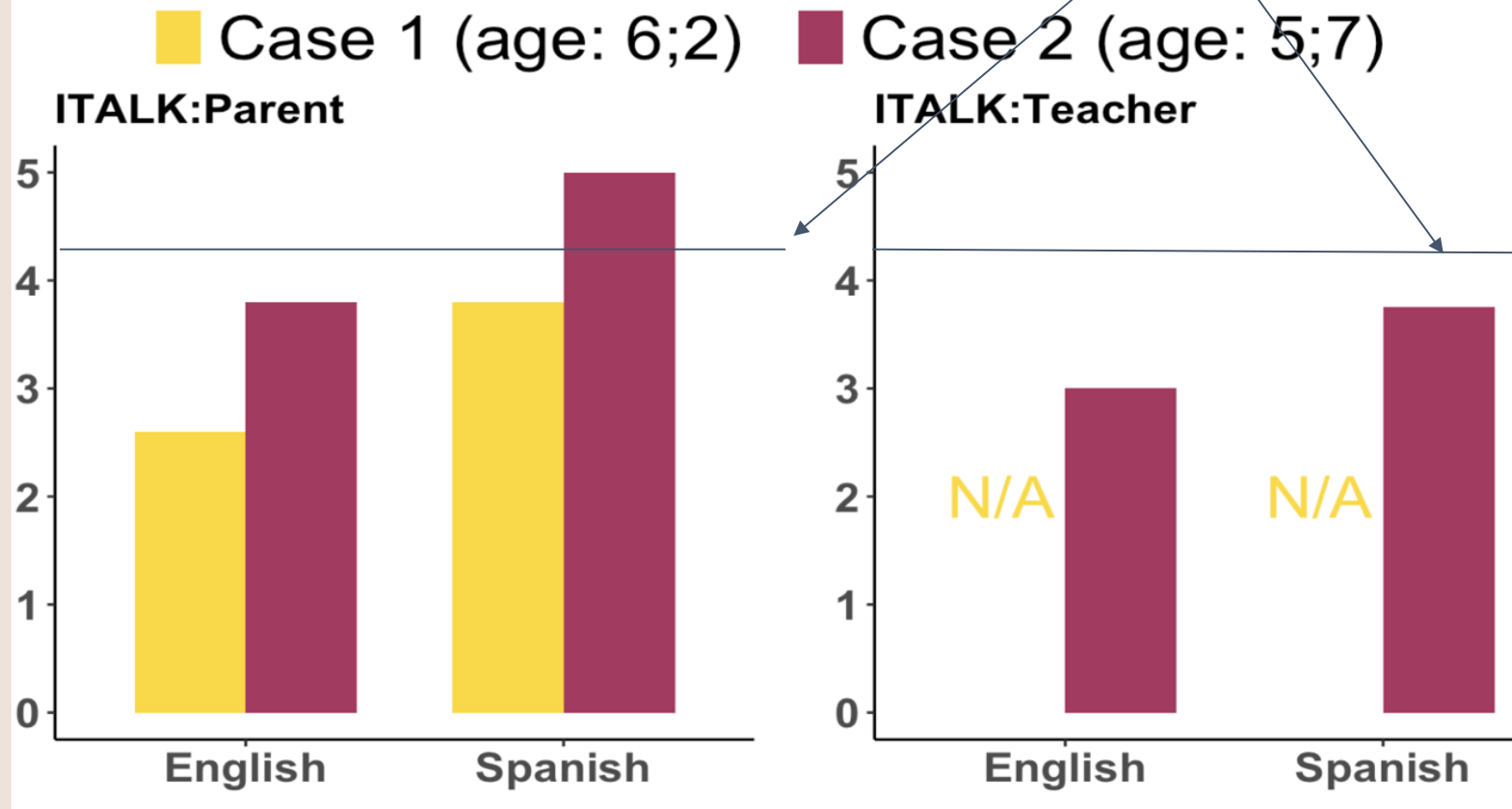
BIOS (Bilingual Input-Output Survey)

Case 1

- 2 yrs of preschool/daycare in Spanish
- Current languages:
 - home all Spanish
 - school all English

Case 2

- No preschool/daycare
- Current languages:
 - home all Spanish
 - school mostly English, Spanish with peers



Agenda

Measures, collection contexts, & assessment purposes

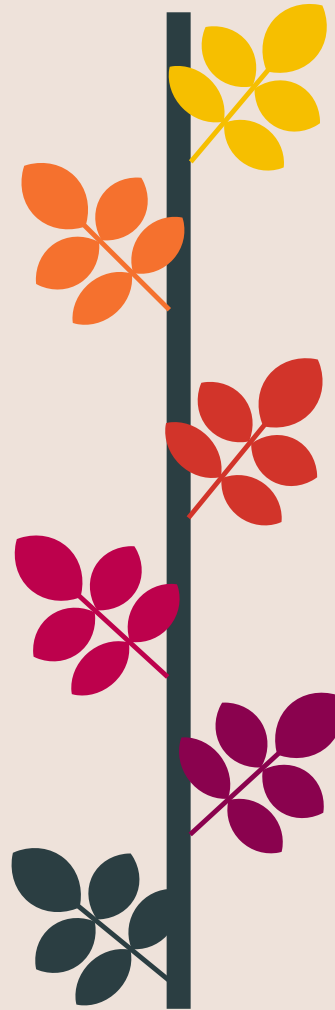
Challenges in language
assessment & the
convergent evidence
framework

Language
Samples

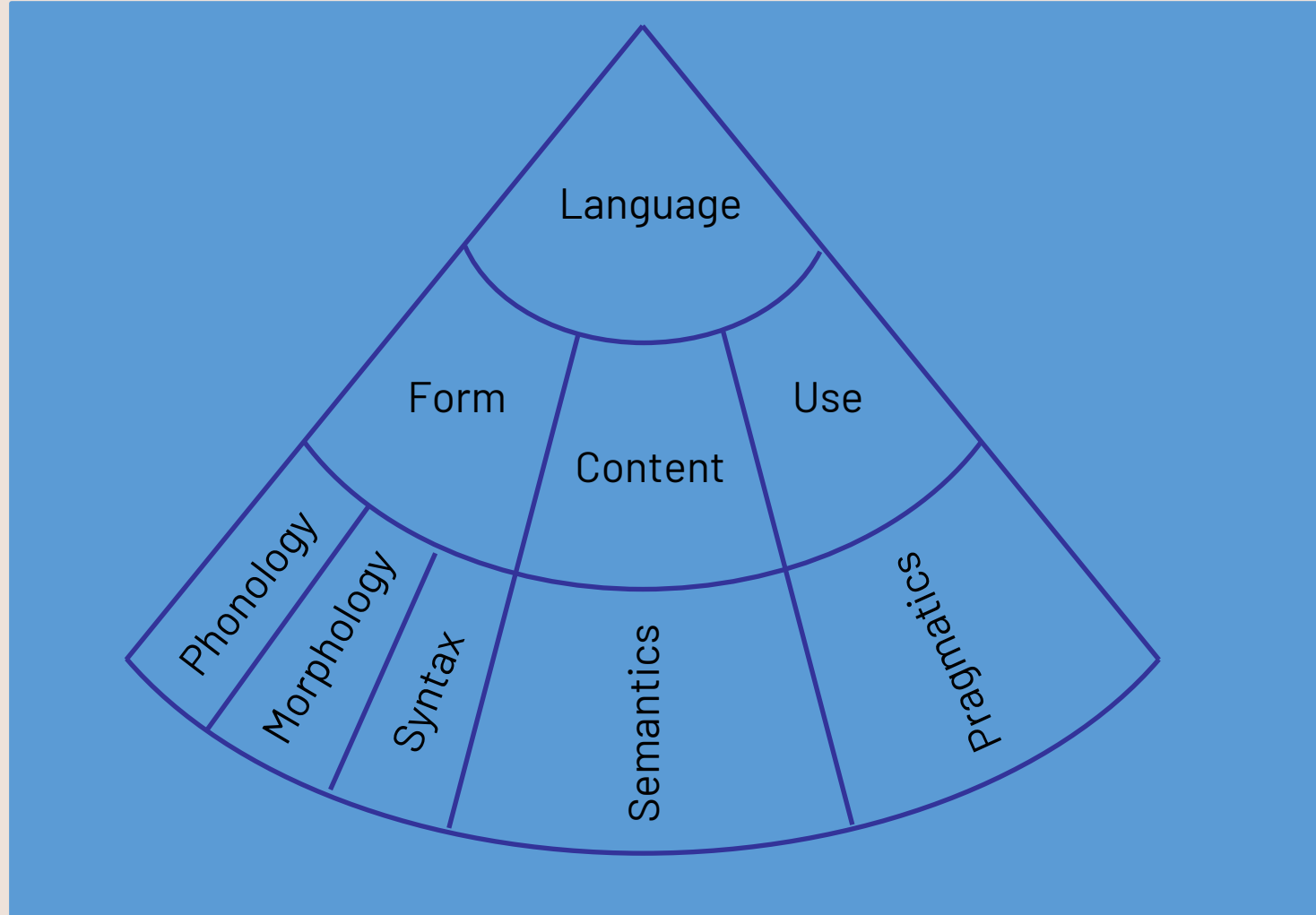
Overview

Surveys

Parent & teacher report
measures



Language Samples



Measures

**Mean Length
of Utterance**

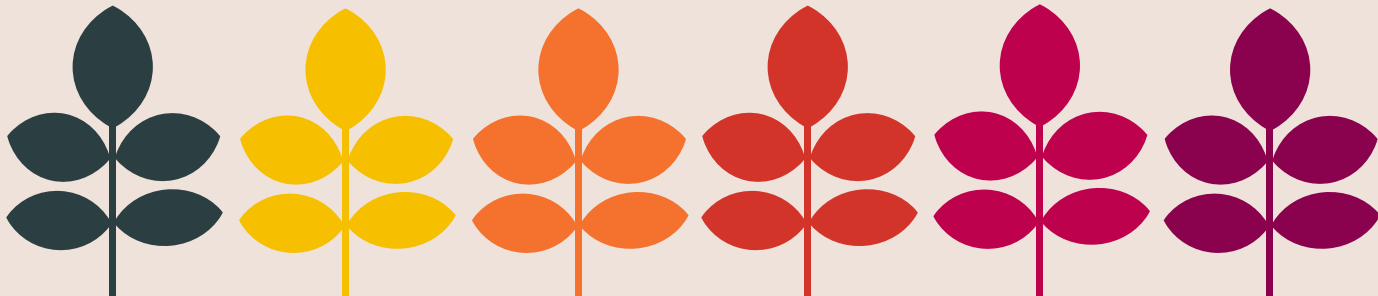
**Story
Grammar**

**Grammatical
Inflections**

**Type Token
Ratio**

Intelligibility

And More!!



Benefits of Language Samples

So many!



A clinician can use language samples to...

- ❖ Evaluate any aspect of language
- ❖ Evaluate multiple languages
- ❖ Assess if language forms are emerging/absent; degree of mastery
- ❖ Monitor growth
- ❖ Assess language in contexts in which the child is more/less successful with language

Contexts

Freeplay



Conversation



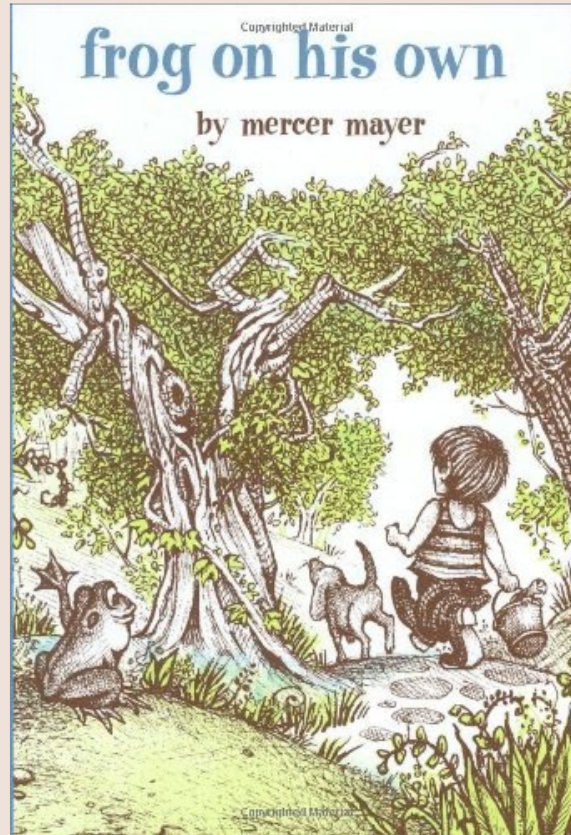
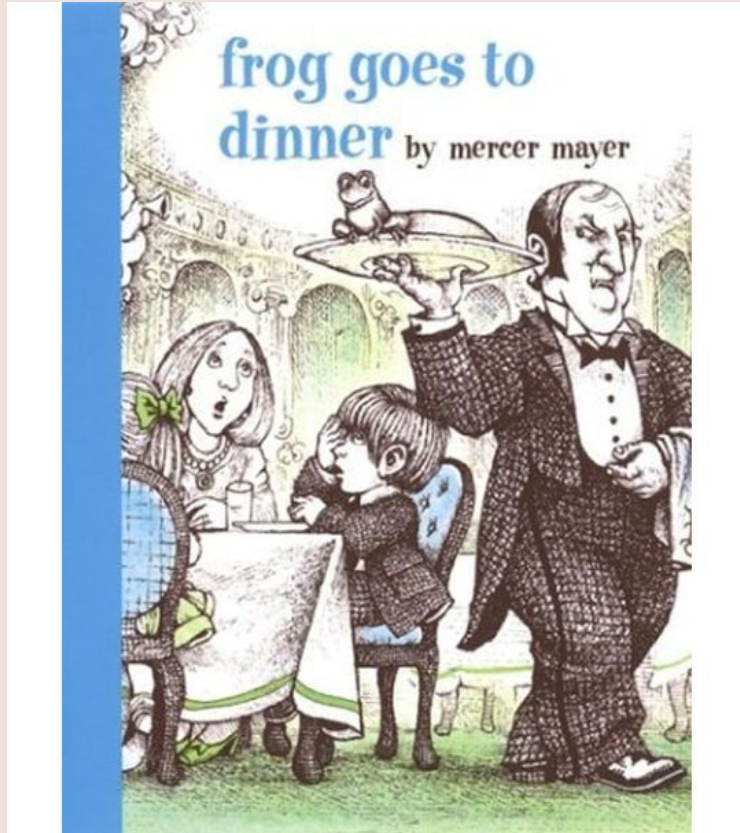
Narrative



Expository

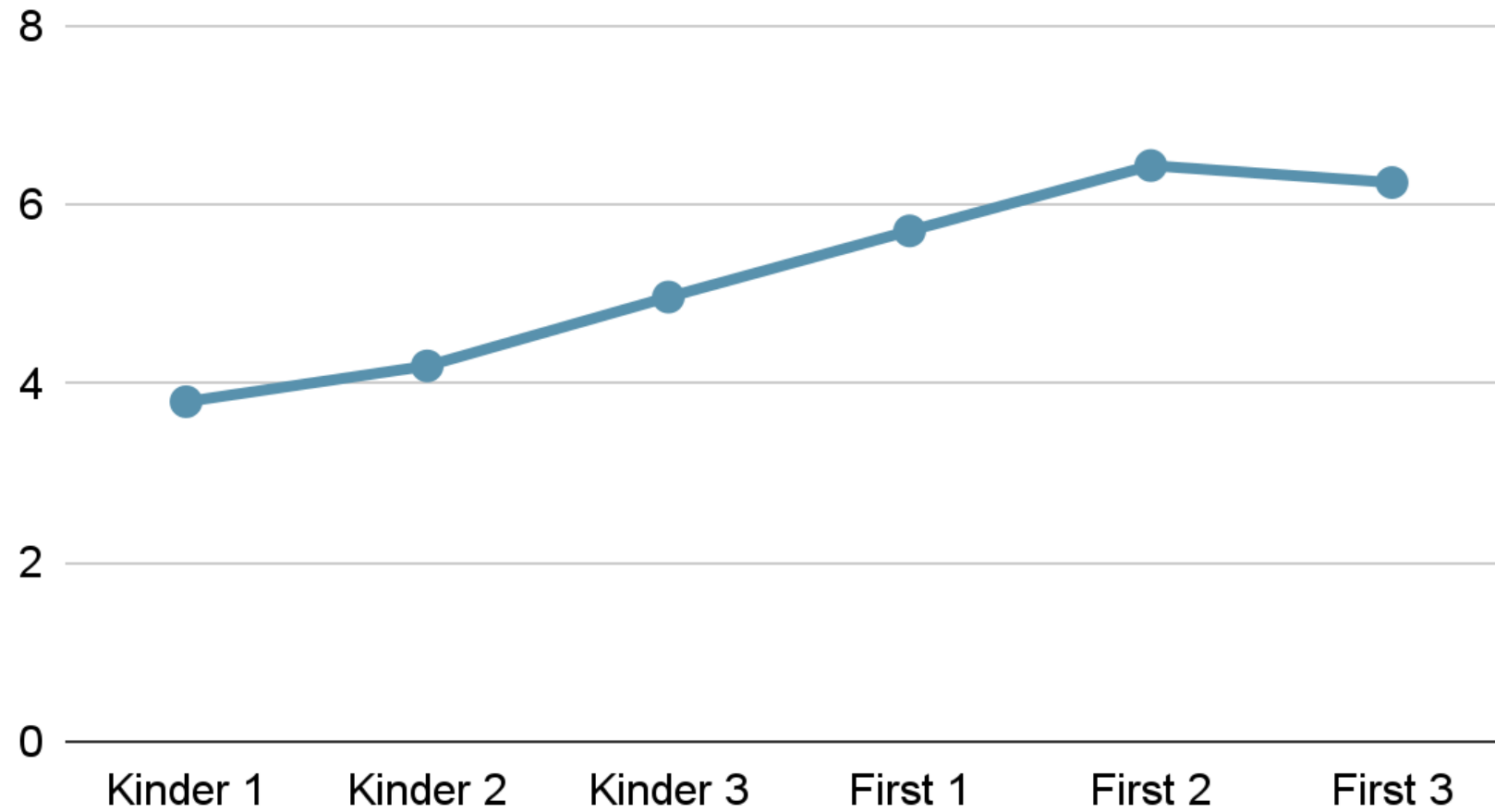


Narrative Samples



Growth

MLU-words

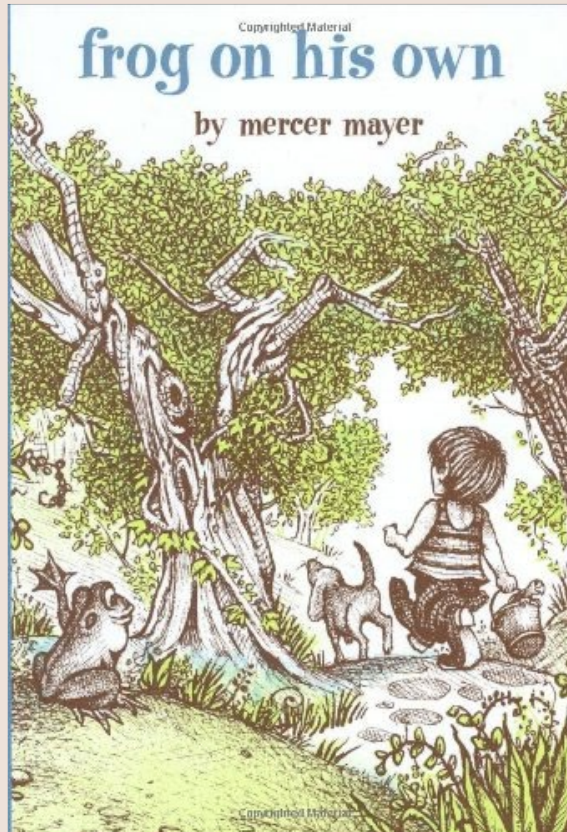


E What do you see on this picture?

C Frog.

E Yeah, what's happening?

C The boy the friend is the frog.



C Now the frog see the boy and the XX.

C And the boys play.

E Good.

C Now the frog jump in the toy.

C And the frog says "Ah"!

C (And the) And the boy cry.

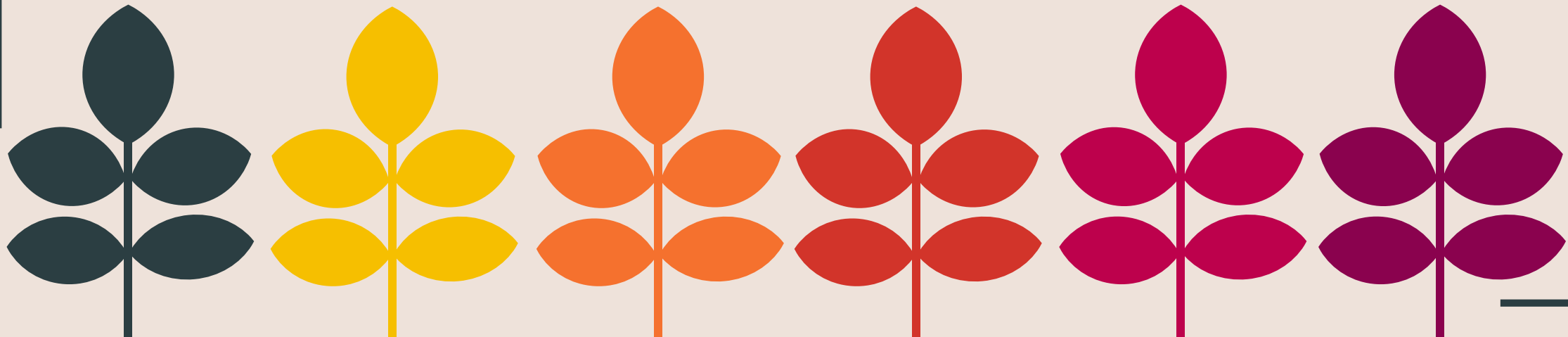
C The frog (eat) want food.

C And there isn't the food.

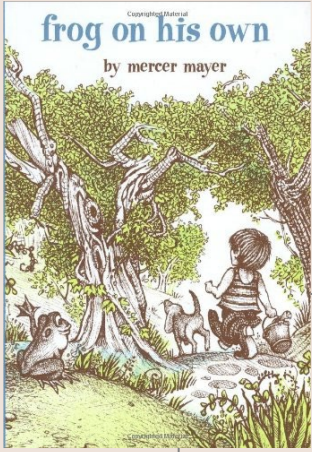
C Now the man (want) want food.

C And the frog jump.

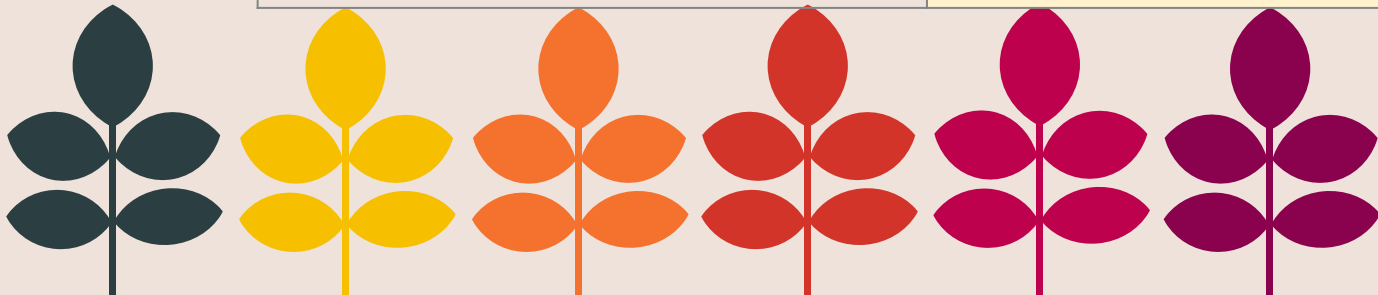
Notes: No English utterances from the child.



Narrative Samples



	Case 1	Case 2
MLU	0	5.71
NDW	0	42
% Utterance with Errors	0	50



Agenda

Measures, collection
contexts, & assessment
purposes

Challenges in language
assessment & the
convergent evidence
framework

**Language
Samples**

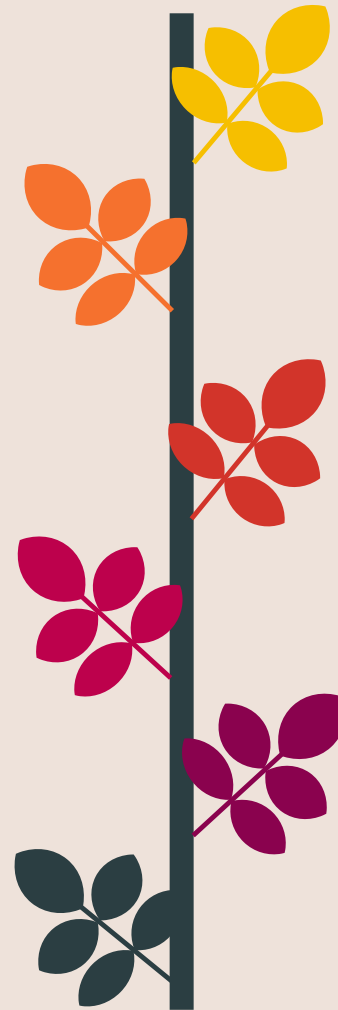
Overview

**Dynamic
Assessment**

**Morpheme-level and
narrative-level tasks**

Surveys

Parent & teacher report
measures



Dynamic Assessment Basics



Measure learning
with strategic
teaching

Static vs. Dynamic Assessments

Static

Considers knowledge
at a single point in

Examines *what* the

Examiner prompts;

Follows a standard
format

Dynamic

Considers learning

Examines *how* the

Examiner and

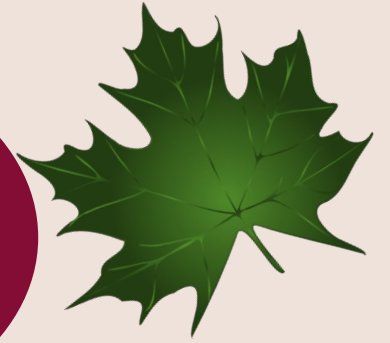
Format can be based
on the child's needs

**Novel
Morpheme
Task**

**Narrative
Dynamic
Assessment
Task**

**Our Three
Dynamic
Assessments**

**The Predictive
Early Assessment
of Reading &
Language**



Novel Morpheme Task

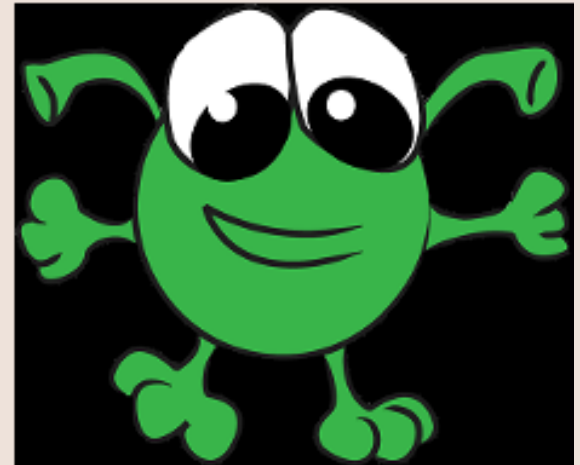
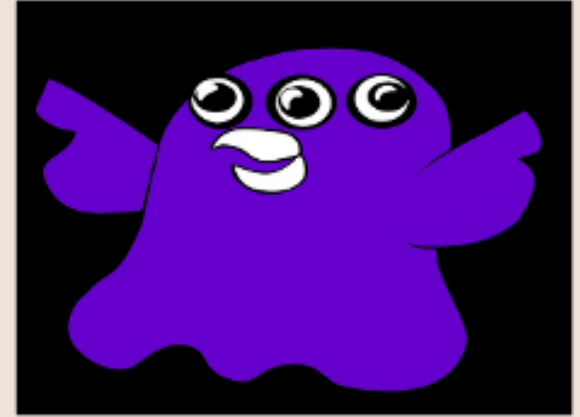
Uses a Teach-Test format to assess children's learning of a novel/nonsense grammatical inflection

- Two different inflections
 - Aspect/Person
- Two teaching formats
 - Implicit/Explicit



Space Game

A creature from outer space has come to Earth. The creature uses the same words we do, but there is something different about how the creature talks. You need to learn to talk just like the space creature.



Novel Morpheme Task

Models

8 models

- Presented via computer
- Explicit - 3 rule presentations

Cloze Task

8 cloze items

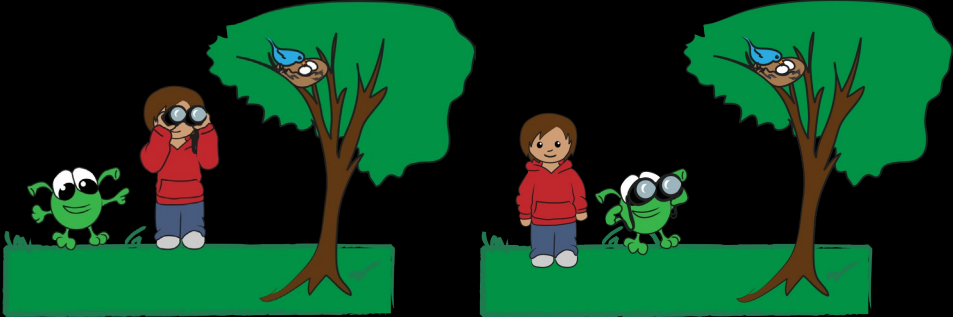
- Child completes sentence with verb
- Followed by feedback and recast
- Explicit - 3 rule presentations

Selection Task

10 choice items

- Child hears verb (marked or unmarked)
- Child selects picture that goes with the verb - two options
- Used to evaluate learning

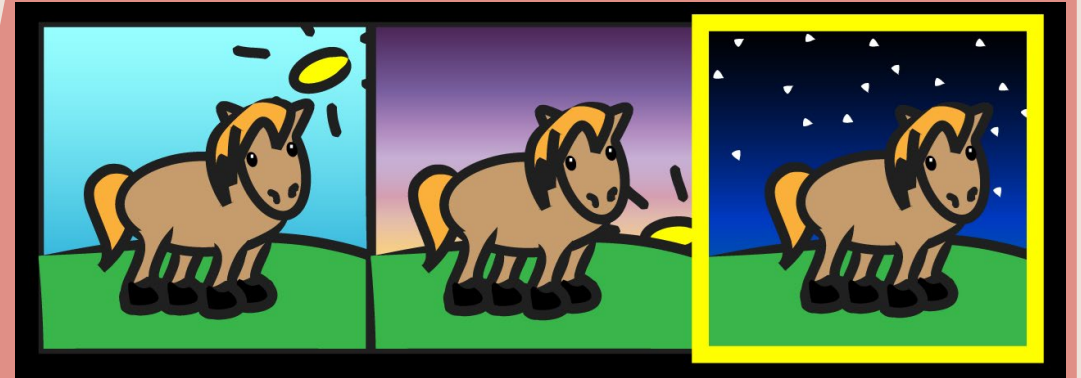
Targets

	Aspect
Explicit Rule	When the creature talks about itself, or you if talk about yourself, you have to add “-f” to the end. When you of the creature talks about someone else, you don’t add anything to the end.
Examples	“Now I look-f.” “Now you look.”
	

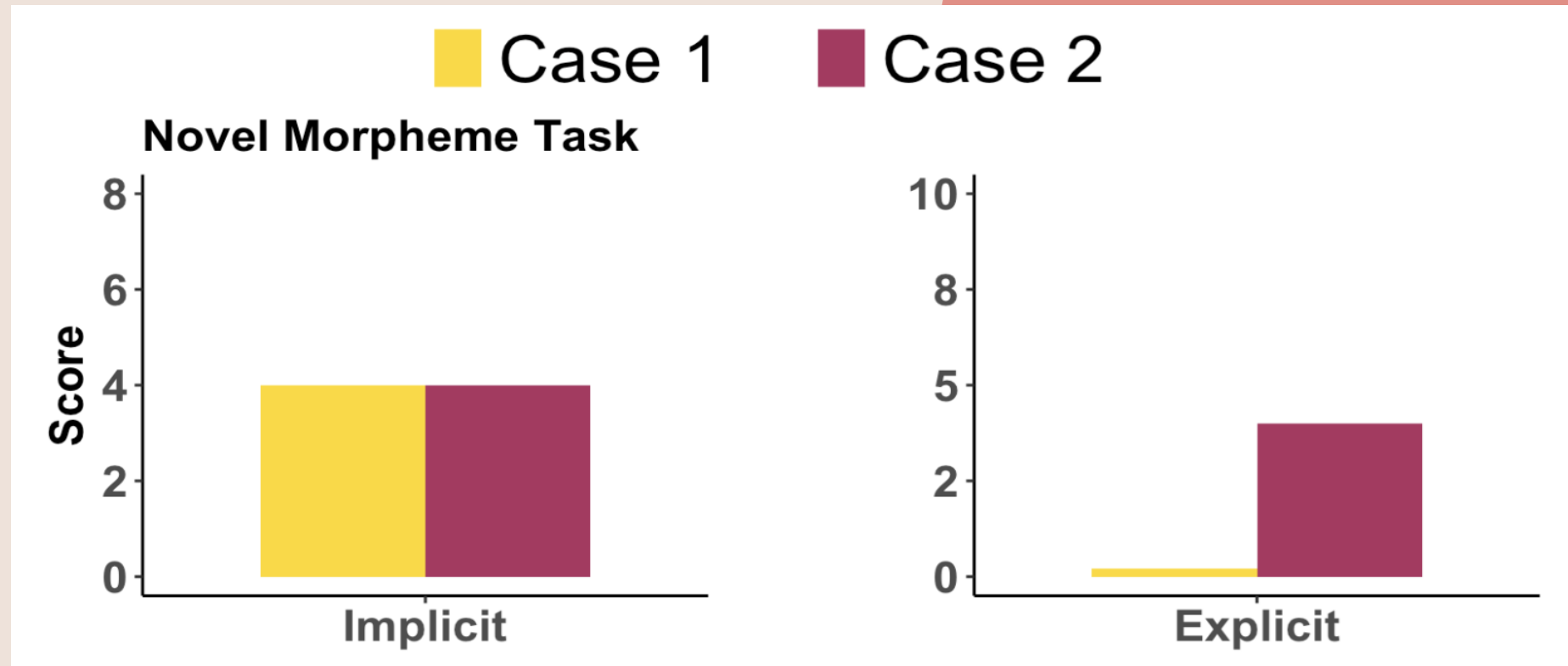
Evaluate

Key Measure:
% correct on Selection
Task (out of 10)

“stand-sh”



Novel Morpheme Task

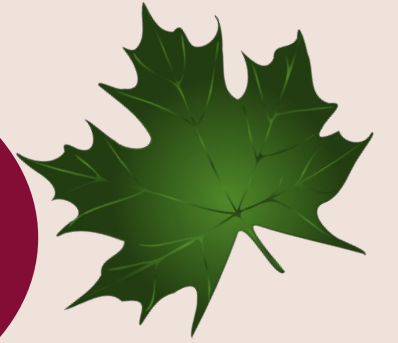


**Novel
Morpheme
Task**

**Narrative
Dynamic
Assessment
Task**

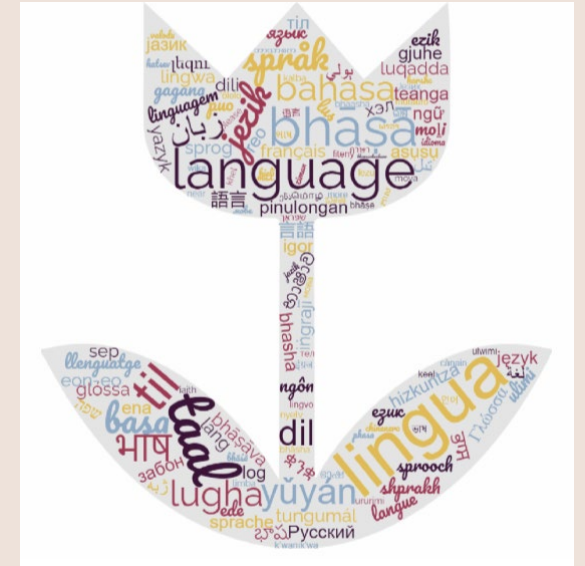
**Our Three
Dynamic
Assessments**

**The Predictive
Early Assessment
of Reading &
Language**



Narrative Dynamic Assessment Task (NDAT)

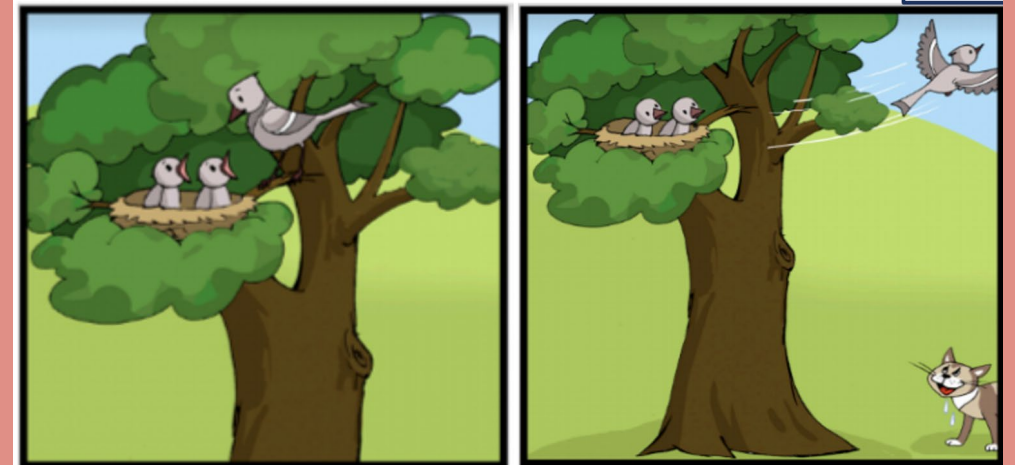
- **Test, Teach, Retest, and Modifiability Rating**
- Kuchler, Ebert, & Finestack (2024)



Test & Teach

- **Review** story elements
- Examiner **tells** a story
- Child **re-tells** story
- Examiner **scores** story elements
- Examiner **teaches** 2 incorrect story elements using graduated prompting

Story and image originally from Gagarina et. al. (2019)



Characters



Setting



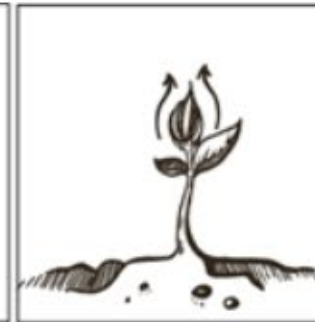
Problem



Plan



Action



Consequence

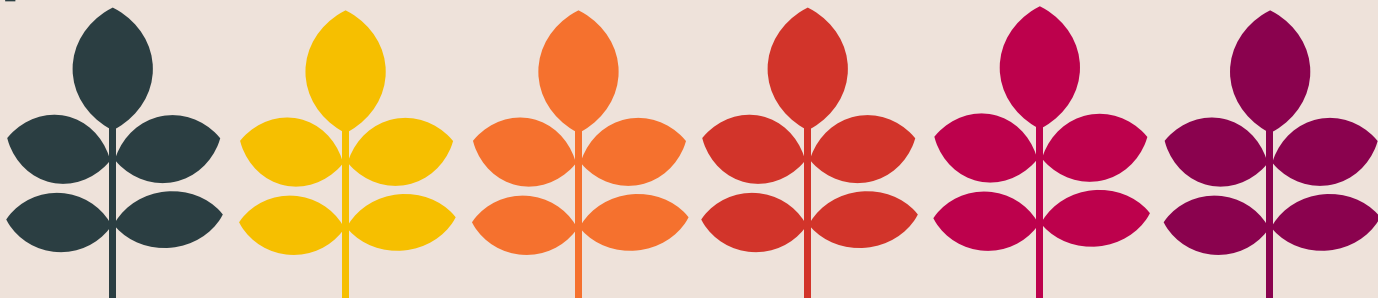


Feelings

Retest & Modifiability Rating

- Examiner **reads** new story
- Child **re-tells** new story
- Examiner completes **modifiability rating** (0-14) (Petersen et. al. 2017)
- Examiner **compares** test and retest scores

Modifiability Rating	Circle Rating
Student had high response to prompts	0 1 2
Student exhibited high degree of transfer	0 1 2
Student attended to the teaching	0 1 2
Student was easy to teach	0 1 2
Student displayed limited frustration	0 1 2
Student displayed few disruptions	0 1 2
Examiner's overall judgement of student's potential to learn narrative language	0 1 2

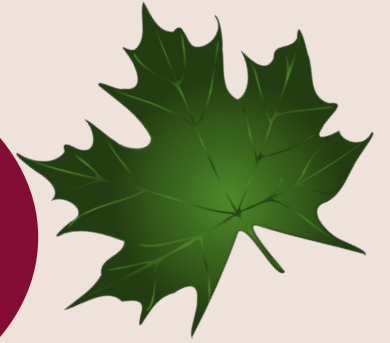


**Novel
Morpheme
Task**

**Narrative
Dynamic
Assessment
Task**

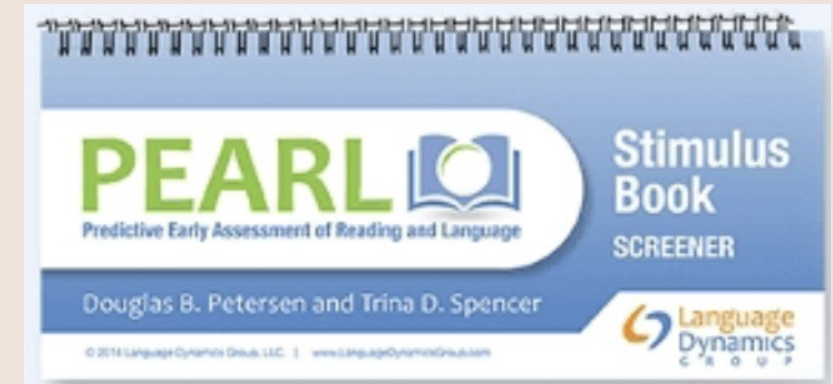
**Our Three
Dynamic
Assessments**

**The Predictive
Early Assessment
of Reading &
Language**



The Predictive Early Assessment of Reading & Language (PEARL)

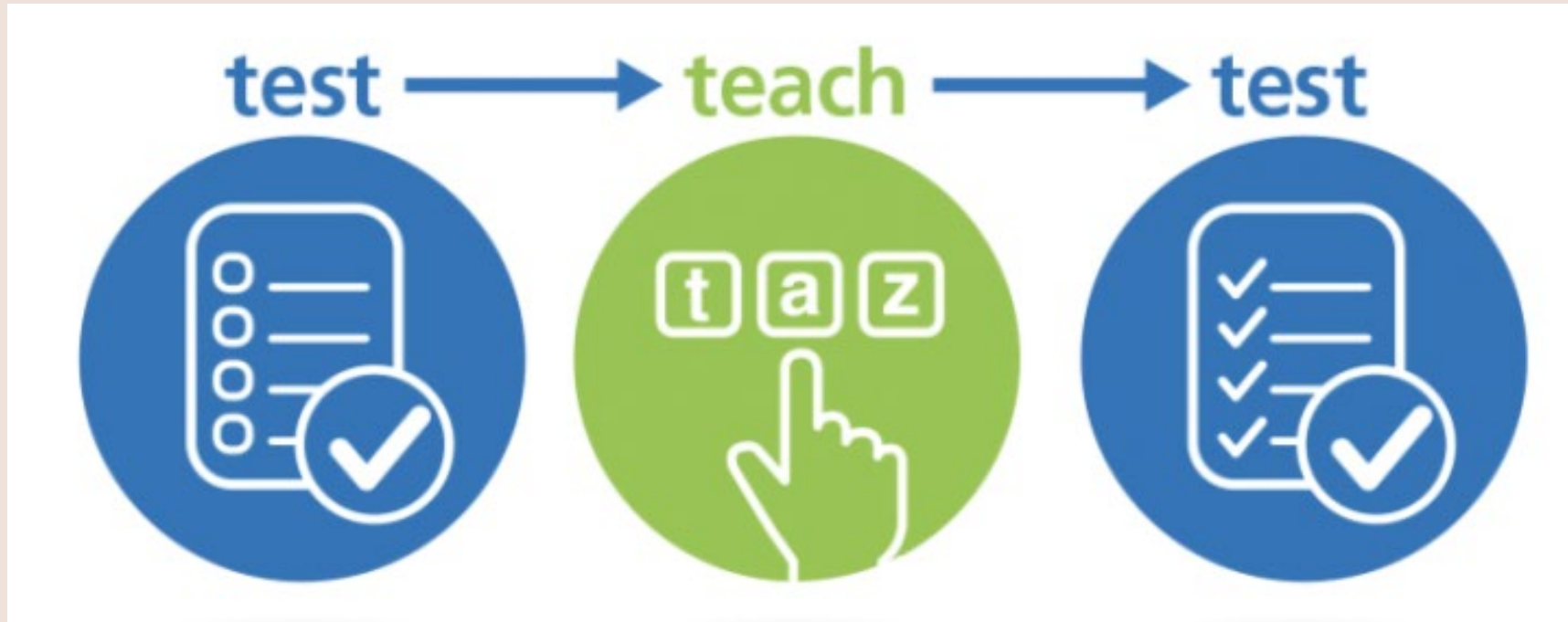
- Kindergarten screener for reading difficulties; tasks and responsiveness ratings useful for making clinical decisions for language disorders
- Decoding and Story Retell: **Test, Teach, Retest**
- High sensitivity and specificity for bilingual speakers
- DA alone shown to classify disorders just as well as static + DA



Petersen & Spencer (2016)

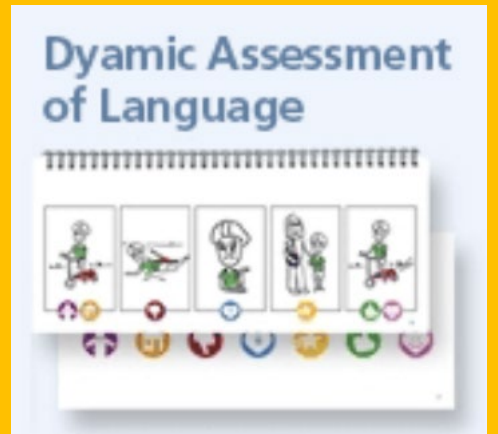
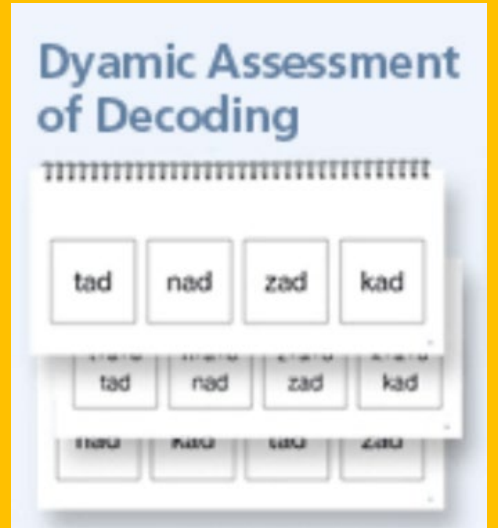
Image from © 2024 Language Dynamics Group, LLC.

Test, Teach, & Retest



- **Decoding:** nonsense words that rhyme
- **Narrative:** Teach all story elements with tiered prompting
- **Responsiveness score** given on both subtests related to learning ability (0-4)

Images from © 2024 Language Dynamics Group, LLC.

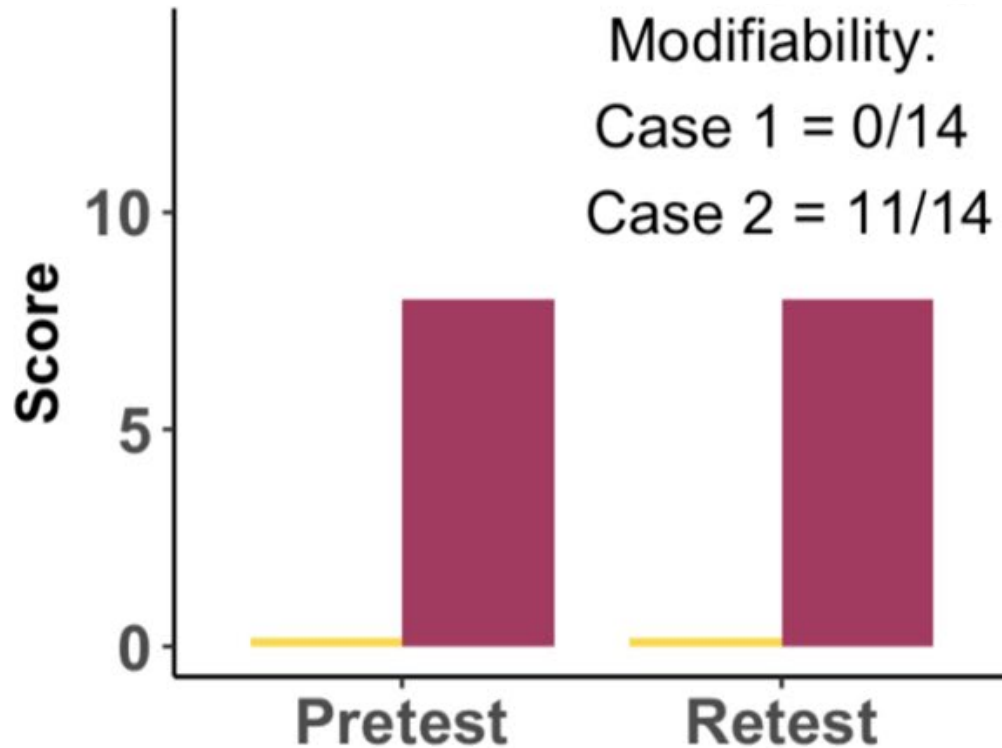


Dynamic Assessment Results

■ Case 1 (age: 6;2) ■ Case 2 (age: 5;7)

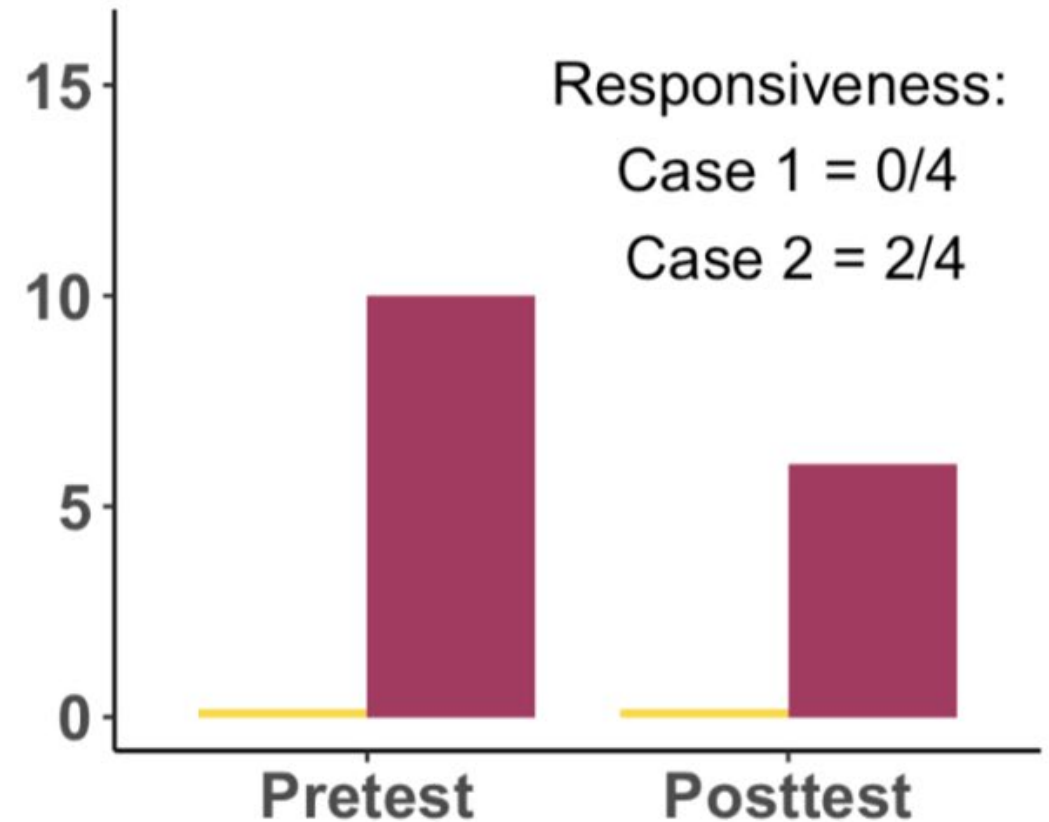
Narrative Dynamic Assessment Task (NDAT)

Modifiability:
Case 1 = 0/14
Case 2 = 11/14



PEARL

Responsiveness:
Case 1 = 0/4
Case 2 = 2/4



Agenda

Nonword repetition & sentence repetition

Measures, collection contexts, & assessment purposes

Challenges in language assessment & the convergent evidence framework

Processing-based

Language Samples

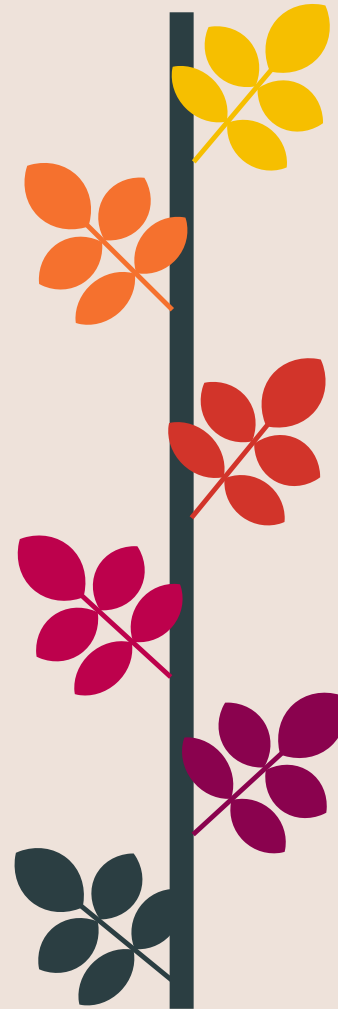
Overview

Dynamic Assessment

Morpheme-level and narrative-level tasks

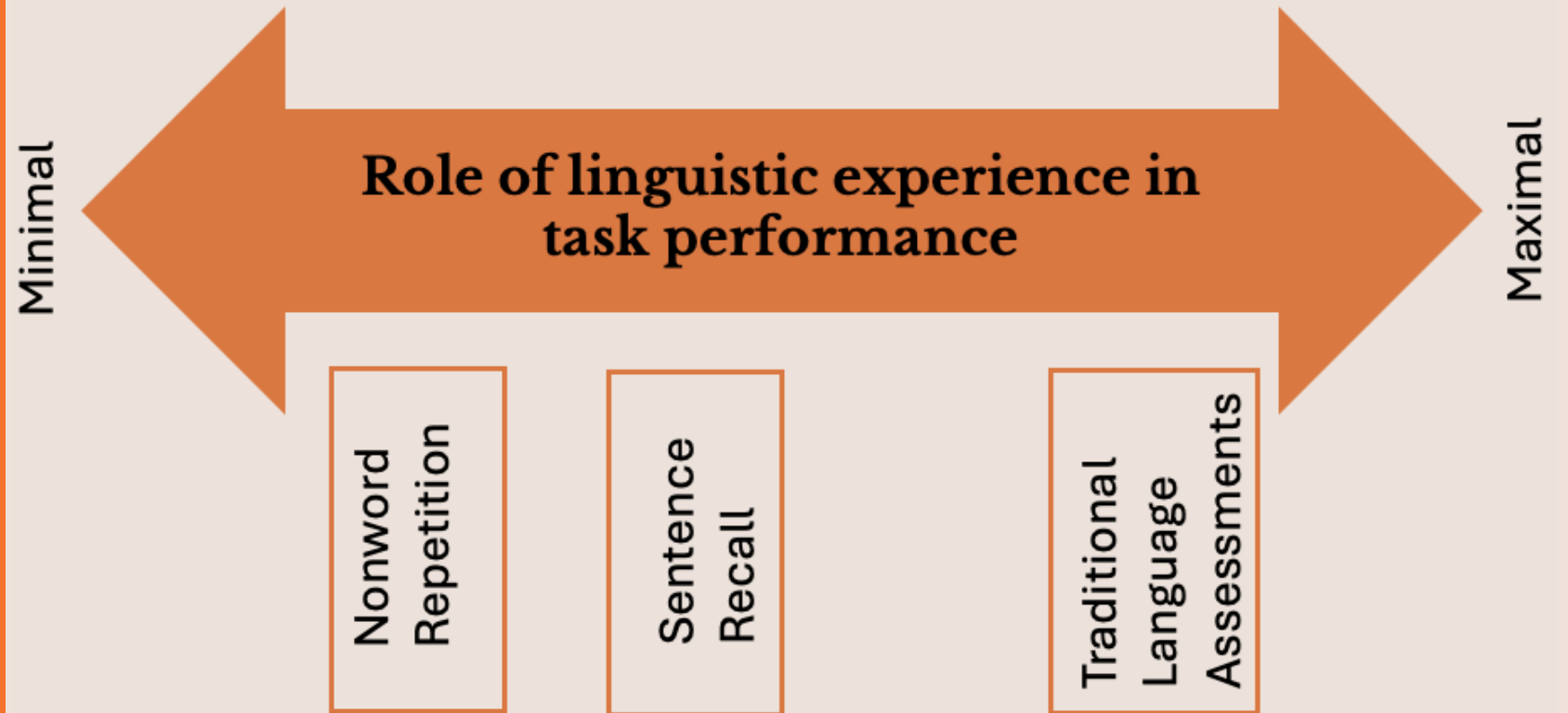
Surveys

Parent & teacher report measures



Linguistic Processing

- Target ability to manipulate linguistic input (i.e., phonological memory, working memory)
- Use unfamiliar stimuli to reduce the influence of previous language experience (i.e., nonsense words)
- Processing-based tasks vary in their linguistic content



**Nonword
Repetition**

**Our Two
Linguistic
Processing
Measures**

**Sentence
Repetition**



Nonword Repetition



Child hears nonsense word and is asked to repeat it



Emphasizes phonological short-term memory; also speech perception, sequencing, vocabulary, & oromotor skills



May relate to word-learning abilities; has been shown to reduce bias compared to formal testing



Task performance is notably impaired in children with language disorders

Dollaghan, C., &
Campbell, T. F., 1998

Nonword Repetition

Stimuli:

- 16 words
- 1- 4 syllables in length
- Stimuli exclude later developing sounds (i.e., /s, z, l, r, th/)

Syllable Shape	Example
CVC	/naɪb/
CV CVC	/teɪ vak/
CV CV CVC	/tʃi nɔɪ taʊb/
CV CV CV CVC	/vei ta tʃaɪ dɔɪp/

Dollaghan, C., & Campbell, T. F., 1998



**Nonword
Repetition**

**Our Two
Linguistic
Processing
Measures**

**Sentence
Repetition**



Sentence Repetition

- Sentence repetition task from Comprehensive Evaluation of Language Fundamentals Preschool -3 (CELF-P3)
- Child hears sentence and is asked to repeat it
- Scored based on number of errors in sentence from 0-3

		Score	
Trial 1	The dog is eating.	+	-
Trial 2	What is in the box?	+	-

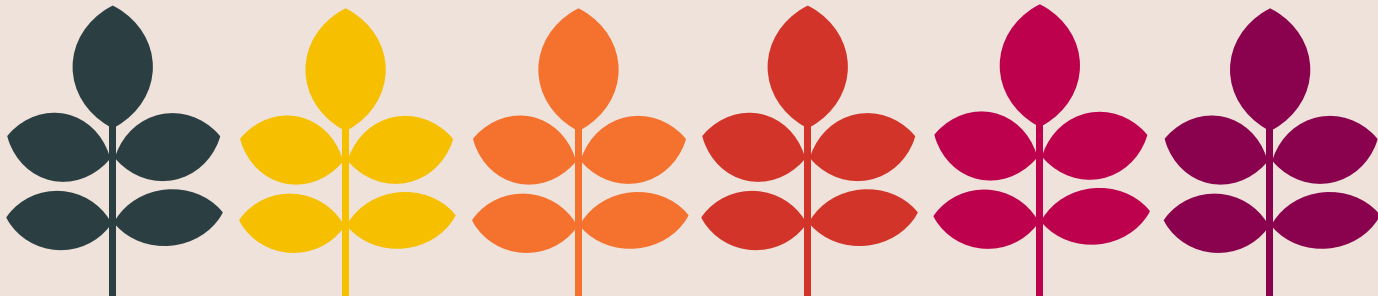
Wiig et. al. (2020)

Image from © 2020. NCS Pearson

Sentence Repetition

What is the purpose?

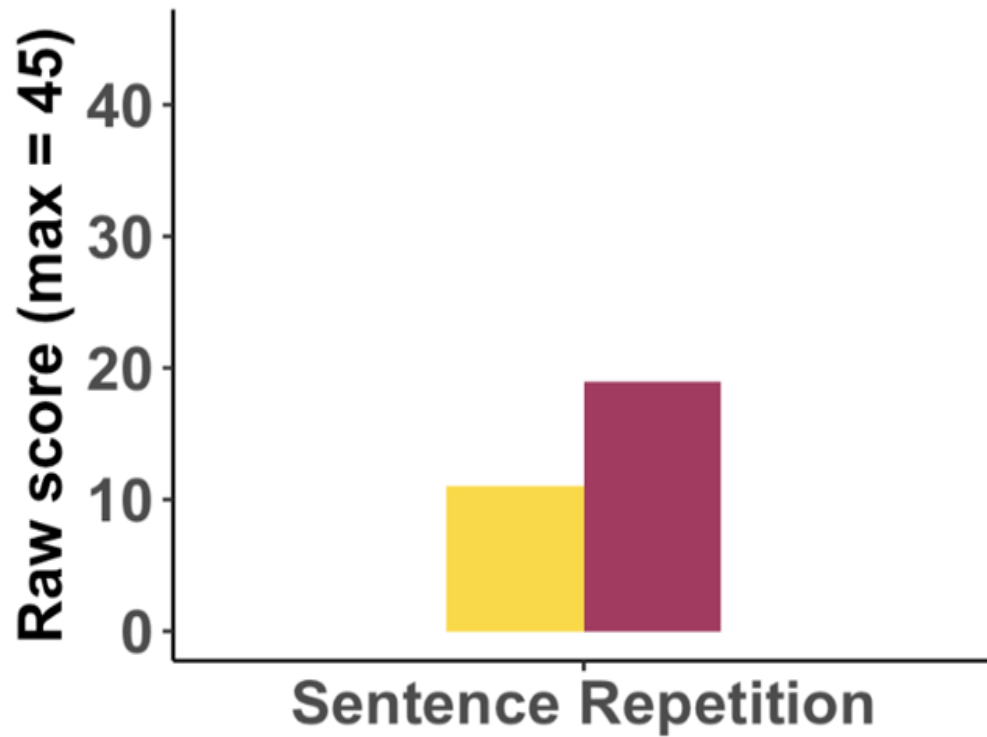
- Robust assessment of overall language
 - Particularly draws on morphosyntax
 - Possible role of working memory
- Strong evidence for identification of language disorders in monolingual speakers
- Also identifies language disorders in multilingual speakers
 - Only in comparison to others with similar language experience
 - 'More familiar' stimuli might reduce bias



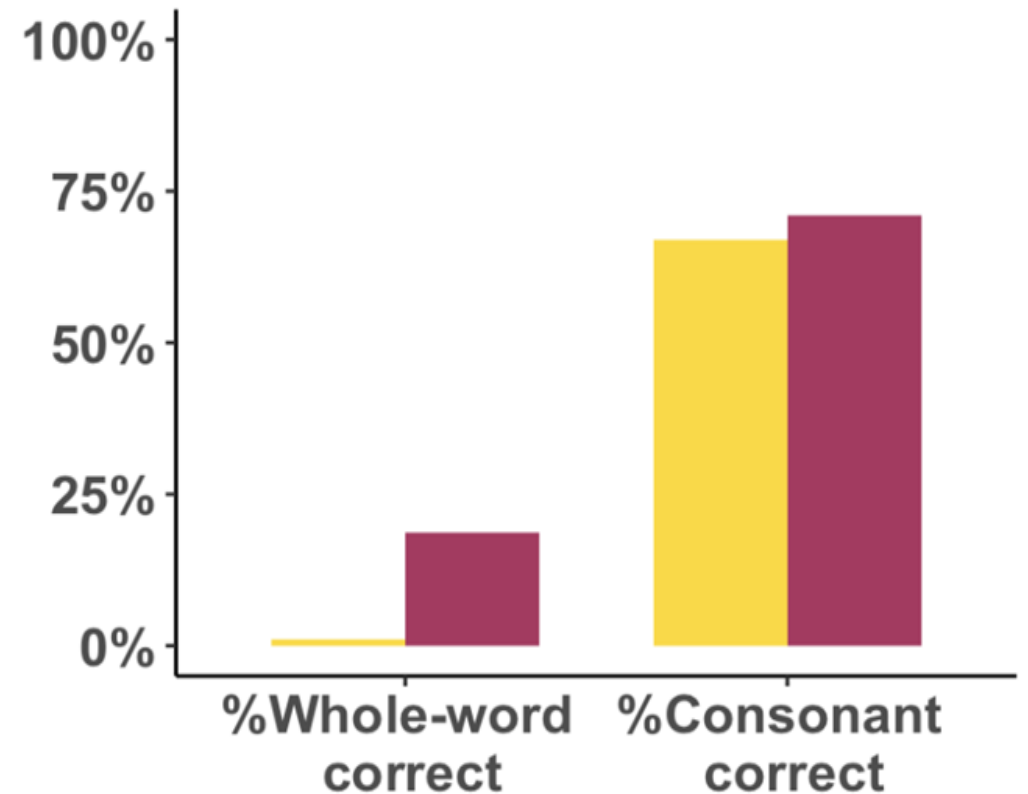
Processing-based Tasks

■ Case 1 (age: 6;2) ■ Case 2 (age: 5;7)

CELF-3: Sentence Repetition



Nonword Repetition



Agenda

Case studies within the converging evidence framework

Morpheme-level and narrative-level tasks

Parent & teacher report measures

Application

Dynamic Assessment

Surveys

Processing-based

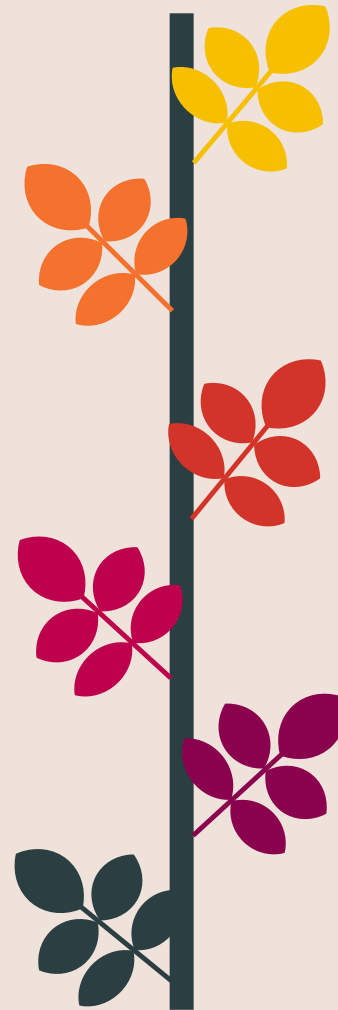
Language Samples

Overview

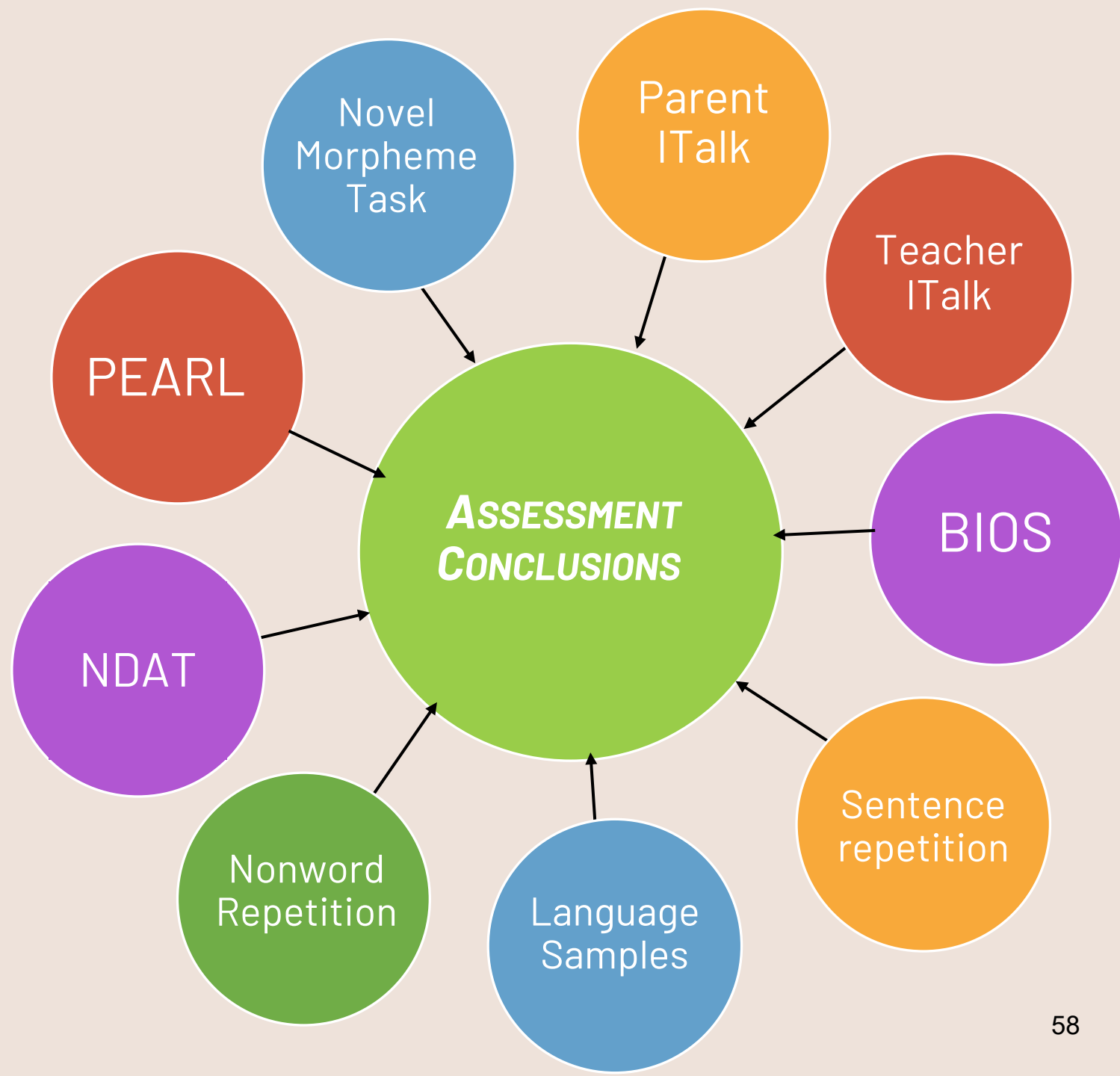
Nonword repetition & sentence repetition

Measures, collection contexts, & assessment purposes

Challenges in language assessment & the convergent evidence framework



	Case 1	Case 2
BIOS	Context	Context
Parent ITalk	—	+
Teacher ITalk	!	—
Language sample	!	+
NDAT	!	+
PEARL	!	●
NMT	!	!
Nonword repetition	+	+
Sentence Repetition	—	●



Possible Clinical Actions

Case 1

- Collect additional Spanish data as possible
- Discuss with team
- Consider MTSS
- Work with EL teachers to support transition
- Monitor growth & re-assess

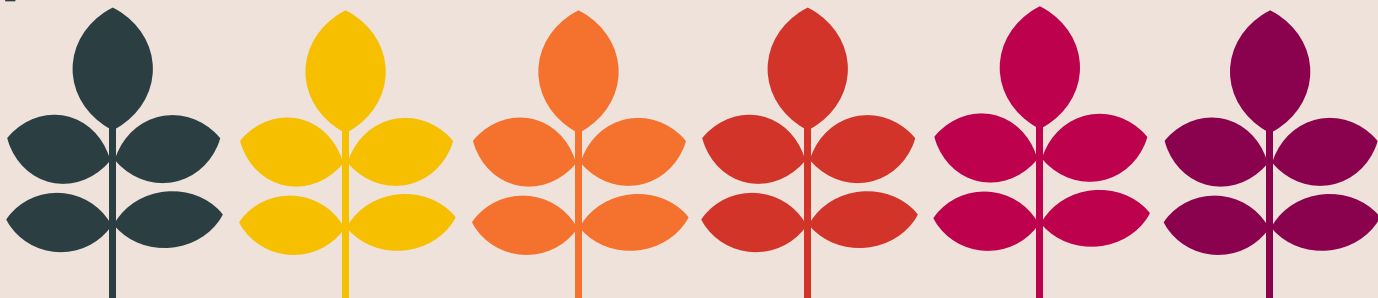
Case 2

- Discuss with team, especially teacher
- Consider need for EL services
- Monitor growth as needed



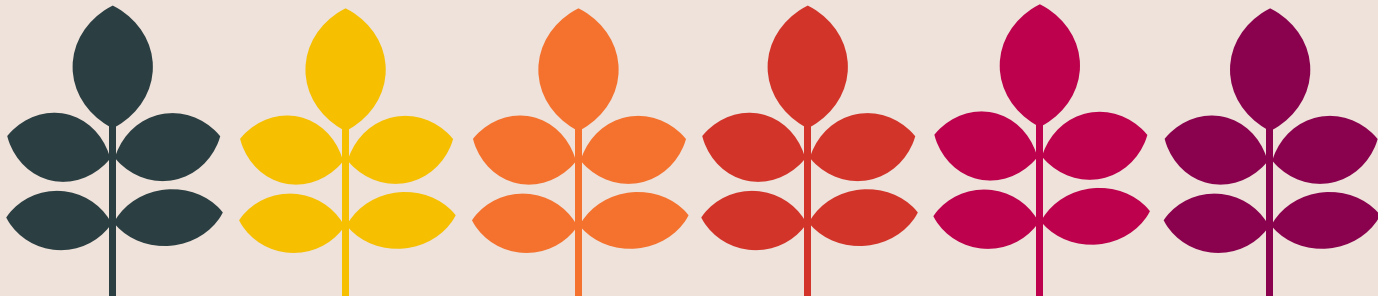
Summary

- Multilingual children have variable language experiences that create challenges in language assessment
- “Convergent evidence” refers to integrating data from multiple sources to make informed assessment decisions
- Some helpful tools in multilingual assessment include parent & teacher surveys, language samples, dynamic assessments, and processing-based language measures
 - Multiple different specific tools exist within each of these categories



Summary

- To make assessment decisions:
 - Understand the child's context before interpreting
 - Consider the strengths and weaknesses of different tools
 - Look for patterns across measures
 - Take a team approach
 - Collect data over time to help you interpret performance





Slide access and
author contacts:



References

- American Speech-Language-Hearing Association (2024). *Profile of ASHA Multilingual Service Providers, Year-End 2023*. <https://www.asha.org/siteassets/surveys/2023-profile-of-multilingual-service-providers.pdf>
- Castilla-Earls, A., Bedore, L., Rojas, R., Fabiano-Smith, L., Pruitt-Lord, S., Restrepo, M. A., & Peña, E. (2020). Beyond scores: Using converging evidence to determine speech and language services eligibility for dual language learners. *American Journal of Speech-Language Pathology*, 29(3), 1116-1132.
- De Cat, C., Kaščelan, D., Prévost, P., Serratrice, L., Tuller, L., & Unsworth, S. (2022). *Quantifying Bilingual EXperience (Q-BEx): questionnaire manual and documentation*. [DOI 10.17605/OSF.IO/V7EC8](https://doi.org/10.17605/OSF.IO/V7EC8)
- Dollaghan, C., & Campbell, T. F. (1998). Nonword repetition and child language impairment. *Journal of Speech, Language, and Hearing Research*, 41(5), 1136-1146.
- Ebert, K. D., Ochoa-Lubinoff, C., & Holmes, M. P. (2020). Screening school-age children for developmental language disorder in primary care. *International Journal of Speech-Language Pathology*, 22(2), 152-162.
- Ebert, K.D., & Pham, G. (2017). Synthesizing information from language samples and standardized tests in school-age bilingual assessment. *Language, Speech, and Hearing Services in Schools*, 48, 42-55.
- Gagarina, N., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Bohnacker, U. & Walters, J. (2019). MAIN: Multilingual Assessment Instrument for Narratives – Revised. *ZAS Papers in Linguistics*, 63. <https://doi.org/10.21248/zaspil.63.2019.516>
- Gregory, K. D., & Oetting, J. B. (2018). Classification accuracy of teacher ratings when screening nonmainstream english-speaking kindergartners for language impairment in the rural south. *Language, Speech, and Hearing Services in Schools*, 49(2), 218-231.
- Kaščelan, D., Prévost, P., Serratrice, L., Tuller, L., Unsworth, S., De Cat, C. (2021) A review of questionnaires quantifying bilingual experience in children: Do they document the same constructs? *Bilingualism: Language and Cognition*, 1-13. <https://doi.org/10.1017/S1366728921000390>
- Kuchler, K., Ebert, K. D., Finestack, L. H., (February 2024). Narrative Dynamic Assessment Evaluating Language Learning in Multilingual Children: A Pilot Study. Poster presented at the Conference on Research Innovations in Early Intervention, San Diego, CA.
- Mayer, M. (1976). *Four Frogs in a Box*. Dial Books.

References

- Migration Policy Institute, National Center on Immigrant Integration Policy, "U.S. Young Children (ages 0 to 8) by Dual Language Learner Status: National and State Sociodemographic and Family Profiles" (data tables, MPI, Washington, DC, 2024). https://www.migrationpolicy.org/sites/default/files/datahub/us-dll-children-profiles-age0-8_final.xlsx
- Paradis, J. (2010). *Alberta language environment questionnaire*. University of Alberta Child English as a Second Language Resource Centre. <https://www.ualberta.ca/linguistics/media-library/chesl/documents/aleq-26mar2010.pdf>
- Paradis, J., Emmerzael, K., & Sorenson Duncan, T. (2010). Assessment of English language learners: Using parent report on first language development. *Journal of Communication Disorders*, 43(6), 474-497. <https://doi.org/10.1016/j.jcomdis.2010.01.002>
- Paradis, J. (2023). Sources of individual differences in the dual language development of heritage bilinguals. *Journal of Child Language*, 50(4), 793-817.
- Peña, E.D., Gutiérrez-Clellen, V.F., Iglesias, A., Goldstein, B.A., & Bedore, L.M. (2018a). *Bilingual Input-Output Survey (BIOS)*. Agile Testing Solutions.
- Peña, E.D., Gutiérrez-Clellen, V.F., Iglesias, A., Goldstein, B.A., & Bedore, L.M. (2018b). *Inventory to Assess Language Knowledge (ITALK)*. Agile Testing Solutions.
- Petersen, D. B., Chanthongthip, H., Ukrainetz, T. A., Spencer, T. D., & Steeve, R. W. (2017). Dynamic assessment of narratives: Efficient, accurate identification of language impairment in bilingual students. *Journal of Speech, Language, and Hearing Research*, 60(4), 983-998.
- Petersen, D.B., & Spencer, T.D. (2016). *Predictive Early Assessment of Reading and Language (PEARL)*. Language Dynamics Group.
- Pratt, A. S., Adams, A. M., Peña, E. D., & Bedore, L. M. (2022). Exploring the use of parent and teacher questionnaires to screen for language disorders in bilingual children. *Topics in Early Childhood Special Education*, 42(1), 77-90.
- Wiig, E. H., Secord, W. A., & Semel, E. (2020). *Clinical Evaluation of Language Fundamentals Preschool-3* (3rd ed.). Pearson Clinical Assessment.

THANK YOU

Presentation Template: SlidesMania

Fonts used: Barlow

Images: Unsplash

