Results of Pilot Testing Eight Formats

for Assessing Language and Early Literacy in Young Children

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Technical Report # 5

Expanding Individual Growth & Development Indicators of Language and Early Literacy for

Universal Screening in Multi-Tiered Systems of Support with Three-Year-Olds

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IGDI Age 3 Expansion
Format Pilot Test Results
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This document presents a summary of results from testing eight porotypes of IGDI formats for assessing oral language, phonological awareness, and alphabet knowledge in PK3 children[1]. This pilot test addresses three of our project objectives:

1. Develop at least 6 varied formats that elicit engagement and scorable responses in oral language, phonological awareness, and alphabet knowledge/concepts of print among 3-year-old children;
2. Compare all developed measures on dimensions of feasibility, child engagement, child response forms, and overall usability; and
3. Select most promising formats in each domain for item development and additional testing.

Eight formats were developed following literature reviews, research group discussions, and focus group evaluations by early childhood educators. These formats, in each of the three target domains, included:

- Oral Language
    - Point to Picture
    - Prepositions
- Phonological Awareness
    - Receptive Alliteration
    - Receptive Rhyming
    - Robot Blending

- Alphabet Knowledge
    - Own Name Game
    - Letter Orientation
    - Letter Find
    - Letter Naming

The formats are described and all items presented to children are in IGDI Age 3 All Prototype Formats with TOC.PDF, available here for project staff or available by request at igdilab@umn.edu.

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[1] It is important to note that we define samples by "grade" rather than age, *per se*. PK3 children are sometimes called "three year olds," but technically and for our purposes the population of interest includes those children more than one academic year away from Kindergarten enrollment. In Minnesota (and, for planning purposes, elsewhere) this will typically include children who are at least 36 months of age and less than 60 months of age on September 1 of the current academic year. As a result of this definition, however, many children may be somewhat older than 4 years of age (indeed, approaching 5 years of age, but with a birthday after September 1) at the time of assessment.

<div align="center">***Sample***</div>

A total of 31 children, ranging in age from 44 to 64 months (M = 52, 2 cases missing). 20 (65%) were male. Four children had identified disabilities (1 with ASD, and 3 with developmental delay). All from public prekindergarten programs in the Twin Cities suburban area.

<div align="center">***Procedures***</div>

Two or more formats, each from different domains, were administered to consented PK3 children by one of three trained members of the research staff. All administrations were videotaped, with focus on the participating child, for later coding of engagement and participation. During each format, the examiner maintained records of child performance. Immediately after each administration, the examiner completed ratings of child participation, engagement, and understanding, ease of administration, and other relevant notes.

After completing at least 7 child assessments for each format, videotapes were coded by one or two independent and trained observers. Using a 10-sec partial interval protocol, child behavior was coded as *engaged* or *not engaged.* Interobserver agreement was assessed on xx% of all videotapes, yielding xx% exact agreement (range XX to YY). Percent of time in engaged was calculated for each child for each format.

<div align="center">***Data Analysis and Results***</div>

Following all data collection, summaries of categorical ratings, observational coding, and examiner anecdotal notes were summarized and collected in a single spreadsheet (available at IGDI 3 Pilot Items.xlsx or here for Box users). Kristin Schuster and Scott McConnell reviewed these results and determined that variation in examiner ratings and video-coded behavior was small and nonsystematic, and that results of this pilot test would be better served by summary description of results for each format. These summaries, developed by Kristin and Scott but supported by data in the spreadsheet referenced here, follow.

Oral Language
<u>Point to Picture</u>
The task: The child is presented two images, and asked to point to the one named by the examiner.

Participants: 16 children

Items Correct: Range 3 – 8, mean 6.6

Examiner Evaluations and child responses:
- Child engagement was uniformly high
- Administration was fast
- Examiner talk was not necessary – demonstration and samples can be greatly simplified
- Sometimes children selected preferred images rather than prompted item

Summary:
- Fun, fast, and easy to administer
- Perhaps sample items can include a high-preference image that is NOT the correct response
- This format could be combined with prepositions and Picture Naming
- Reduce examiner talk in demo and sample items

<u>Prepositions</u>
The task: Child is presented a card with one static image and a small, movable object; the child is instructed to move the smaller object given a specific prepositional position.

Participants: 15 children, ranging in age from ?? to ?? months, 3 with disabilities

Items Correct: Range 2 – 8, mean 5.3

Examiner Evaluations and child responses:
- High engagement, children liked active manipulation
  - Occasionally child wanted to start before item stem was completed
- Task was easy to teach

Summary:
- Pool of possible items is small for a free-standing format
- Perhaps Point to Picture, perhaps with static image presentation ("ball on table")

Phonological Awareness
<u>Receptive Alliteration</u>
The task: The child is presented a single card with two pairs of images, with elements of both pairs named by the examiner. The child selects the pair with two images that start with same phoneme.

Participants: 8 children, 1 with DD

Items Correct: Range 2 – 8, mean 4.4

Examiner Evaluations and child responses:
- Big range in engagement across children
  - Some did not appear to understand task
- Little variation across examiners
- More difficult to administer –
  - Requires a fair amount of examiner talk
  - Difficult to maintain constant pacing
- Preparing items that range in difficulty may be hard
- In this sample, children sometimes picked based on picture rather than item content
  - Participants frequently appeared to be guessing

Summary:
- On balance, Kristin found this one difficult for children to understand and not content- or domain-sensitive (higher-performing children scored poorly)
- Perhaps too much stimulus content – both picture pairs and examiner talk
- Slow to administer
- More fails on sample items
- Easier than Receptive Rhyming – perhaps development in alliteration precedes is rhyming
- Can we reduce child task burden by simplifying the task (akin to Age 4 format, for instance)?

Receptive Rhyming

The task: The child is presented a single card with two pairs of images, with elements of both pairs named by the examiner. The child selects the pair with two images that rhyme.

Participants: 8 children, ranging in age from ?? to ?? months. Two with disabilities

Items Correct: Range from 1 - 8, mean 4.9. Many sample item failures

Examiner Evaluations and child responses:
- Task was difficult to teach and have children understand
- Appeared to distinguish well between high and low kids

Summary
- Perhaps too much stimulus content – both picture pairs and examiner talk
- Slow to administer
- More fails on sample items
- Perhaps more difficult than alliteration
  - Alliteration and Rhyming CANNOT be combined
- Some variation in stimulus presentation may help
  - Scott's format on teaching concept of rhyming may be of use
- May scale well, but administration is difficult, child understanding is low, time to completion is long
- May be restricted pool of possible items

Robot Blending

The task: The child was introduced to a robot who "talks funny." For each trial, the child was presented with a single card with two images, named by the examiner. Either a prerecorded speech sample or the examiner then produced the name of one image, with a pause between words (compound word), syllables, or phonemes. The child was asked to point the correct image.

Participants: 15 participants, ranging in age from ?? to ??, 3 with disabilities

Items Correct: Range 0 – 8, mean 6.5 (without DD kids, mean = 8)

Examiner Evaluations and child responses:

- Engagement seemed pretty high across children
- Hardest to administer – lots of "moving parts" due to prototype cards and recordings
  - As a result, administration varied.
- Some errors were systematic, children matching initial sound to one of the images
- No difference between robot and human voice, but children may have liked robot a bit more
- May be restricted in range of child performance. However, we had restricted range in pilot items

Summary

- Children appeared to enjoy this task
- Administration on iPad will be easier
- Great deal of examiner introduction –
  - Perhaps this can be reduced.
  - Sample/demo items prompted child engagement
- Of PA tasks, this one was most engaging and understandable to children

Alphabet Knowledge
<u>Own Name Game</u>
The task: A variety of items based on first and other letters in the child's own name

Participants: 8 children

Items Correct: Range from 1 – 8, mean 6

Examiner evaluations and child responses:

- Significant variation in administration
- Latency between items, due to examiner preparing next item
- Little variation in child engagement – generally engagement was high
- Large range of knowledge in domain across children – from receptive to expressive skills

Summary:

- May be difficult to create large item pool
- Recognition of own-name letters may be embedded in Letter Naming
  - Is there a way to include letters in child name in Letter Naming

<u>Letter Orientation</u>
The task: The child was presented with a single card with three images of the same letter – but only one oriented in a typical way. The child pointed to the letter with correct orientation.

Participants: 7 children, 2 with disabilities

Items Correct: Range from 0 – 7, mean 4.4

Examiner Evaluations and child responses:
- Easy to administer, consistent across children and examiners
- Typically developing children all highly engaged
- Task demands easy to learn, prompts faded quickly
- Can eliminate a lot of examiner talk
- Items with letter inversion more likely to be failed

Summary:
- Easy to administer
- Hardest of Alphabet Knowledge
    - May offer more difficult item locations
- May be combined with letter find and letter naming

Letter Find

The task: The child was presented with a single card with three images, only one of which was the named letter. Distractors included non-letter shapes and glyphs, and other not-named letters. The child pointed to the letter named by the examiner.

Participants: 8 children, with one child with DD

Items Correct: Range from 0 – 8, mean 7.6 (excluding one 0)

Examiner Evaluations and child responses:
- Administration easy and very consistent across children, examiners
- Task demands easy to learn, prompts faded quickly
- Little variation in child engagement – generally engagement was high
- Can eliminate a great deal of examiner talk

Summary:
- Easy to administer
- Appears that easy items are easy to create
- May be paired with letter naming (which one's a letter? What Letter is that?)
- May be combined with letter orientation and letter naming

Letter Naming

The task: Child presented with a card with a single upper- or lower-case letter, and asked to name the letter.

Participants: 8 children, one child with DD

Items Correct: Range 2-8 , mean 5.8

Examiner Evaluations and child responses:
- Little variation in child engagement – generally engagement was high
- Little examiner talk needed
- Fast to administer
- Easy to administer
- Some seeming differences in difficulty, with lower case more difficult

Summary:
- Easy to administer
- Best of Alphabet Knowledge
- May be combined with letter find and letter orientation (and own name?)
- Perhaps very small window of development (test this empirically)