Predicting Oral Reading Comprehension Abilities

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Disclosures

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Introduction
Reading and Single-Word Reading

- The Simple View of Reading breaks down reading into two main components:
  - Decoding
  - Linguistic Comprehension
- Single-word reading, or decoding, involves:
  - Phonological representation (sounding out words)
  - Visual representation (sight-word reading)
- Single-word reading is thought to be a better predictor of reading comprehension in children.

Introduction
Reading Fluency

- Reading fluency: the number of words read correctly in an amount of time
  - Textual reading fluency: word reading fluency in the presence of surrounding text
  - Single-word reading fluency: word reading fluency with no surrounding text
- Research suggests that textual reading fluency is a better predictor of reading comprehension than single-word reading fluency or context accuracy in children.

Introduction
Reading Comprehension

- Reading comprehension: extracting meaning and understanding from the text while simultaneously reading the text
- Reading comprehension is an abstract skill, meaning it is difficult to assess accurately.
- Research suggests that the Simple View of Reading accounts for reading comprehension well in adults with low reading abilities.

Purpose

- Discussion of predictors of reading comprehension and research findings have been aimed to the pediatric population, leaving much to be investigated in the adult population.
- The study investigated the experimental question: what is the relationship between a single-word reading accuracy assessment tool, single-word reading fluency assessment tool, and textual reading fluency assessment tool to reading comprehension?

Participants

- Participants included four college-aged individuals meeting the following criteria:
  - No previous exposure to testing materials
  - Native English speakers
  - No known diagnosis of reading disabilities

Materials

- *Test of Word Reading Efficiency-2 (TOWRE-2)* was used to assess
  - Sight Word Fluency
  - Phonological Decoding Fluency
- *Woodcock Reading Mastery Tests-Third Edition (WRMT-III)* was used to assess
  - Sight Word Reading Accuracy
  - Phonological Decoding Accuracy
  - Overall Reading Accuracy
- *Gray Oral Reading Tests-Fifth Edition (GORT-V)* was used to assess
  - Textual Reading Rate
  - Textual Fluency
  - Textual Accuracy
  - Textual Comprehension
  - Overall Textual Reading Abilities

Methods

- Each assessment tool was administered to each participant.
- Test order was counterbalanced.
- Each participant completed the necessary components for each assessment in one sitting.
- Data collection was completed in real time.

Methods

- Standardized scores were obtained based upon raw data according to the test manuals.
  - All *TOWRE-2* scores: average range= 85-115
  - All *WRMT-III* scores: average range= 85-115
  - *GORT-V* Rate, Fluency, Accuracy, and Comprehension: average range= 7-13
  - *GORT-V* Oral Reading Index: average range= 85-115
- A step-wise linear regression model was utilized on the *GORT-V* comprehension scores with the *TOWRE-2, WRMT-III,* and *GORT-V* subtests' measures entered into the model as potential predictors.

Results

- When assessing which independent subtest predicted reading comprehension:
  - WRMT-III Word Identification subtest significantly predicted comprehension scores, β=0.980, t= 6.96, p=.02.
- When including all composite scores (GORT-V Oral Reading Index, TOWRE-2 Total Word Reading Efficiency, and WRMT-III Basic Skills) into the model:
  - Basic Skills composite score from WRMT-III best predicted reading comprehension scores, β=0.997, t= 17.50, p=.003
  - WRMT-III Word Identification subtest alone significantly predicted oral reading comprehension abilities by 98%
  - WRMT-III Word Identification and Word Attack subtests predicted oral reading comprehension by 99.7%.

Means and Standard Deviations of Scaled Scores from *GORT-5* and Standard Scores from *GORT-V, TOWRE-2,* and *WRMT-III*

Subtest	Mean (SD)
GORT-V Rate	11.50 (3.0)
GORT-V Accuracy	9.25 (9.6)
GORT-V Fluency	10.25 (2.2)
GORT-V Comprehension	8.50 (1.7)
GORT-V Overall (Oral Reading Index)	96.00 (8.7)
TOWRE-2 Sight Word Efficiency	106.50 (15.6)
TOWRE-2 Phonemic Decoding Efficiency	108.50 (15.6)
TOWRE-2 Overall (Total Word Reading Efficiency)	108.25 (15.7)
WRMT-III Word Attack	91.75 (4.8)
WRMT-III Word Identification	106.00 (8.6)
WRMT-III Basic Skills	98.50 (6.8)

Interpretation

- Data suggests *WRMT-III* Word Identification subtest predicts oral reading comprehension more so than textual reading fluency or single-word reading fluency measures.
- Compared to *TOWRE-2* and *GORT-V* subtests, *WRMT-III* subtests were more predictive of reading comprehension.
- Oral reading tasks rely heavily on decoding abilities, more specifically on single-word reading abilities, which is supported by the findings of this study.

Interpretation

- Broad batteries of assessment tools are often time and resource consuming and can lead to conflicting test results.
- Results imply that assessing reading comprehension may be focused on the remediation of one skill.
- Reading comprehension is an abstract skill that is difficult to accurately assess.
  - However, results indicate that assessment of reading comprehension could potentially focus on one's ability to read words based on sight.

Limitations

- The current study researched assessment tools as indicators of oral reading comprehension in a population that normally reads silently.
- The literature included is targeted at pediatrics or the low literate population

Conclusion

- This study aimed at investigating which assessment tool was the best predictor of reading comprehension abilities.
- The best indicator of reading comprehension is thought to be obtained by administration of a single subtest or a combination of two subtests.
- This is an important finding due to the inherent difficulty in terms of validity and resources associated with the assessment of reading comprehension.
- Findings are limited in explaining oral reading comprehension ability to a small portion of a large population known to read silently.

Conclusion

- However, the current results are important due to the fact that adult silent readers rely more heavily on higher mental processes.
- Future studies in this area would provide:
  - More reliable results
  - More generalizable results
  - Further evidence of the benefits of more focal and efficient reading assessment
- Future studies also should focus upon treatment in addition to assessment.

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