



National Accessible Reading Assessment Projects



The Impact of Motivation and Engagement on Assessing Reading Comprehension

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Construct of Comprehension

- Current assessments of reading comprehension are inadequate (Sweet, 2005)
- The current knowledge base on reading comprehension is sizeable but too “sketchy” to provide a foundation for a systematic instructional agenda (RAND Reading Study Group, 2002)



Relation of Motivation and Engagement to Comprehension

- The RAND RSG initiated its work by generating this definition of reading comprehension:
“Reading comprehension is the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (Snow, 2002, p.11).
- Guthrie and Wigfield (2005) built upon this definition, contending that involvement with written language connotes motivation



Motivation and Comprehension

- Involvement assumes an active, intentional stance toward the text, enabling one to both persevere in getting information from text and using both the textual information and cognitive processes to make meaning
- Without motivation, specifically the intention and persistence to the goal of understanding texts for various purposes, there is little comprehension
- Thus, Guthrie and Wigfield (2005) argued that definitions of reading comprehension should include motivation



Motivation and Comprehension

- Guthrie and Wigfield (1999) outlined a motivational-cognitive model of reading with import for the development of accessible reading assessments.
- In the model they posit that both cognitive and motivational processes influence reading comprehension
- Wang and Guthrie (2004) found that intrinsic motivation for reading was highly predictive of reading comprehension test performance.
- Beliefs about reading and perceptions of oneself as a reader impacts whether students expect reading to be useful and whether they want to be effective readers (Guthrie & Wigfield, 2005; O'Brien & Dillon, 2008).



Motivation Constructs with Potential for Enhancing Accessibility

Guthrie and Wigfield (2005) argued that the validity of comprehension assessment can be improved by enabling students to:

- read with clearly defined purposes
- take positive stances that support self-efficacy
- exert autonomy through choice to better employ their cognitive competencies in the testing situation.



Interest and Choice Enhance Accessibility

Interest and choice to are especially compelling

- research indicates that text interest may be more important for lower achievers than for more proficient readers
- choice may have a greater impact on these readers' comprehension (deSousa & Oakhill, 1996). However Schiefle's (1999) findings indicated that the "interest effect" is independent of prior knowledge or verbal ability.



Interest and Choice Enhance Accessibility

- This positive impact on comprehension is particularly true if readers perceive the texts to be attractive
 - appealing visual elements—fonts, illustrations, layout,
 - full of interesting details--desirable length and difficulty level of (Schraw, Bruning, & Svobada, 1995).
- We acknowledge that prior knowledge, which is correlated with both situational interest and reading achievement, may be a confounding variable



Interest and Choice Enhance Accessibility

The NAEP Reader Study: *The Effects of Choice in Reading Assessment—Results from The NAEP Reader Special Study of the 1994 National Assessment of Education Progress* (Campbell & Donahue, 1997)

- U.S. Department of Education, Office of Educational Research and Improvement ((NCES 97-491) special study
- Examined the feasibility and measurement impact of offering grade 8 and grade 12 test takers a choice of reading material on an assessment of reading comprehension.



Interest and Choice Enhance Accessibility

- In the design, a group of readers who could exert choice in selecting from among seven stories to read as part of the 1994 NAEP, was compared with a group who were assigned stories.
- In the choice condition, the researchers found no significant effect for choice for twelfth graders and slightly lower performance in the choice condition for eighth graders



Interest and Choice Enhance Accessibility

Our Expansion on the NAEP Reader Study

- Assessment matching the goals of the 2009 NAEP Framework in terms of the text types and the cognitive targets assessed (Reader study used assessed more generic reading comprehension constructs following all passages)
- Using both literary-fiction and informational-exposition passages (Reader study used narrative only)
- Items following the reading of passages match the content and key ideas of individual passages



Interest and Choice Enhance Accessibility

- Respondents exert choice “choose your own assessment” before assessment is administered (Reader study included reading passage summary and choice as part of testing time)



Calibration Study

The purpose of the study is to scale or calibrate the measurement tools that will be used in a large-scale accessible reading assessment for students with disabilities.

This process allows investigators to empirically determine the comparability of passages and items used in the reading assessment study by placing all passages and questions on a common IRT (item response theory)-based equal-interval measurement scale.



Research Questions

1. What is the difficulty of each reading passage (based on a passage total score, which, in turn, is based on performance on all passage comprehension items/questions) and each comprehension item/question?
2. How well can the reading passages be placed on a common interval measurement scale to allow scores from different passages (of equal or unequal difficulty) to be compared and equated?
3. Based on IRT item fit statistics, what multiple choice items should be retained and which should be eliminated?
4. Which reading passages do students prefer to read?



Design

- Representative total sample of 1200 students, representing a range of reading ability and including students with disabilities for 4th and 8th grade
- Selection of 40 Passages, including 10 literary/fiction and 10 informational/exposition administered five forms
- 10 items for each passage using 2009 NAEP cognitive targets



Analysis

- This preliminary item/passage psychometric calibration study allows for:
 1. the placement of all passages/questions on a common equal-interval measurement scale,
 2. the development of passage scoring tables by which to assign subjects reading “ability” scores, and
 3. provision of a mechanism for equating scores across different passages.
 4. This “item fit analysis” will determine which items will be retained and those that will be eliminated.



Motivation “Choice” Study

Purpose: To examine whether improving the motivational characteristics of a large-scale reading assessment increases its accessibility for students with disabilities, and in so doing provides a more valid assessment of these students’ reading proficiency due to their increased engagement.



Research Questions

1. Is there an interaction effect between choice, type of text, and type of student?
2. Is there a correlation between general motivation to read and performance on a large-scale comprehension assessment?
3. Are participants who are more motivated to read more likely to benefit from the choice option on a large-scale assessment?
4. Does the option of exercising choice improve comprehension for general education students and for students with disabilities?



Participants and Design

- Students fluent in English (140 4th graders; 140 8th graders)
- Targeted samples representing range of disability groups
- Random assignment to treatment (motivation-choice) and control (no choice) reading 2 literary fiction and 2 informational-expository passages followed by 5-6 multiple choice items
- Untimed administration
- Assessment of general and situational motivation



Design & Procedures cont.

- Post-assessment interviews conducted with subsets of students from the control and experimental groups at both grade levels.
- Students from the various disabilities groups as well as regular education students selected for interviews (16 students from 4th grade and 16 from 8th grade)



Analysis

A split-plot design will be used

- two between-subjects factors (A = passage choice & B = disability status),
- one within-subjects factor (C = text type), one blocking variable (S = subject), & one covariate (X = motivation as assessed on the MRQ) at the between-subject level (A, B, C, and X are fixed effects, and S is a random effect)



Analysis--contd.

- Analysis of variance will be used to evaluate various effects; correlations of students' performance on the comprehension test & responses on the MRQ and situated motivation questions will be calculated
- Various analytic deduction approaches will also be used to analyze the post assessment interview data and a mixed-design approach will be used to integrate the overall quantitative and qualitative findings



Implications

- Motivation can lead to increased engagement, which can lead to higher, more valid comprehension performance on high stakes assessments
- In constructing “bias-free” assessments, test designers may eliminate engaging passages or design features either unwittingly or in the interest of psychometrics
- Students with disabilities may be more likely to engage with, persevere with, and exert more effort with more motivating and engaging passages, defining these assessments as more accessible than typical reading assessments



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