

ATP
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Designing Accessible Reading Assessments (DARA) A Summary of Research

Linda Cook
Educational Testing Service

The DARA Project

- **Purpose:** to carry out research that will make large-scale assessments of reading proficiency more accessible for students who have disabilities that affect reading
- **Four Goals:**
 1. Define the construct of reading proficiency
 2. Research accessible reading assessments
 3. Develop principles and guidelines for accessible reading assessments
 4. Carry out a field trial of a prototype reading assessment

Goal 2: Research on Accessible Reading Assessments

- **DARA population:** Students with Learning Disabilities
- **Focus:** Impact of changes in testing conditions (accommodations/modifications) on the validity of reading assessments
- Differential boost study
- Analyses of the characteristics of a state standards based assessment
- Research Plans for Year 3

Differential Boost Description

- Framework for studying impact of changes in testing conditions
- A change in testing condition may be viewed as an accommodation if students with disabilities receive a significant increase in scores compared to students without disabilities
- Most researchers refer to differential boost as an interaction between group and change in testing condition

Differential Boost Study

Date Collected

Primary Measure

- 2 Reading Comprehension Tests (Form S and Form T)
 - Extra time
 - Extra time with Read Aloud via CD

Additional Measures

- 2 Fluency Measures
- 2 Decoding Measures (4th grade only)
- Student Survey
- Teacher Survey

Sample

- 1181 4th grade students
 - 527 students with reading based learning disabilities (RLD)
 - 654 students without a disability (NLD)

Differential Boost Data Collection Design

Group	Session 1		Session 2	
	Form	Testing Condition	Form	Testing Condition
1	S	Standard	T	Audio
2	S	Audio	T	Standard
3	T	Standard	S	Audio
4	T	Audio	S	Standard

Grade 4 Differential Boost Analysis

Differential Boost Study: Grade 4 Summary Statistics for GMRT

	Non-LD			RLD		
Condition	N	Mean	SD	N	Mean	SD
Audio	654	502	33	527	477	30
Standard	654	497	38	527	457	32
Boost	654	5	24	527	20	29

Interpreting the Results of the Differential Boost Study

- Results of RM-ANOVA showed differential boost
 - Students with disabilities had larger boost than students without disabilities
 - Significant interaction between change in testing conditions and disability status was observed
 - Read-aloud change in testing conditions might possibly be considered accommodation rather than modification

Comparison of the Internal Structure of the English-Language Arts (ELA) Assessment

- Analyses
 - Factor analyses
 - Differential item functioning analyses and distractor analyses
- Groups of Interest
 - Students with learning disabilities who took the test with and without a change in testing conditions
- Test
 - Grade 4 and grade 8 English-language Arts (ELA) assessment
- Focus
 - Determine if the test measures the same constructs for
 - Examinees without disabilities
 - Examinees with learning disabilities who took the test with and without a change in testing conditions

Number of Items for Grade 4 English-Language Arts Assessment

Test	Content	No. of Items
Reading	Word Analysis, Fluency, and Systematic Vocabulary Development	18
	Reading Comprehension	15
	Literary Response and Analysis	9
	Total—Reading	42
Writing	Writing Strategies	15
	Writing Applications (Genres and Their Characteristics)	1*
	Written and Oral English Language Conventions	18
	Total—Writing	34

***Essay item (all others are multiple-choice). The essay item was not used in the study**

English-Language Arts Grade 4 Summary Statistics

Grade 4 Total Group and Sample Summary Statistics for English-Language Arts Assessment

Group	Grade 4 Total Groups			Grade 4 Samples (N=500)	
	N	Mean	SD	Mean	SD
Students Without Disabilities	298,622	48	14	47	14
LD, Without a Change in Testing Conditions	9,045	29	12	29	12
LD, 504/IEP Accommodations	4,724	27	10	27	10
LD, Read-aloud Change in Testing Conditions	1,367	29	11	29	11

Factor Analyses of ELA Assessment

Purpose: to examine whether or not the ELA assessment measured the same construct (s) for the groups in our study

- Exploratory analyses (separately in each group)
 - how many factors
- Confirmatory (multi-group)
 - Establish base-line model
 - Confirm number of factors needed to describe data across all groups

Interpreting the Results of the Factor Analysis

- Compared the internal structure of the grade 4 ELA assessment
 - Students without disabilities
 - Students with disabilities (no test conditions changes)
 - Students with disabilities (504/IEP accommodations)
 - Students with disabilities (read-aloud change in testing conditions)
- Results suggest test measures same single dimension for all groups

Differential Item Functioning (DIF) Analyses

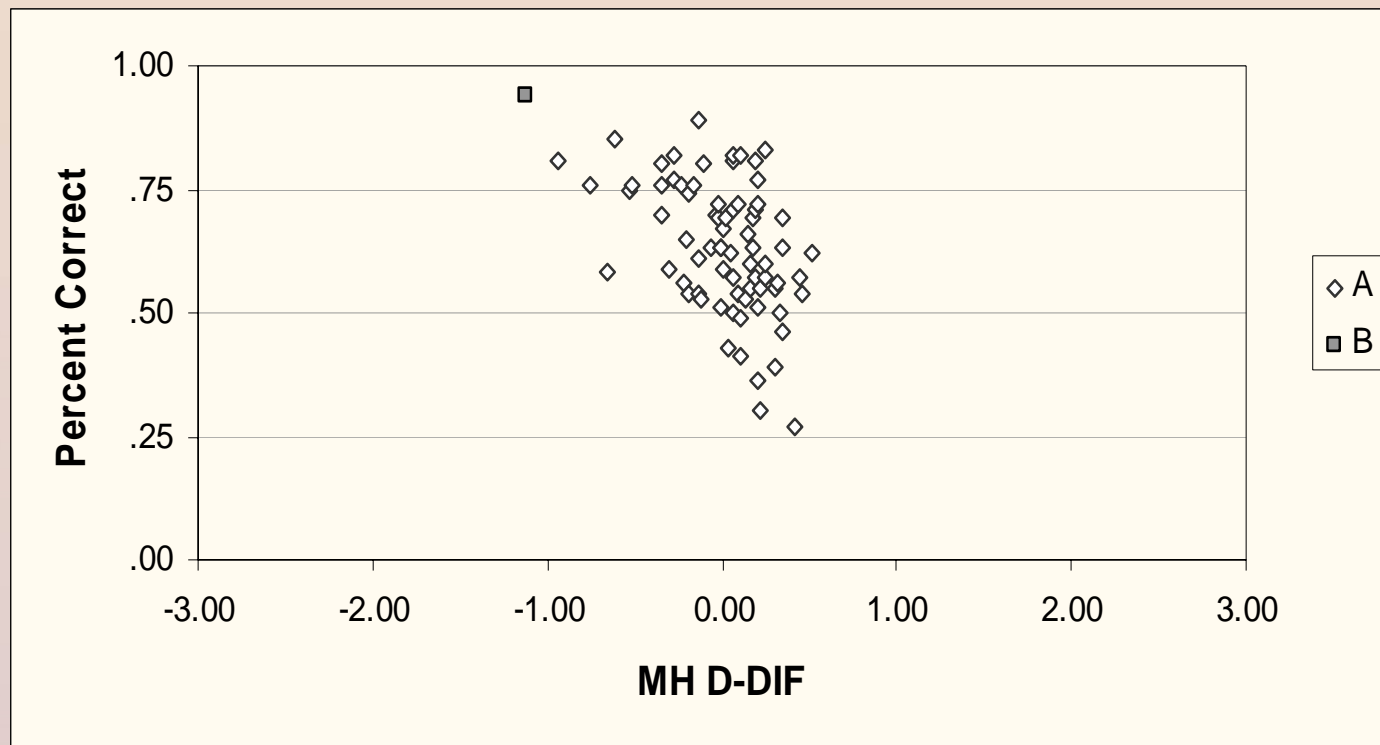
- The purpose of the DIF study was to examine whether or not the ELA assessment measured the same construct (s) for the groups in our study
- Used Mantel-Haenszel procedure with total score as criterion
- Mantel-Haenszel categorization
 - A—negligible DIF
 - B—slight to moderate DIF
 - C—moderate to large DIF
- Direction of DIF Flags
 - Negative favors reference group
 - Positive favors focal group

Comparisons Made in the Study

Comparison Number	Reference Group	Focal Group
1	Without disabilities	LD no change in testing condition
2	“	LD IEP/504 accommodations
3	“	LD read-aloud change in testing condition

DIF Categories ELA Grade 4 LD Without Change in Testing Conditions

Easy



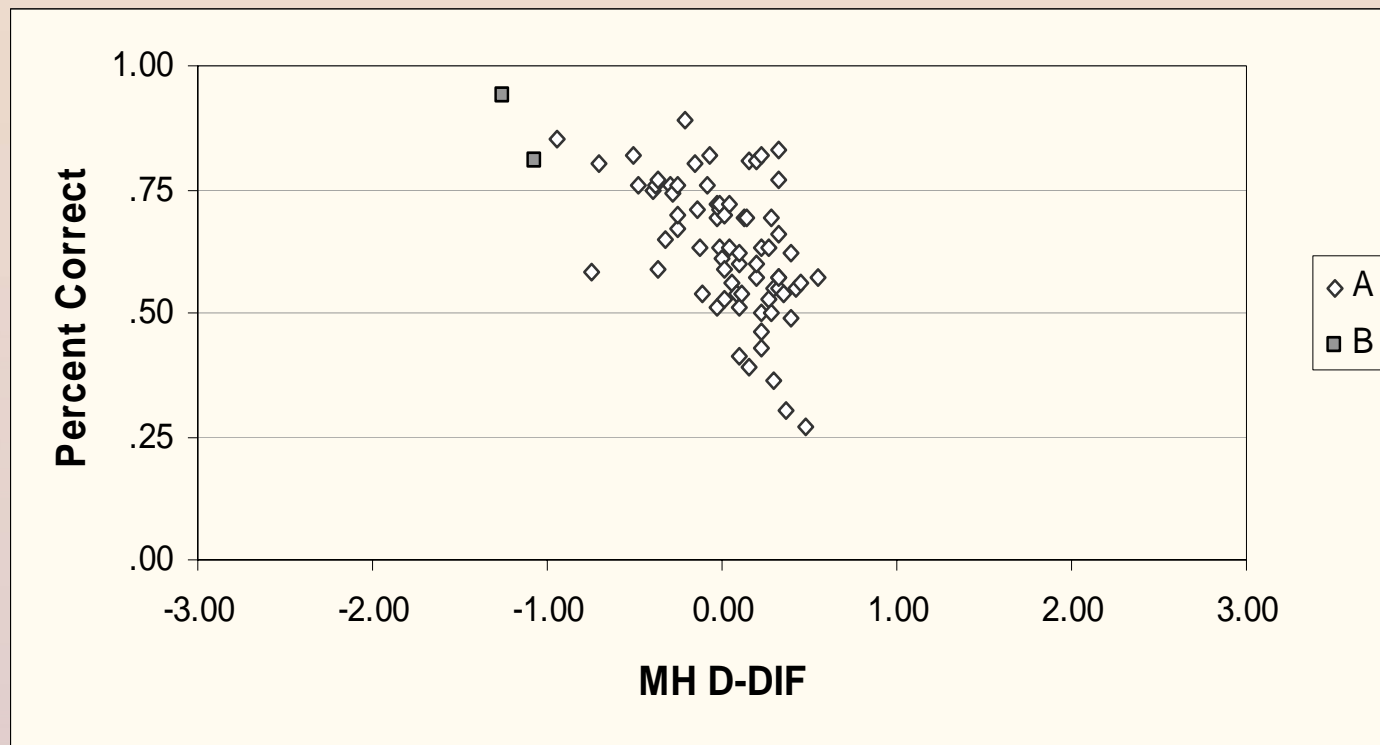
Difficult

Favors Students
Without
Disabilities

Favors
LD Students

DIF Categories ELA Grade 4 LD With Accommodations (IEP/504)

Easy



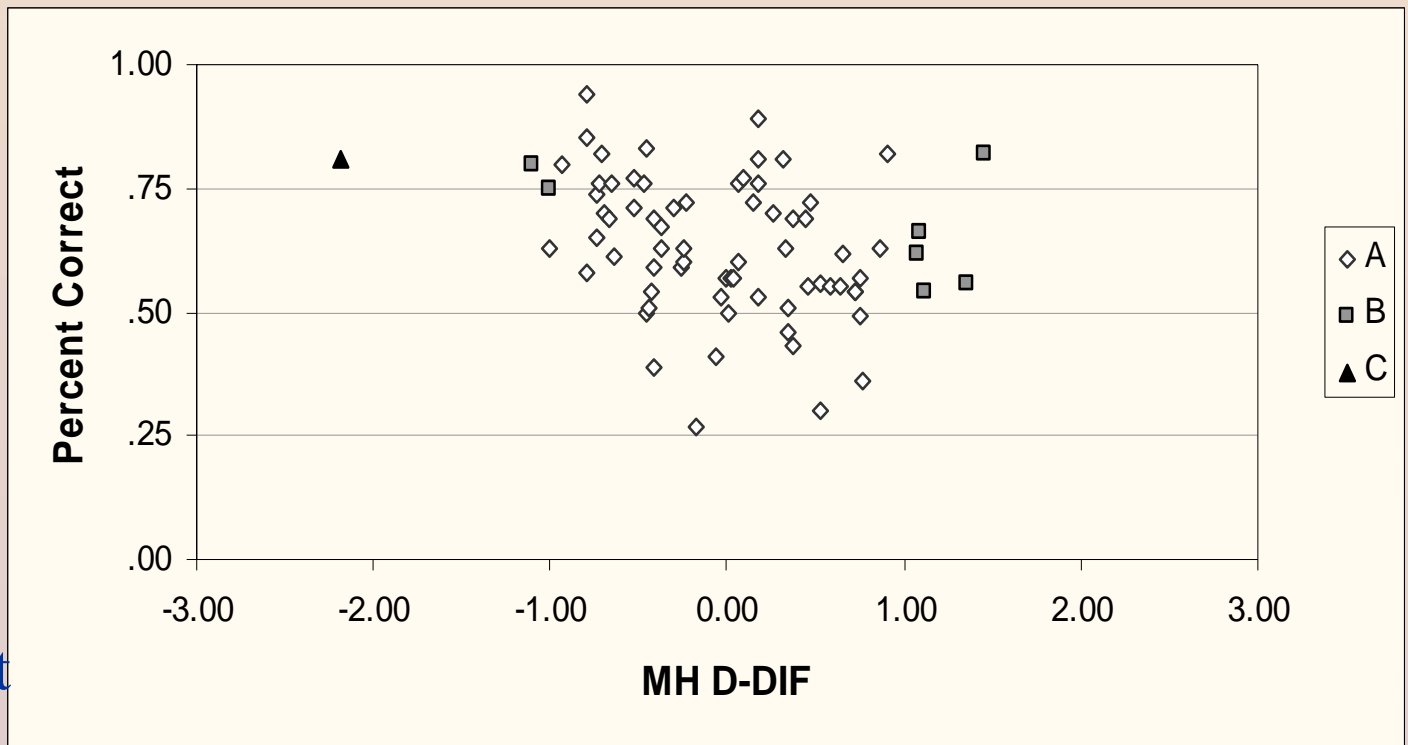
Difficult

Favors Students
Without
Disabilities

Favors
LD (IEP/504)

DIF Categories ELA Grade 4 LD With Change in Testing Conditions (Read-Aloud)

Easy



Difficult

Favors Students
Without
Disabilities

Favors
LD (Read-Aloud)

Interpreting the Results of the DIF Study

- Results
 - 1 C DIF item, 8 B DIF items
 - Majority of flagged items were reading items that favored students who took test with read-aloud change in testing conditions
 - Results consistent with factor analyses results

Summary of DARA Research

- Focus of studies
 - Accessibility of reading assessments for students with disabilities
- Results—Internal structure of ELA assessment
 - Factor analyses—test measures single dimension for all groups
 - DIF analyses—very little significant DIF
- Results—Differential boost study
 - Differential boost for read-aloud testing change
- Tentative conclusion
 - Read-aloud change in testing conditions may possibly qualify as an accommodation

Next Steps for DARA Research

- Psychometric Research
- Multi-Stage Testing Model
- Cognitive Labs
- IEP Decision Making

Questions?