

# Response to Reading Intervention by Students with Low IQs

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# Multi-Site Research

- Research is funded by Institute of Education Sciences (IES)
- Coordinated with other research projects
  - University of North Carolina – Charlotte
    - focus on moderate and severe cognitive disabilities
    - Diane Browder and colleagues
  - Georgia State University
    - focus on mild disabilities
    - Rose Sevcik and colleagues

# Research:

## Reading and Intellectual Disabilities

- Clear evidence for effectiveness of sight word instruction
- Minimal research on phonics instruction
- Throughout the literature...
  - No studies were large scale
  - No studies employed a comprehensive reading program that included explicit, systematic phonics instruction
  - No studies were longitudinal

# Browder et al., 2006

- Meta analysis of 128 studies including students with moderate and/or severe intellectual disabilities
- Strong evidence that systematic instruction can lead to reading sight words, though most studies were small in scale.
- Only one phonics study was strong in both quality and effects

# Research Questions

- Are *reading interventions* that have been proven to be effective with students who are very low readers also effective for teaching students with *intellectual disabilities* or *IQ scores in the borderline range*?
- What *level of reading competence* can be achieved by these students with the use of these interventions across several years?

# Research Design: 4-year Plan

	<b>10 Elementary schools</b> $\longrightarrow$ <b>Move into Middle school</b>			
<b>Condition</b>	<b>Year 1</b> <b>2005-2006</b>	<b>Year 2</b> <b>2006-2007</b>	<b>Year 3</b> <b>2007-2008</b>	<b>Year 4</b> <b>2008-2009</b>
<b>Reading Intervention</b>	67 Students Grades K-3	65 Students Grades 1-4	60 Students Grades 2-5	57 Students Grades 3-6
<b>Contrast</b>	58 Students Grades K-3	54 Students Grades 1-4	45 Students Grades 2-5	41 Students Grades 3-6

# Overview of Project Maximize: Project Staff

## *Principal Investigators*

Jill Allor, Ed.D.

Patricia Mathes, Ph.D.

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## *Project Coordinators*

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*Supported by IES Grant*

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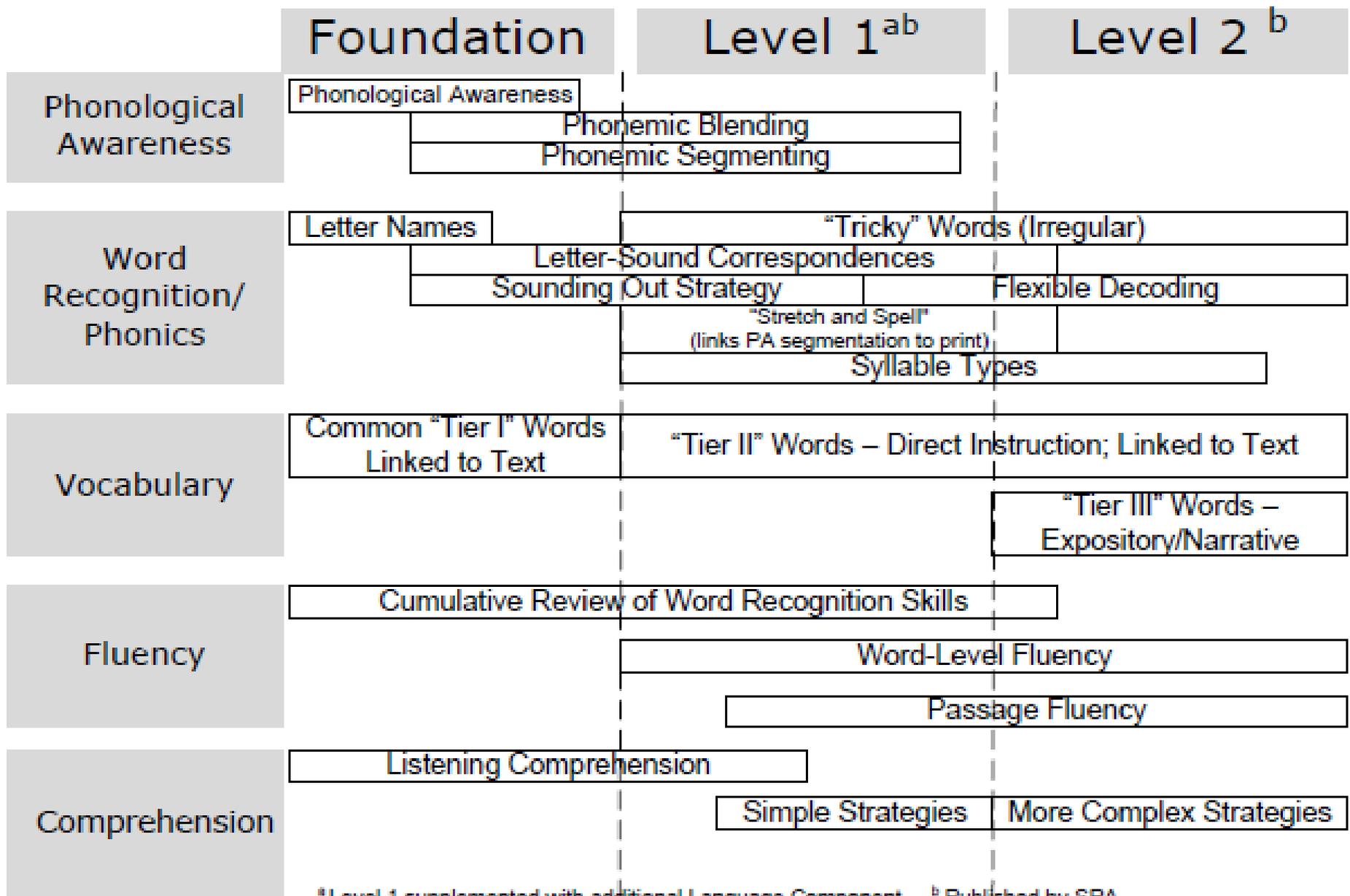
# Participants

- Included students who participated at least 2 years
- Students randomly assigned to experimental or contrast group
- Total: 118 (61 with ID)
  - “Borderline”
    - according to *WASI: Wechsler Abbreviated Scales of Intelligence* OR school-testing; IQ 71-79
    - Treatment  $n=28$ , Contrast  $n=29$
  - **Mild range (IQ 56-70)**
    - Treatment  $n=20$ , Contrast  $n=14$
  - **Moderate range (IQ 40-55)**
    - Treatment  $n=16$ , Contrast  $n=11$

# Intervention

- Comprehensive, explicit, systematic phonics-based reading program
- Implemented daily by research teachers
- Instructional Sessions
  - goal: 45- to 50-minute sessions
  - actual: 40- to 50-minute sessions
- Students taught in groups of 1-4
- Average length of time in the study approximately 2.7 years (range 2-3 years)

# Overview of Instructional Strands Content



<sup>a</sup> Level 1 supplemented with additional Language Component

<sup>b</sup> Published by SRA

# \*Curriculum: Critical Features

- Explicit and Systematic
  - Explicit strategies
  - Cumulative review
  - Careful sequencing
  - Scaffolding  
(gradually reduced)
- Comprehensive
- Fast-paced
- Immediate Feedback
- Teaching to Mastery
- Increased Opportunities to Respond



*\*Early Interventions in Reading*, Published by  
SRA/McGraw-Hill

# Annual Measures

## ■ Language

- Expressive Vocabulary Test (EVT)
- Peabody Picture Vocabulary Test (PPVT)
- Selected subtests of Woodcock Language Proficiency Battery-R (WLPB-R)
- Selected subtests of Test of Narrative Language (TNL)

## ■ Phonemic Awareness

- Comprehensive Test of Phonological Processing (CTOPP)

## ■ Reading

- Test of Word Reading Efficiency (TOWRE)
- Selected subtests of WLPB-R

# Progress Monitoring Measures

- Dynamic Indicators of Basic Early Literacy Skills (DIBELS)
  - Phoneme Segmentation Fluency
  - Nonsense Word Fluency
  - Oral Reading Fluency
- Data will be analyzed using Hierarchical Linear Modeling

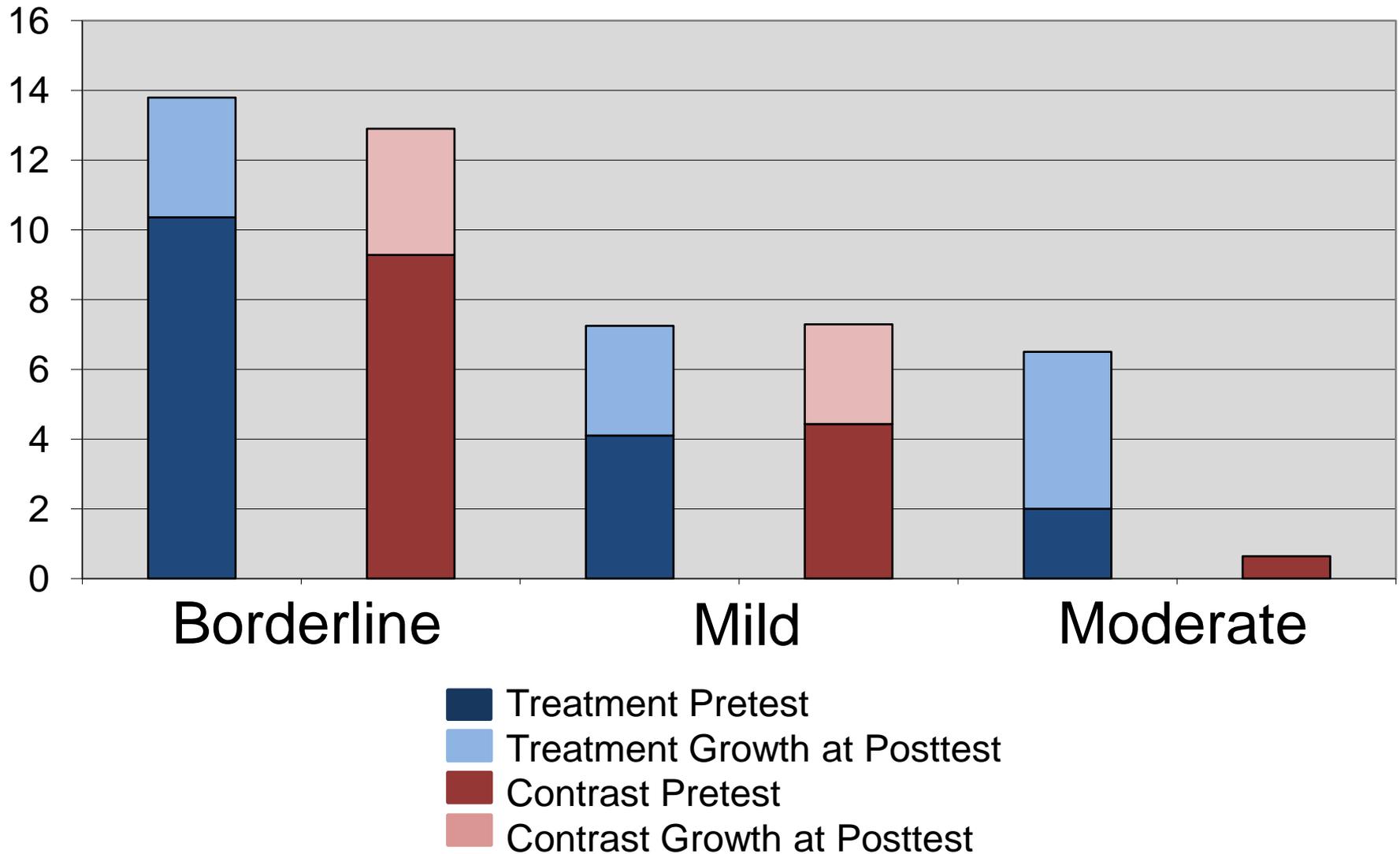
# Year Three Results – Annual Measures

- See handout of tables



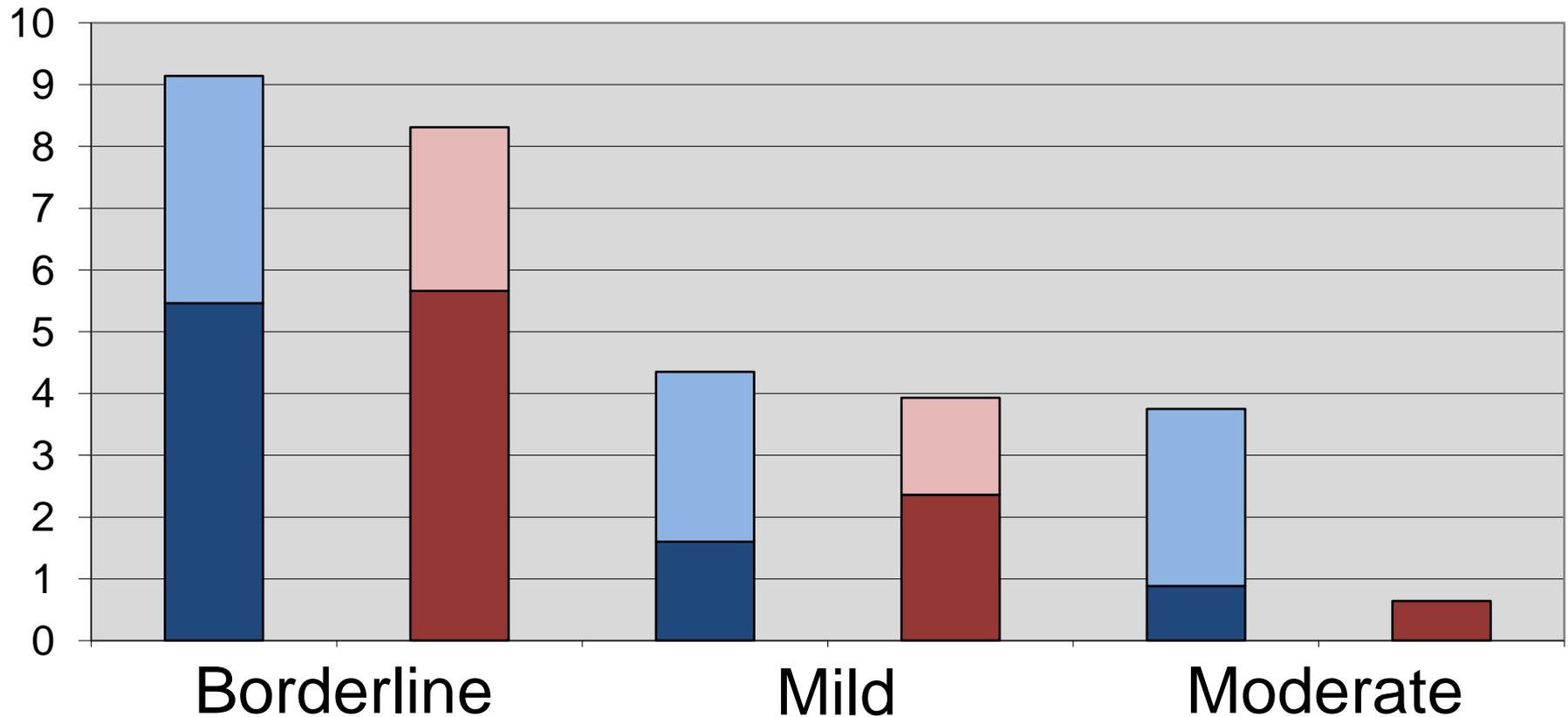
# CTOPP Blending Words

## Pretest and Posttest Mean Raw Scores



# CTOPP Blending Nonwords

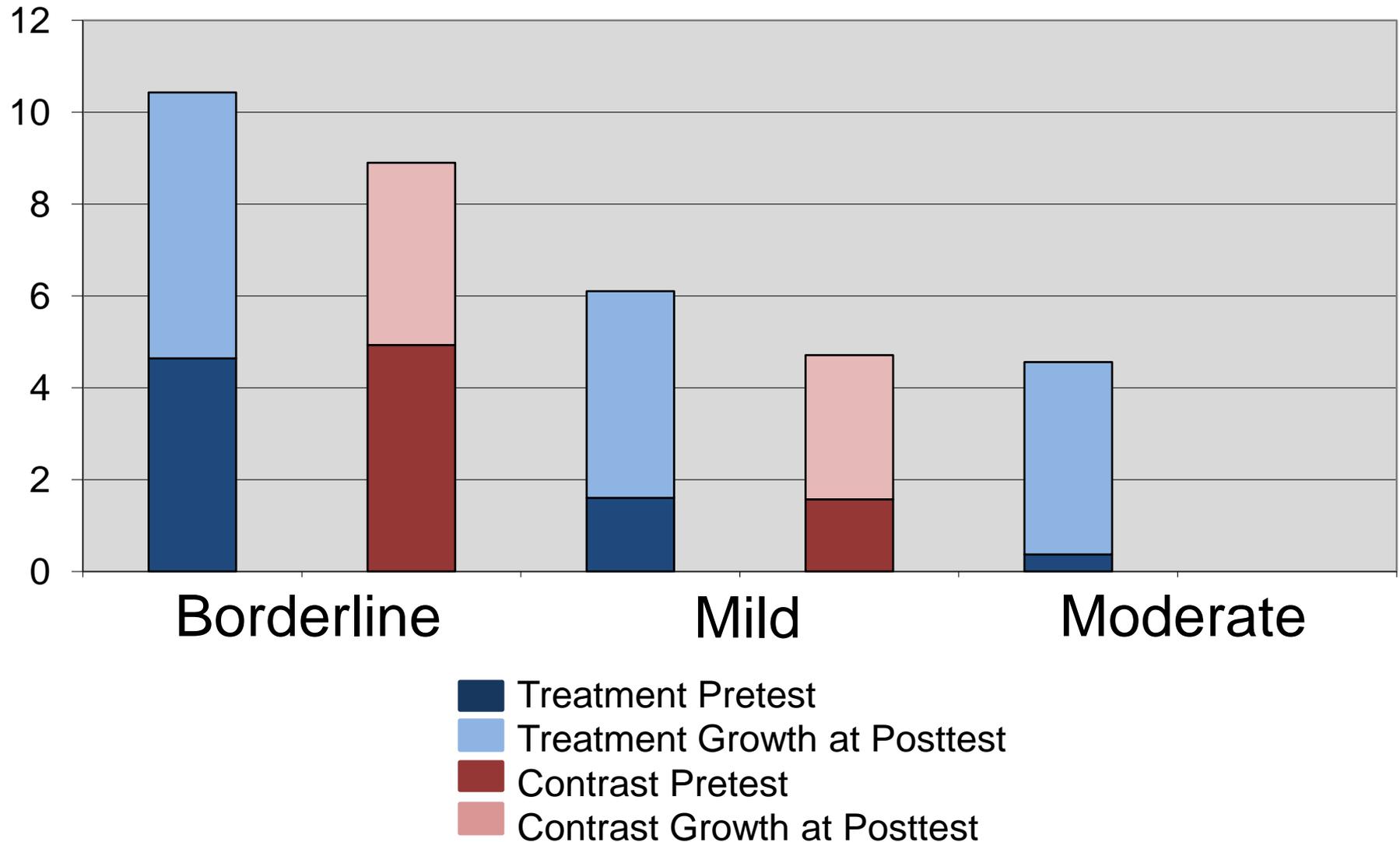
## Pretest and Posttest Mean Raw Scores



- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

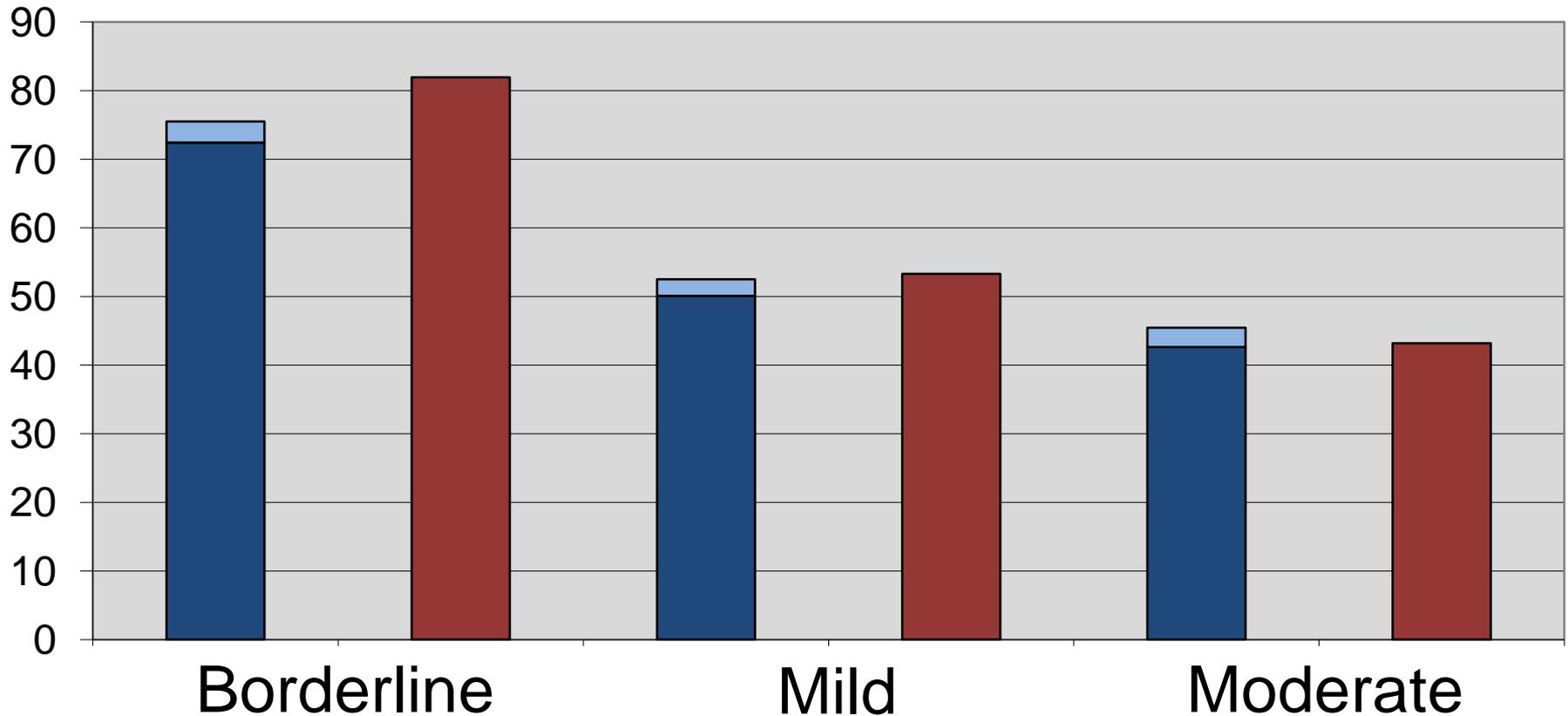
# CTOPP Segmenting Words

## Pretest and Posttest Mean Raw Scores



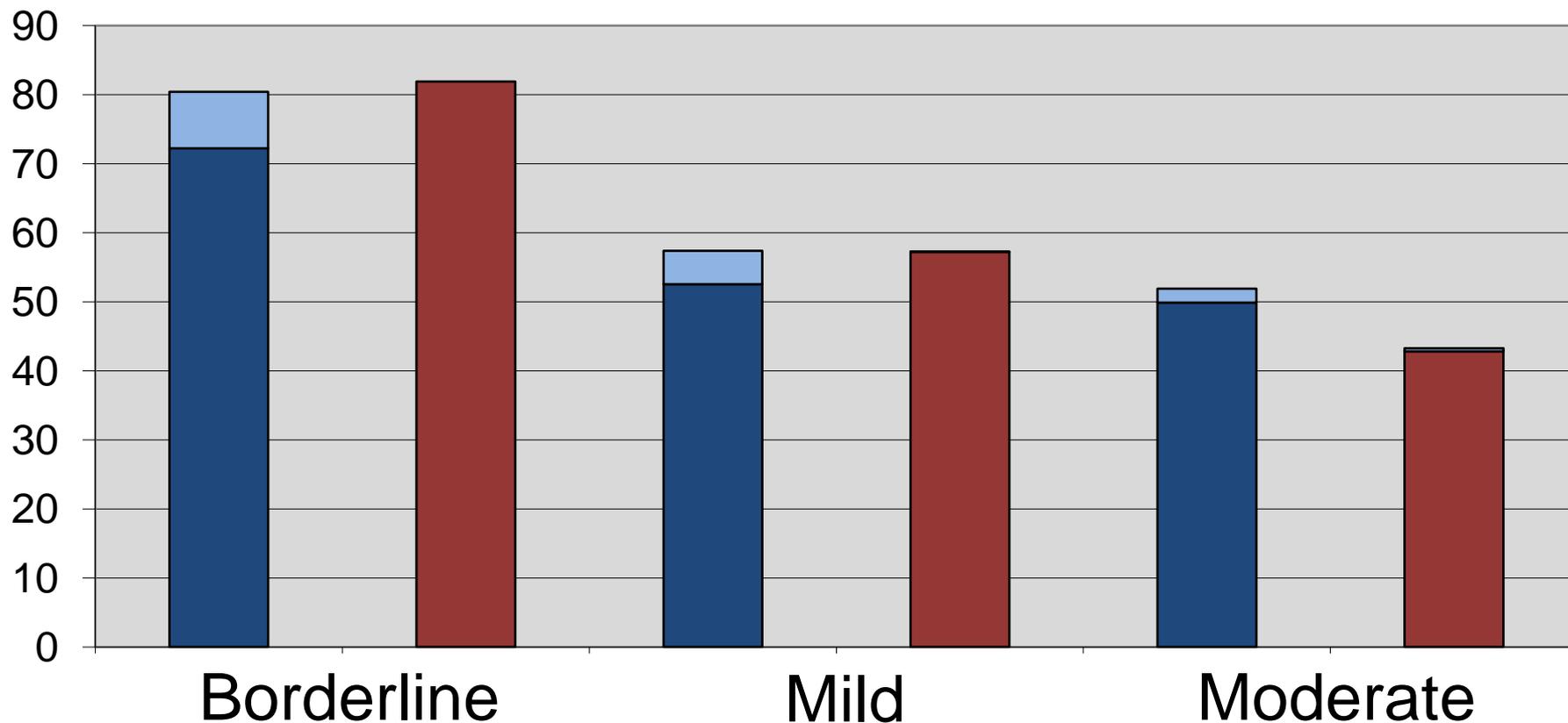
# Expressive Vocabulary Test

## Pretest and Posttest Mean Standard Scores



- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

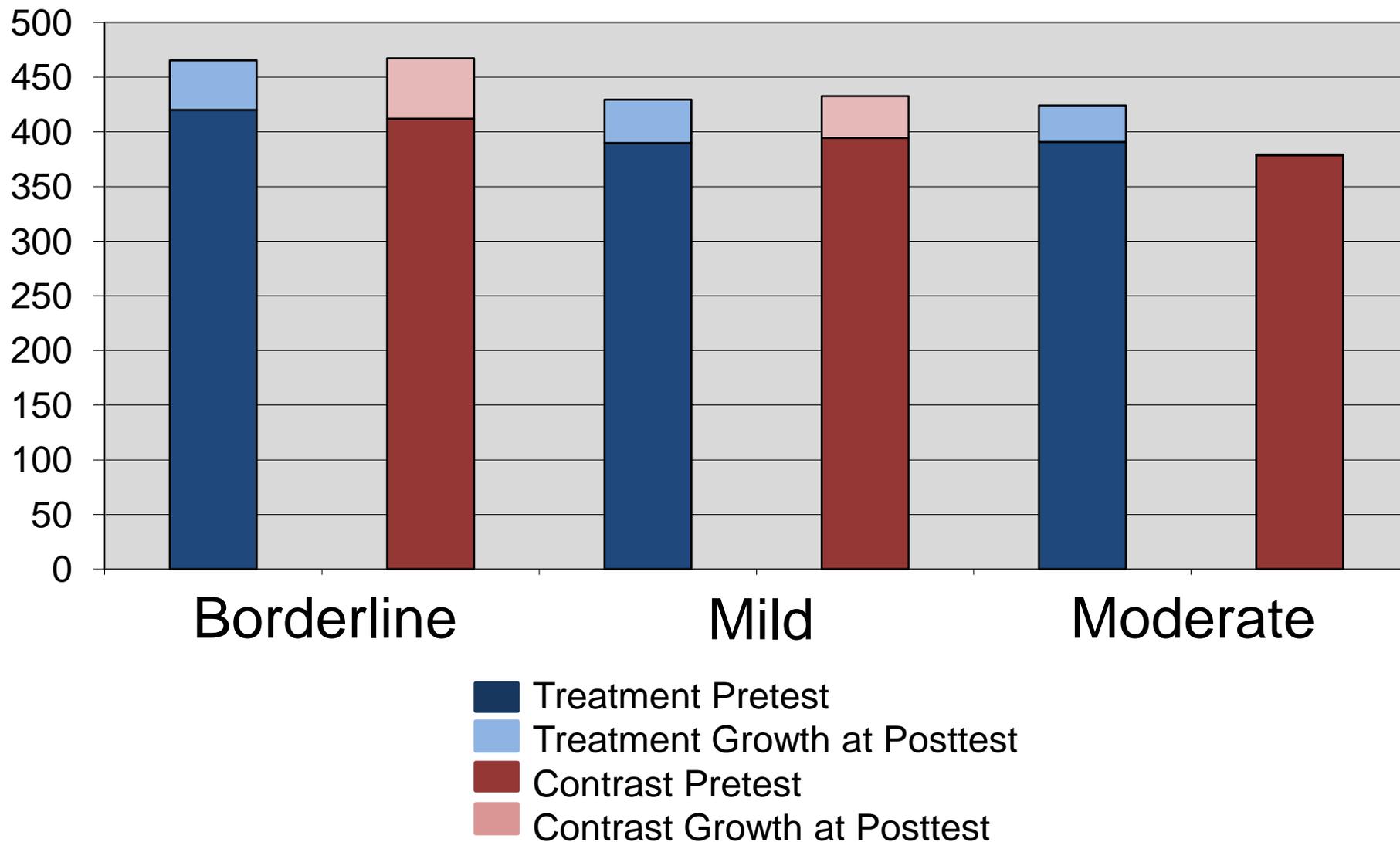
# Peabody Picture Vocabulary Test Pretest and Posttest Mean Standard Scores



- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

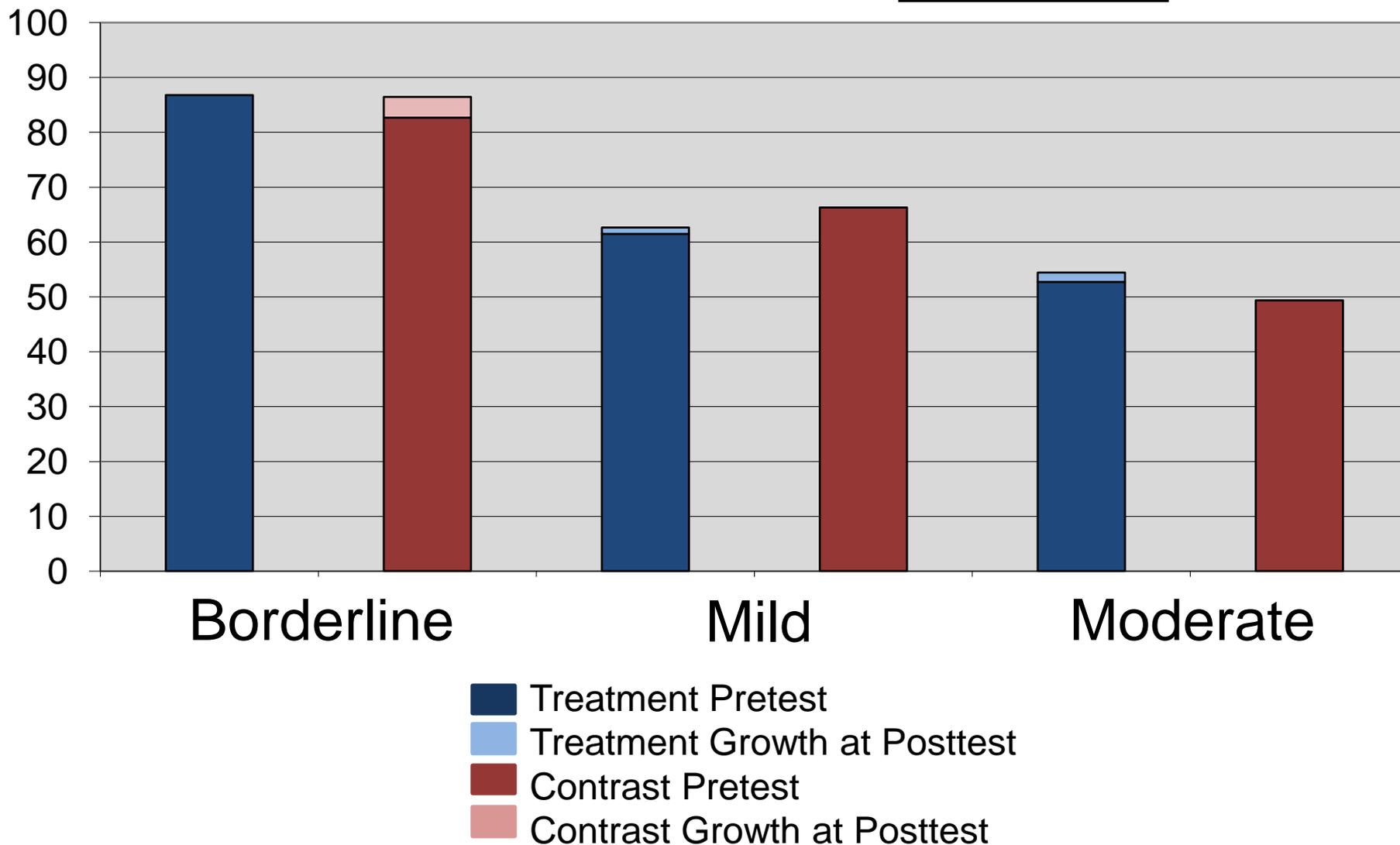
# WLPB-R Letter-Word ID Test

## Pretest and Posttest Mean W Scores



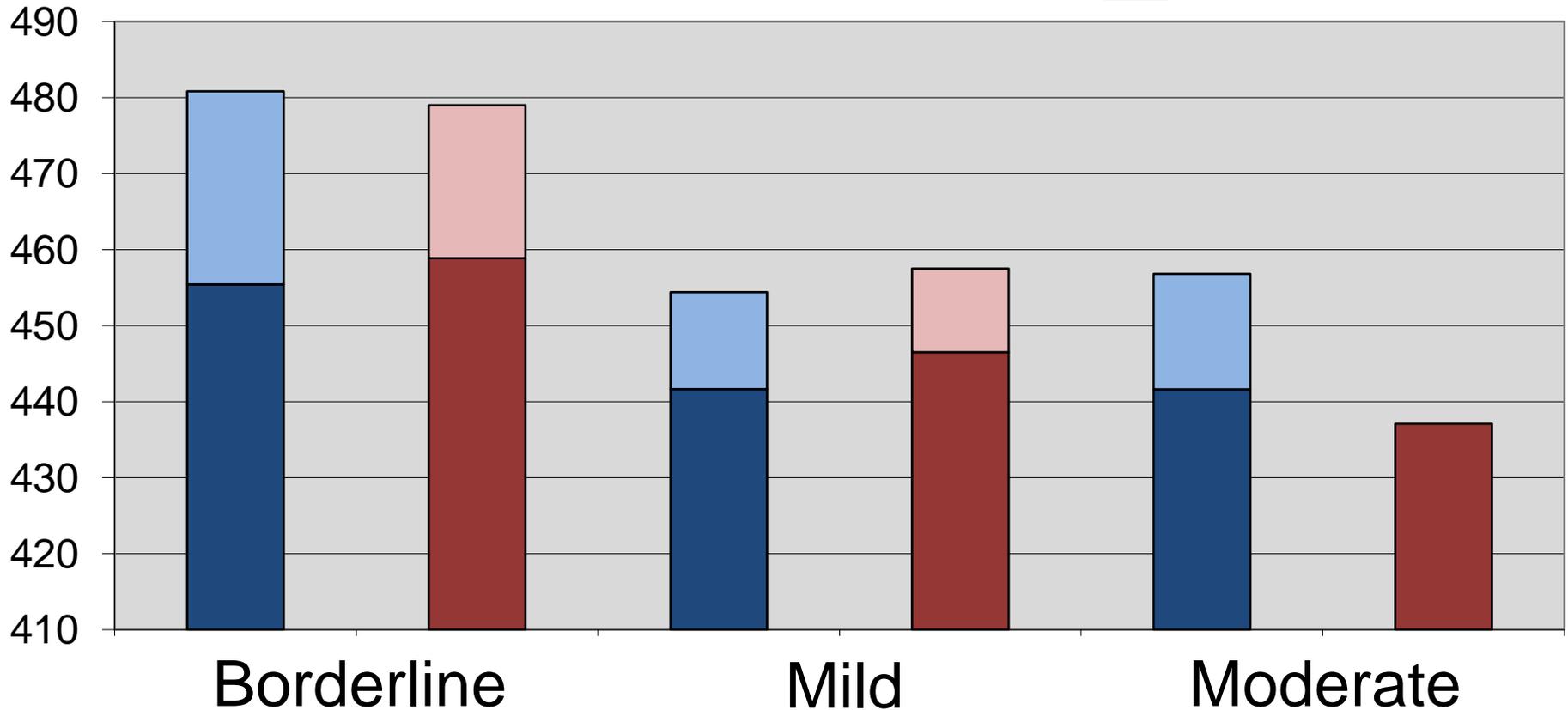
# WLPB-R Letter-Word ID Test

## Pretest and Posttest Mean Standard Scores



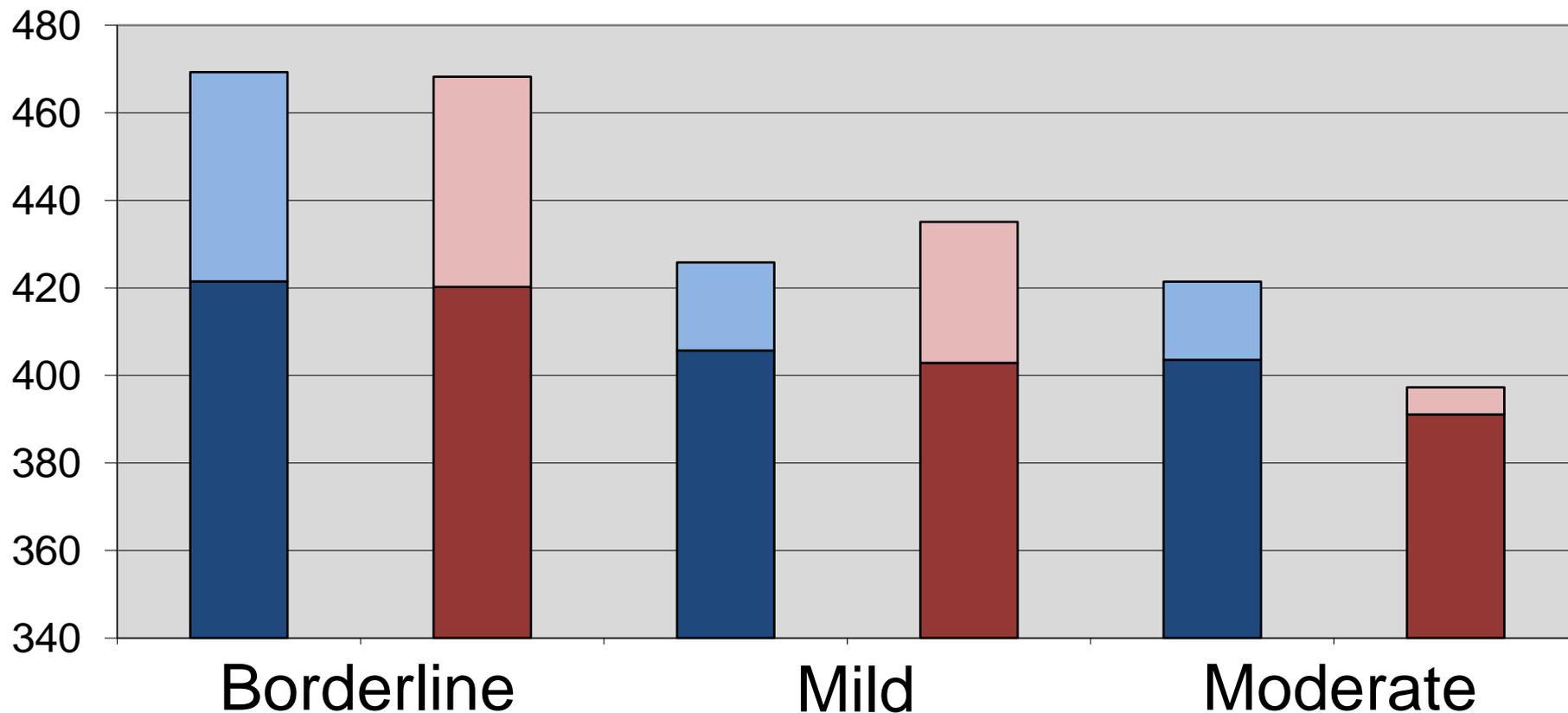
# WLPB-R Word Attack Test

## Pretest and Posttest Mean W Scores



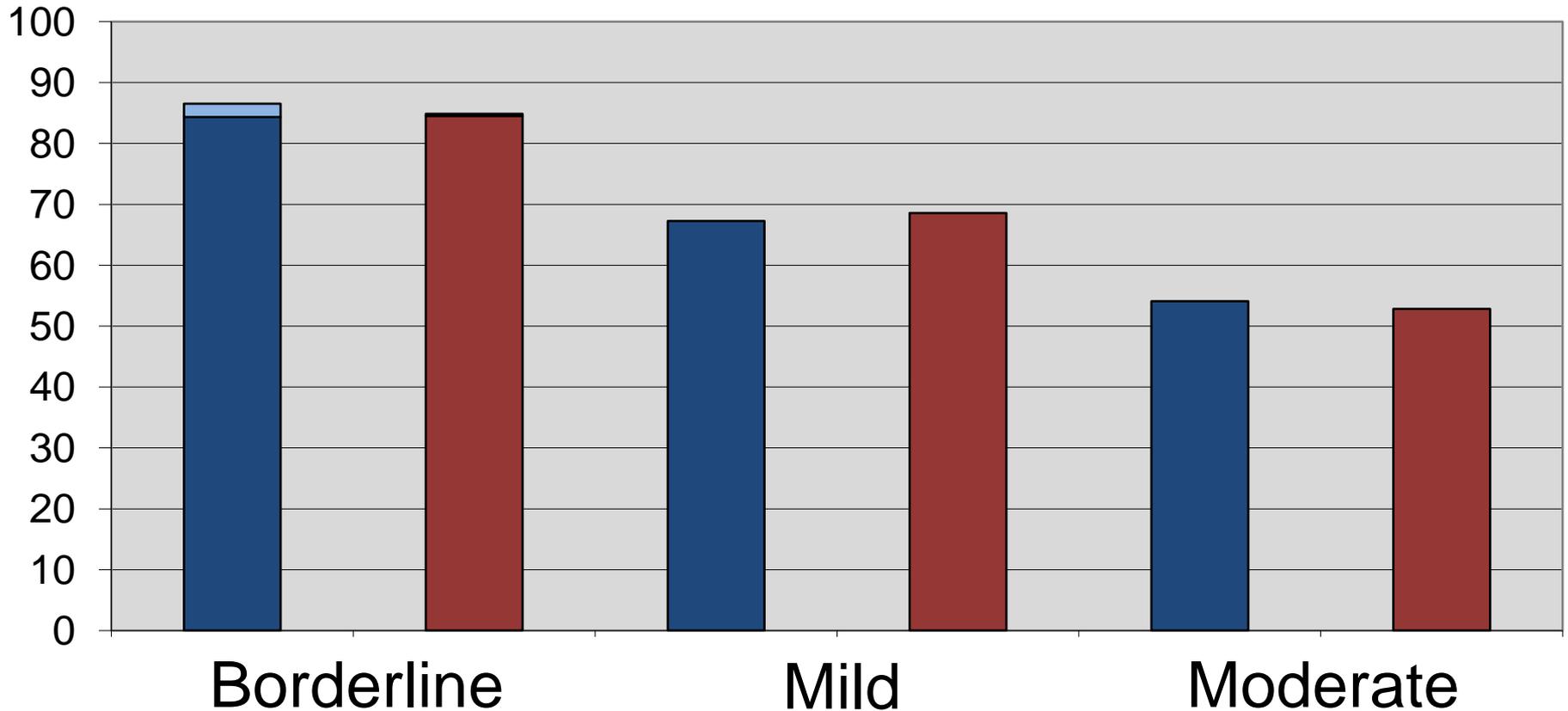
- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

# WLPB-R Passage Comprehension Test Pretest and Posttest Mean W Scores



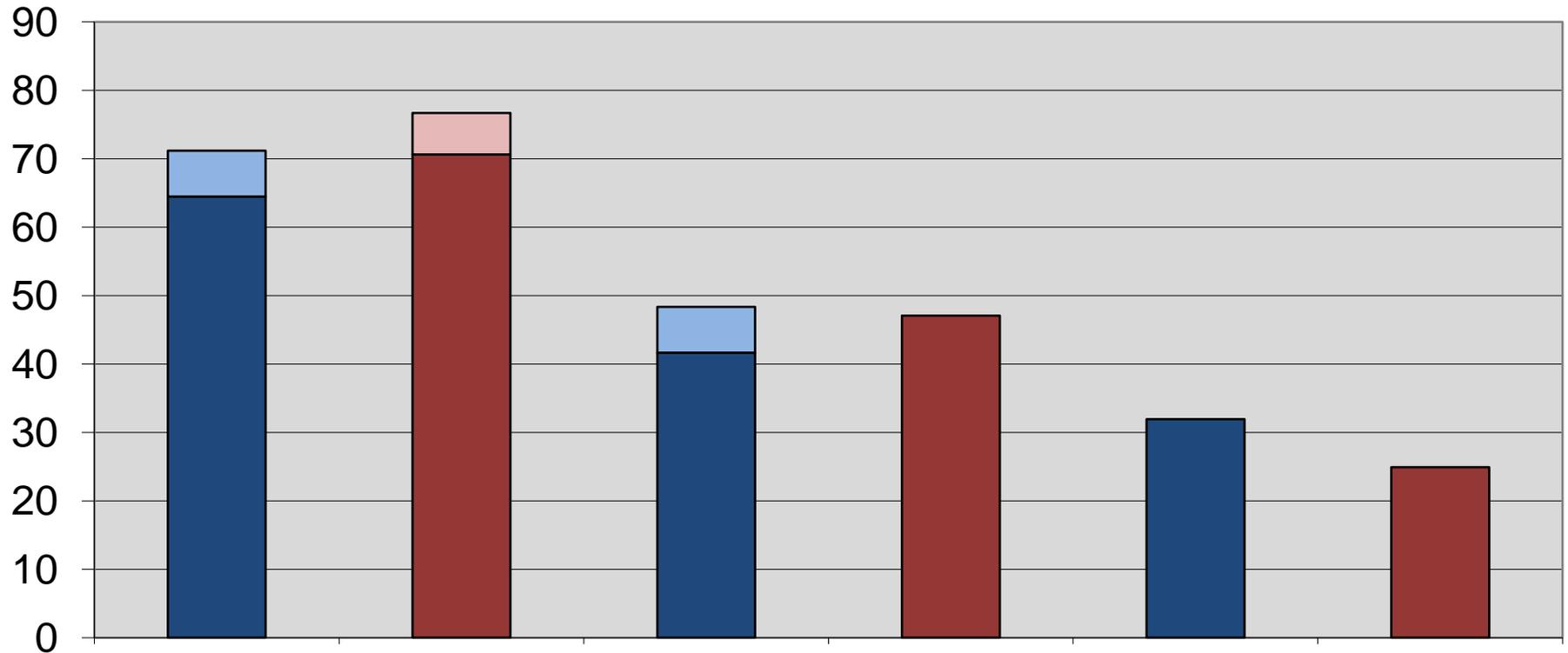
- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

# WLPB-R Passage Comprehension Test Pretest and Posttest Mean Standard Scores



- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

# WLPB-R Listening Comprehension Test Pretest and Posttest Mean Standard Scores



- Treatment Pretest
- Treatment Growth at Posttest
- Contrast Pretest
- Contrast Growth at Posttest

# Summary of Findings

- students with IQs in the moderate range who participated in the treatment significantly outperformed similar peers on virtually all measures
- students with IQs in the mild range who participated in the treatment performed similarly to peers in the contrast group
- on most measures, students with IQs in the moderate range, on average, made gains similar to students with IQs in the mild range

# Progress Monitoring Results for Students with Mild ID (as of March 09)

## ■ PSF

- 10/20 met benchmark of 35
- (other scores: 29, 11, 8, 24, 9, 14, 10, 16, 17, 29)

## ■ NWF

- 8/20 met benchmark of 50
- (other scores: 23, 12, 23, 34, 27, 13, 27, 28, 5, 15, 25, 47)

# Progress Monitoring Results for Students with Moderate ID

## ■ PSF

- 7/16 met benchmark of 35
- (other scores: 30, 7, 10, 33, 23, 34, 20, 23, 15)

## ■ NWF

- 7/16 met benchmark of 50
- (other scores: 47, 14, 37, 10, 38, 34, 35, 7, 30)

# Progress Monitoring Results on Oral Reading Fluency

- Students with Mild ID
  - 8/20 met first-grade benchmark of 40
  - Mean 46.65 (range 162-1))
- Students with Moderate ID
  - 7/16 met first-grade benchmark of 40
  - Mean 38.38 (range 99-3)

# Results: Current Placement in the Curriculum (Spring 09)

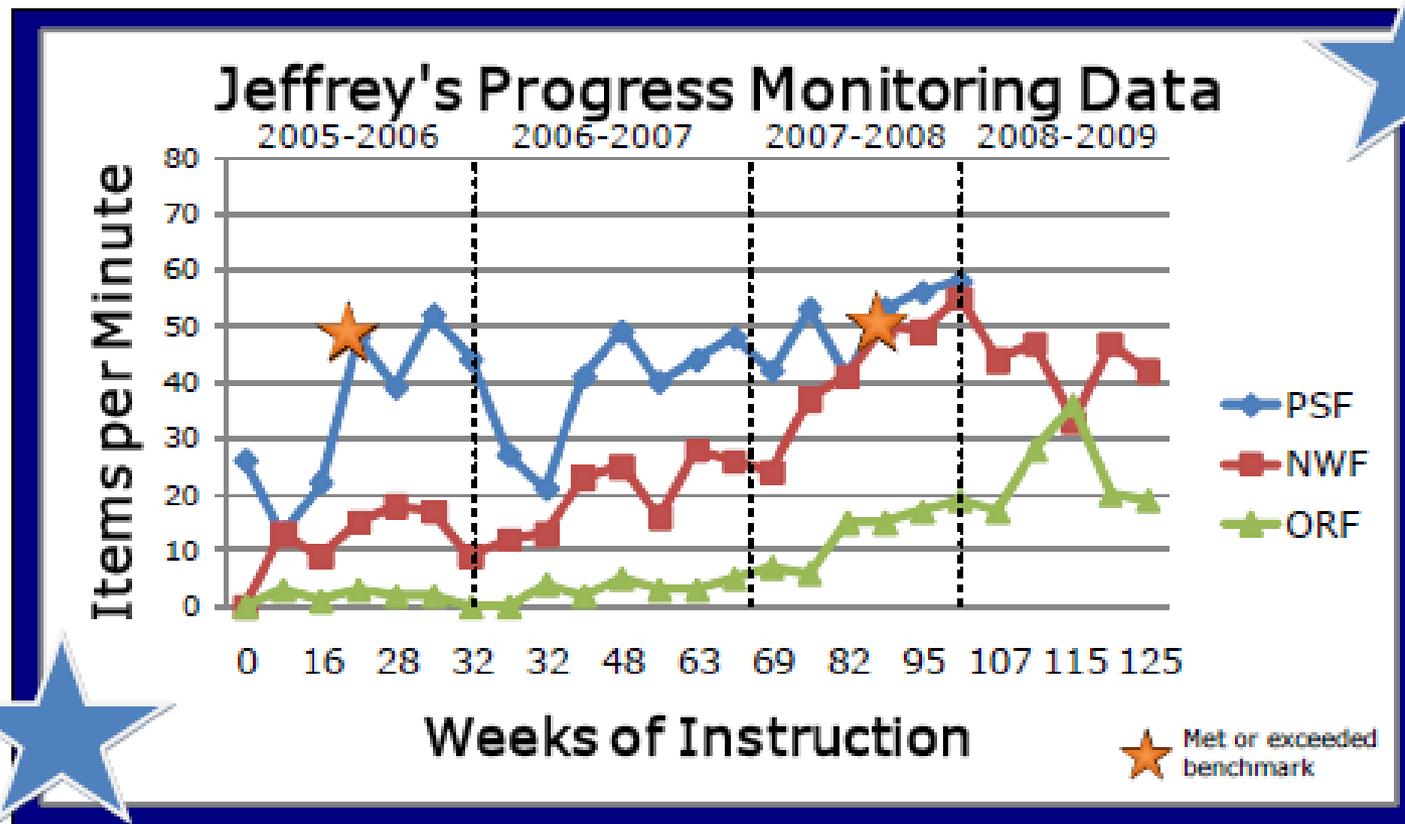
- No one is still in Foundation Level
- Almost all are approximately halfway through Level One or further
  - only 3 students are still very early in Level One
    - (2 moderate and 1 mild)

# Halfway through Level One Students...

- Identify most common sound for all individual letters
- Read words made up of those letters
  - Ex: last, mom, slip, step
- Apply basic comprehension strategies
  - Ex: retelling, sequencing events, story grammar

# Jeffery's Story

Jeffery is a student with ID (Williams' Syndrome; IQ of 44, moderate range). He is currently in 5<sup>th</sup> grade, placed in general education with resource support. Jeffery began in Foundation and is currently in the second half of Level 1.



# Conclusions

- students with ID, even those with IQs in the moderate range, can learn basic reading skills given consistent, explicit, and comprehensive reading instruction across an extended period of time

# Conclusions

- It takes a long time, but techniques effective for those with reading disabilities are also effective for students with ID.
- Instruction must be individualized, especially with regard to pacing and behavior management.
- Recommended Resource: *Teaching Word Recognition to Struggling Readers* by Rollanda O'Connor

# Project Maximize

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- For further information:

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