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

	10 Elementary schools →			Move into Middle school
Condition	**Year 1 2005-2006**	**Year 2 2006-2007**	**Year 3 2007-2008**	**Year 4 2008-2009**
Reading Intervention	67 Students Grades K-3	65 Students Grades 1-4	60 Students Grades 2-5	57 Students Grades 3-6
Contrast	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

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#H324K0400

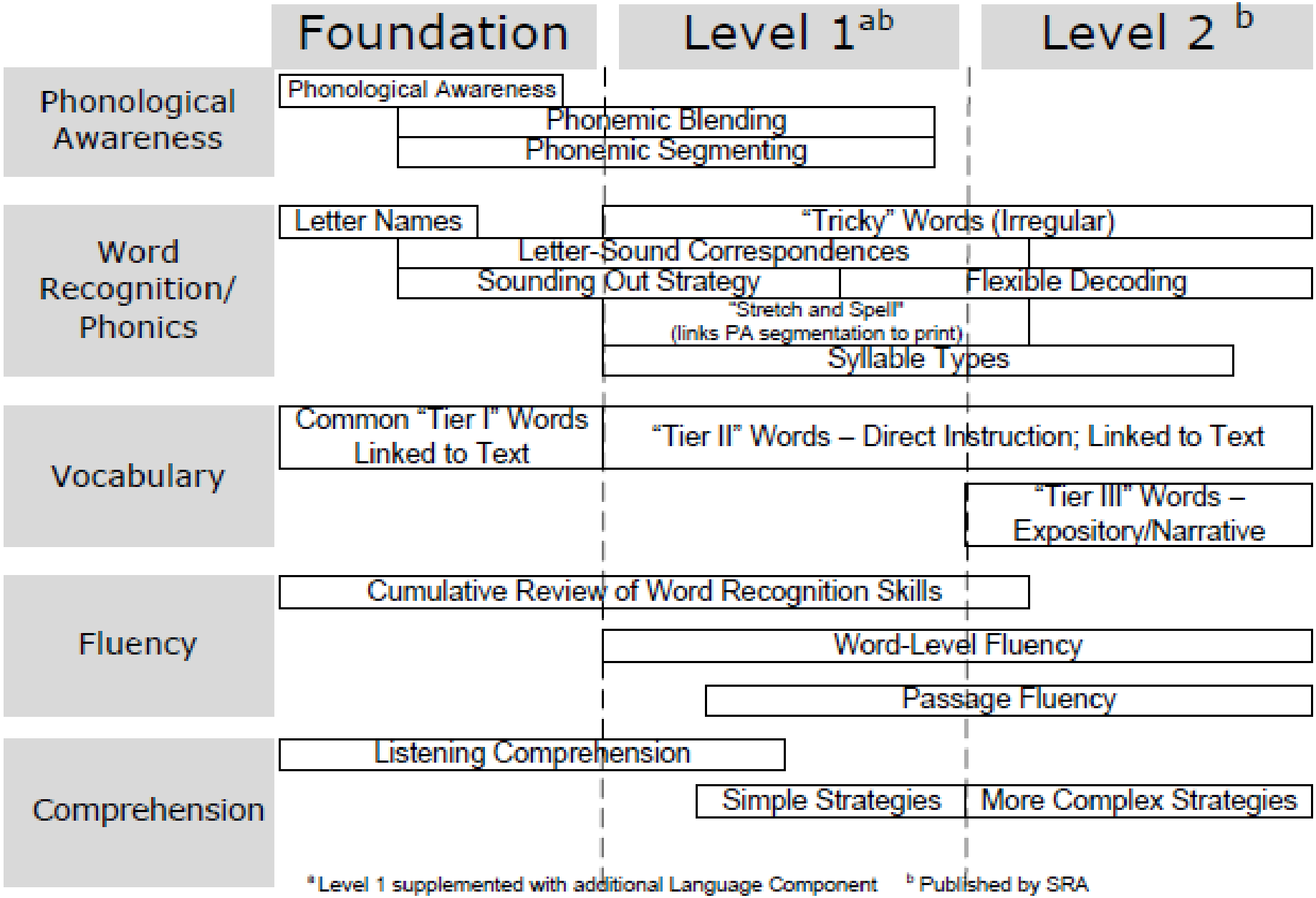
Participants

- 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



[a] Level 1 supplemented with additional Language Component [b] 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

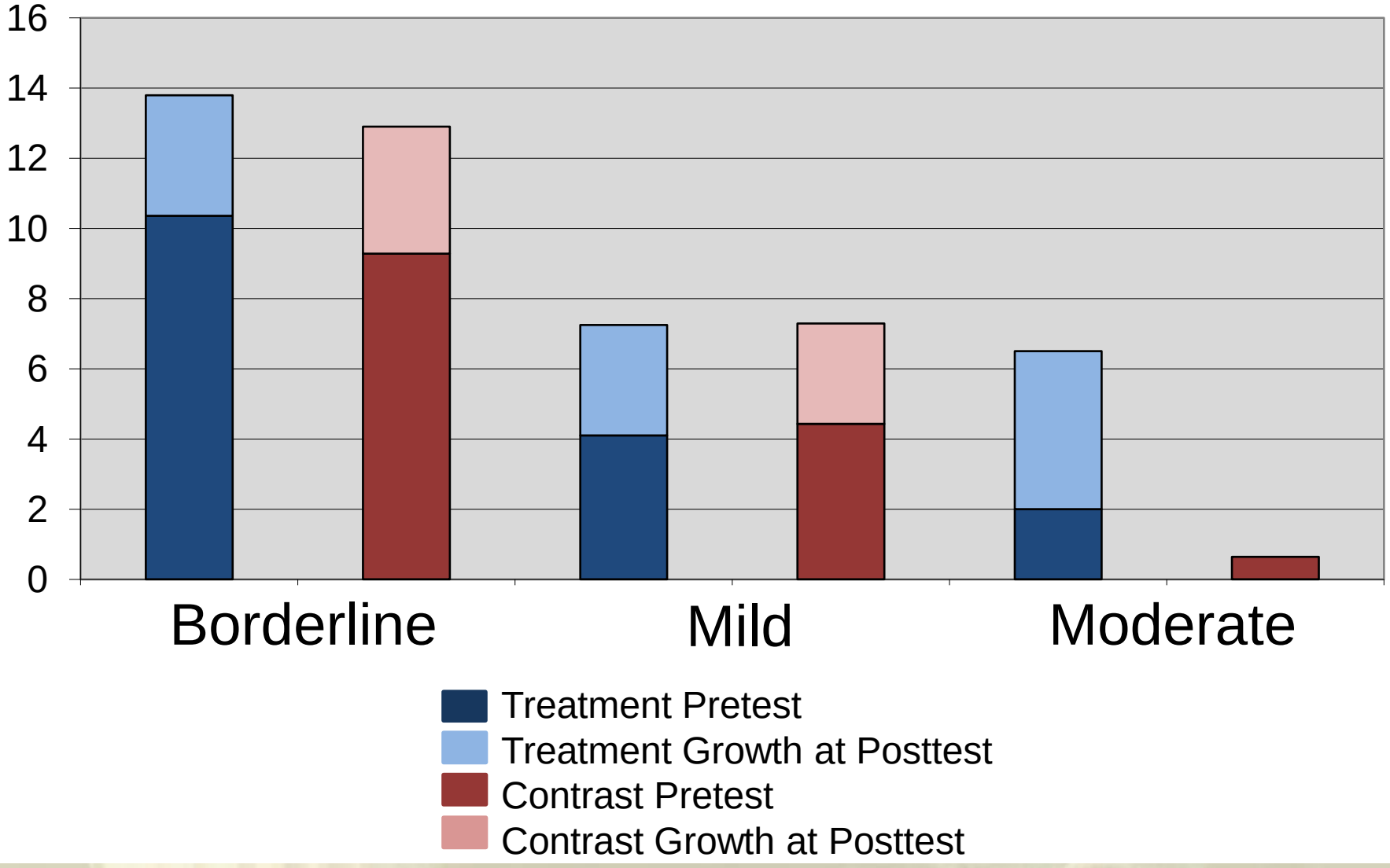
Progress Monitoring Measures

- 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

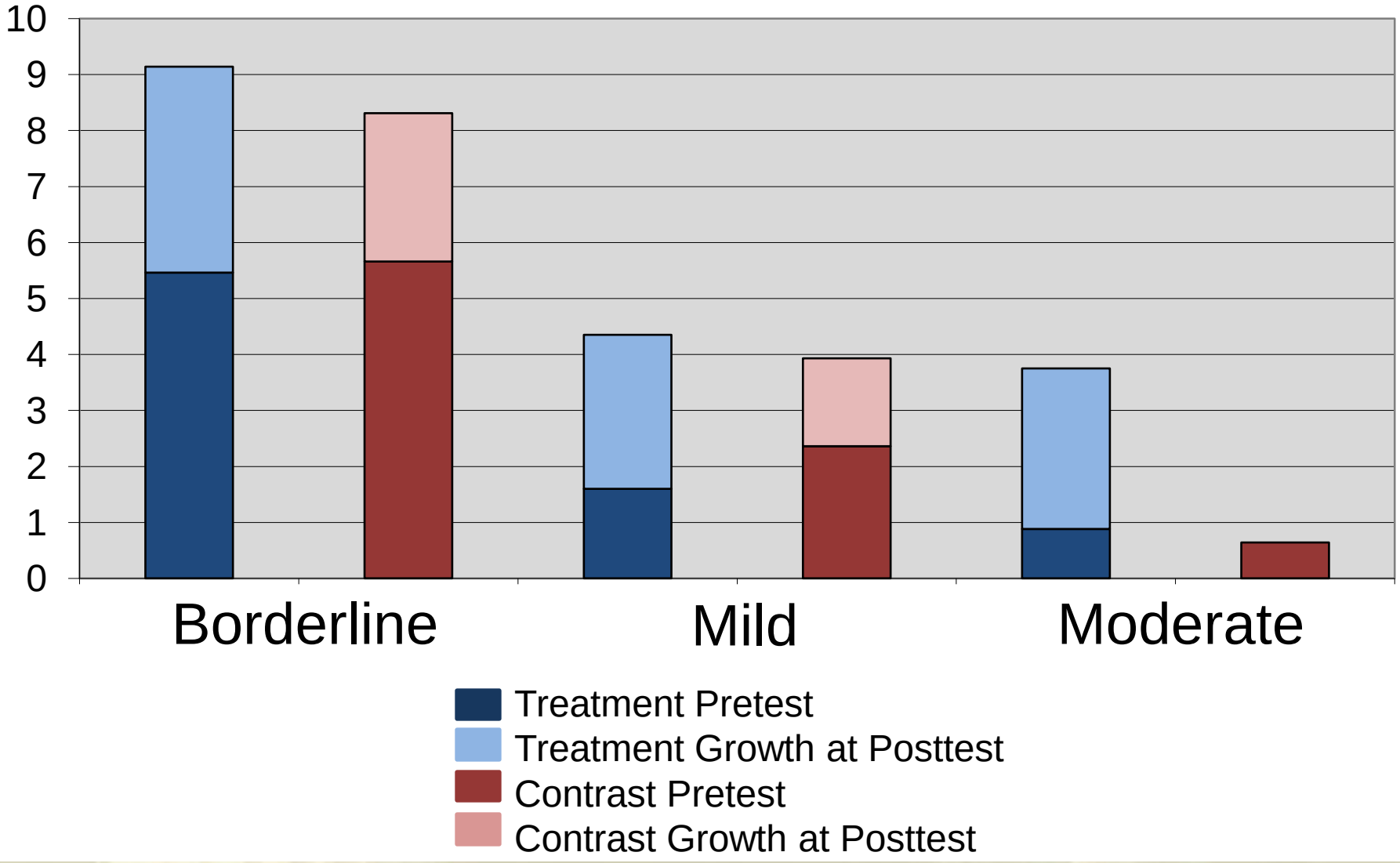
Year Three Results – Annual Measures

- See handout of tables

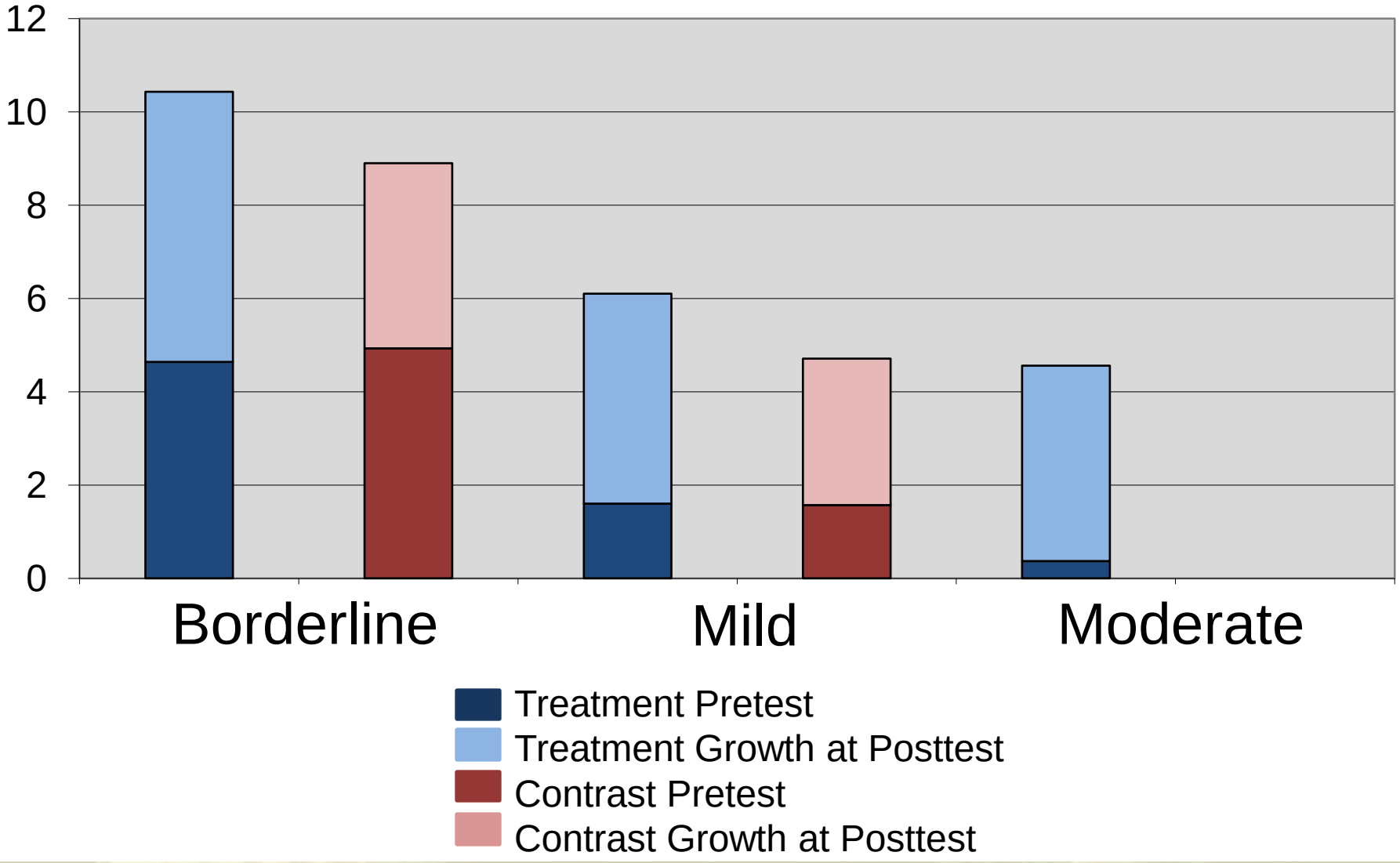
CTOPP Blending Words
Pretest and Posttest Mean Raw Scores



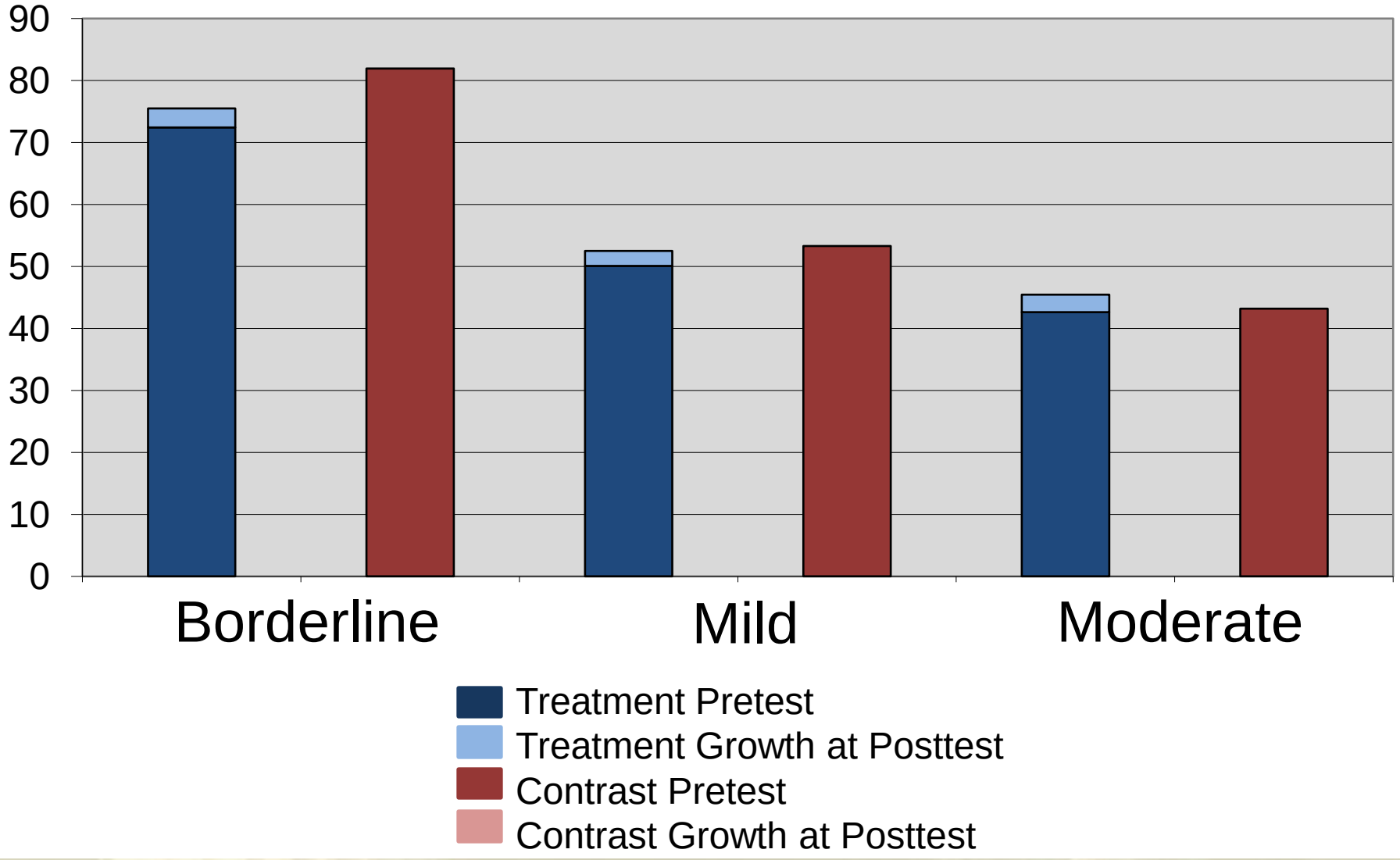
CTOPP Blending Nonwords
Pretest and Posttest Mean Raw Scores



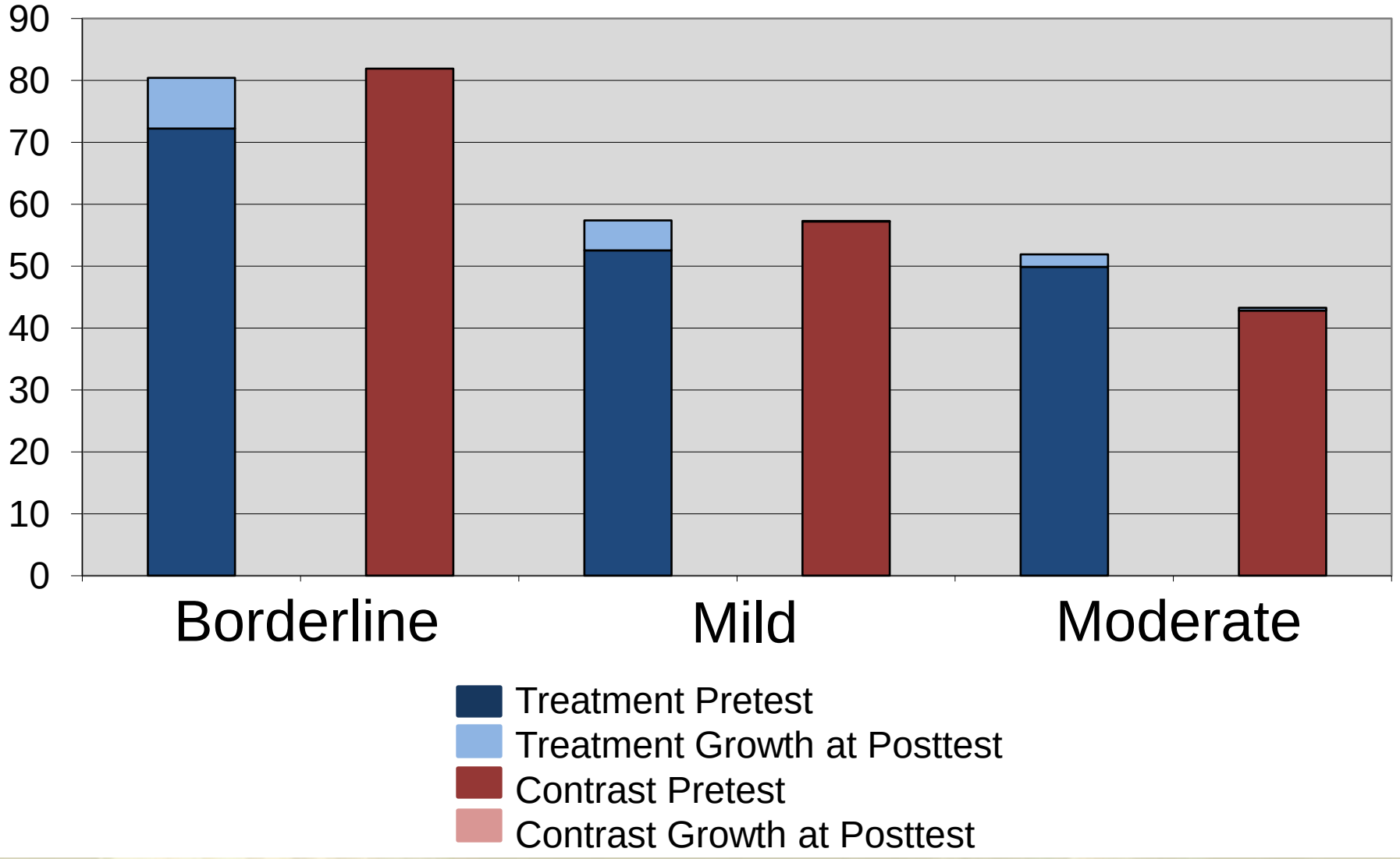
CTOPP Segmenting Words
Pretest and Posttest Mean Raw Scores



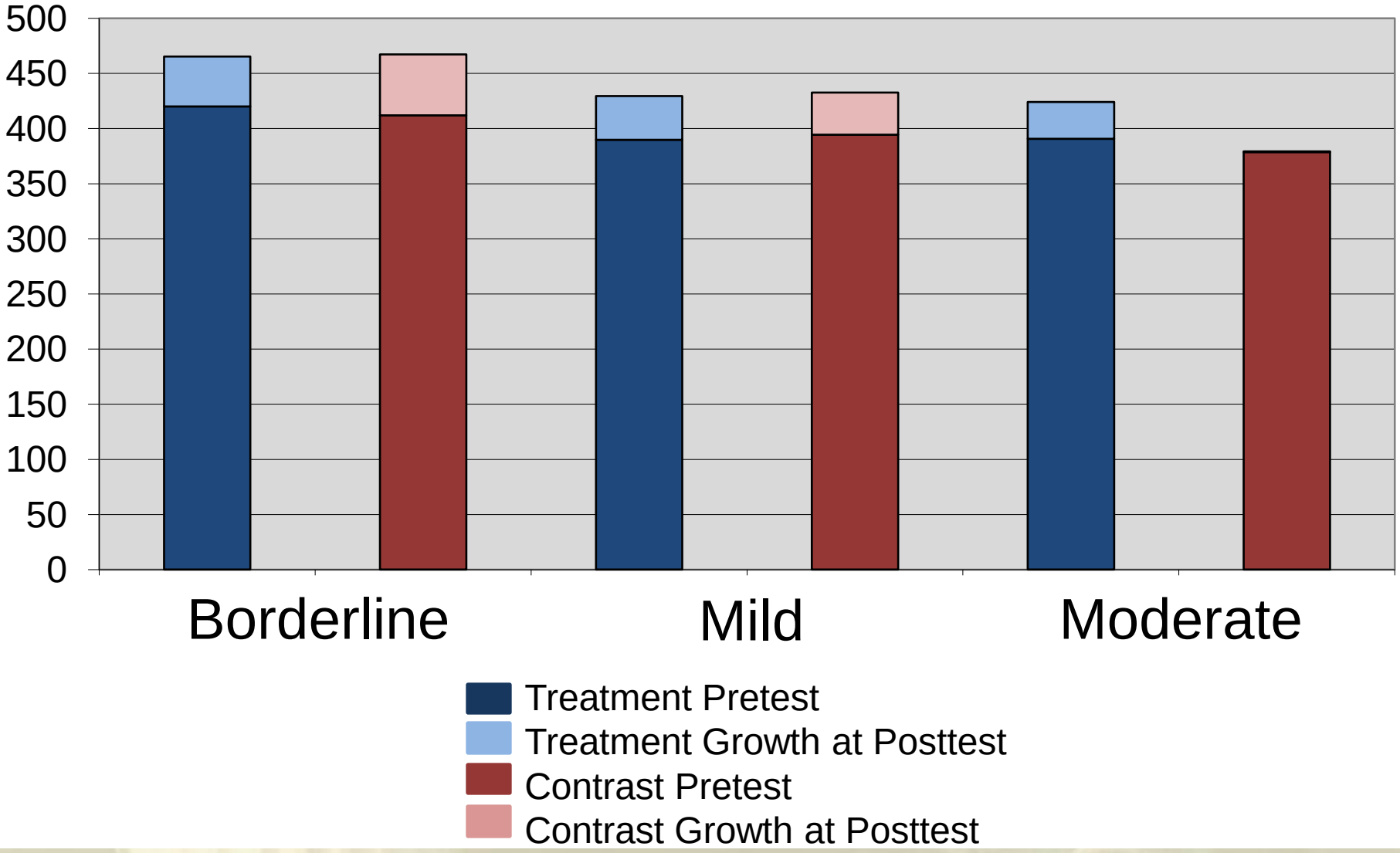
Expressive Vocabulary Test
Pretest and Posttest Mean Standard Scores



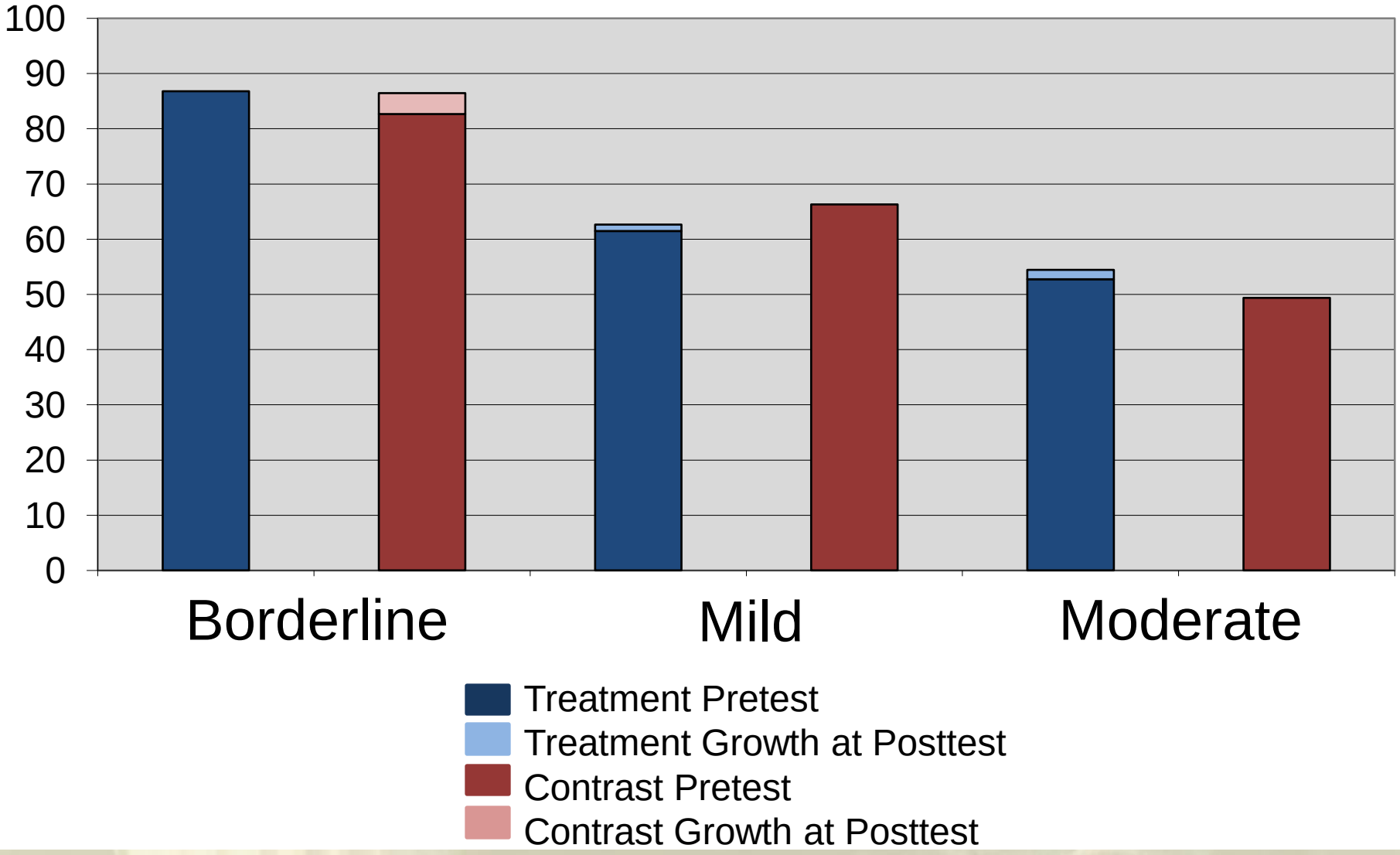
Peabody Picture Vocabulary Test
Pretest and Posttest Mean Standard Scores



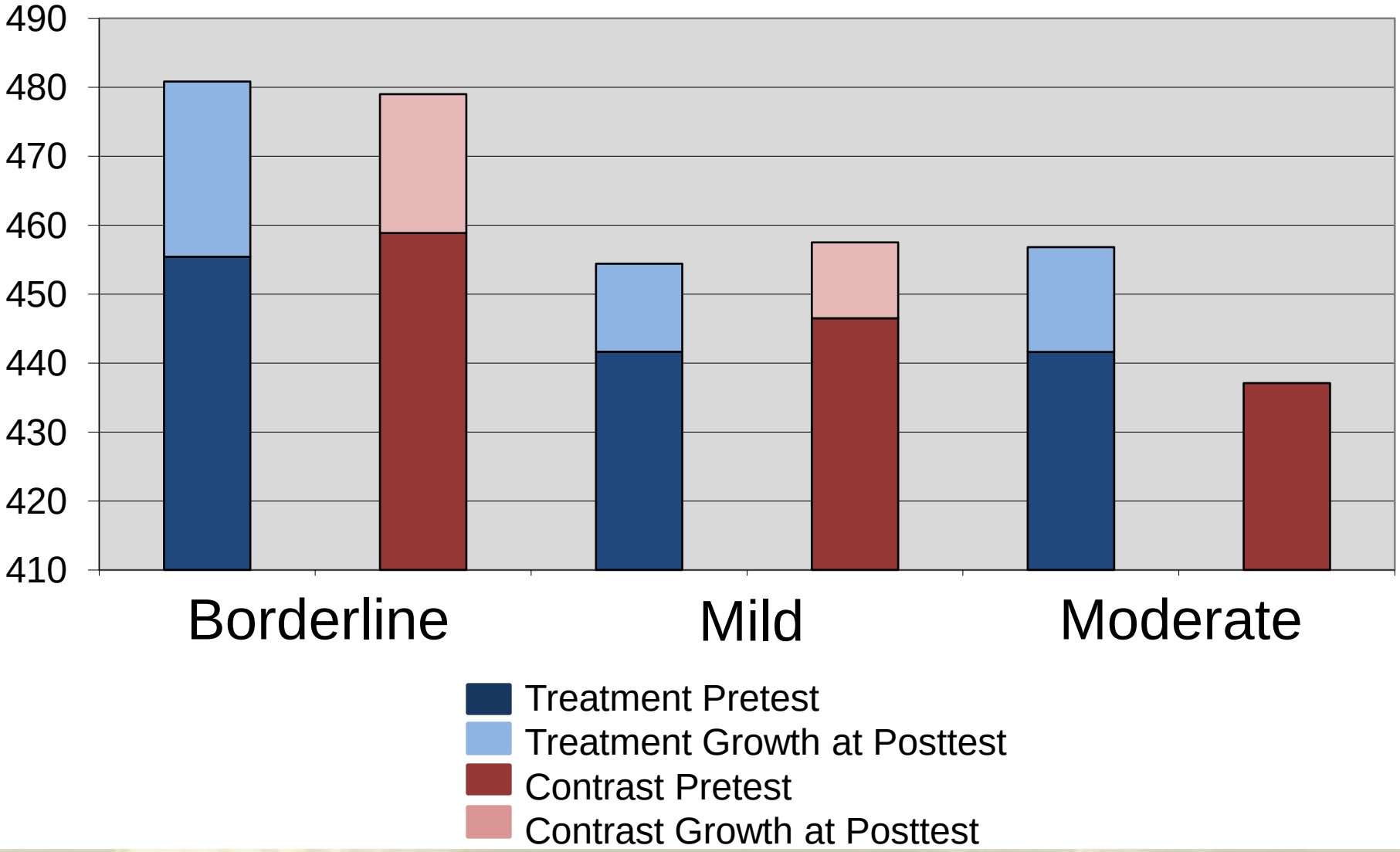
WLPB-R Letter-Word ID Test
Pretest and Posttest Mean W Scores



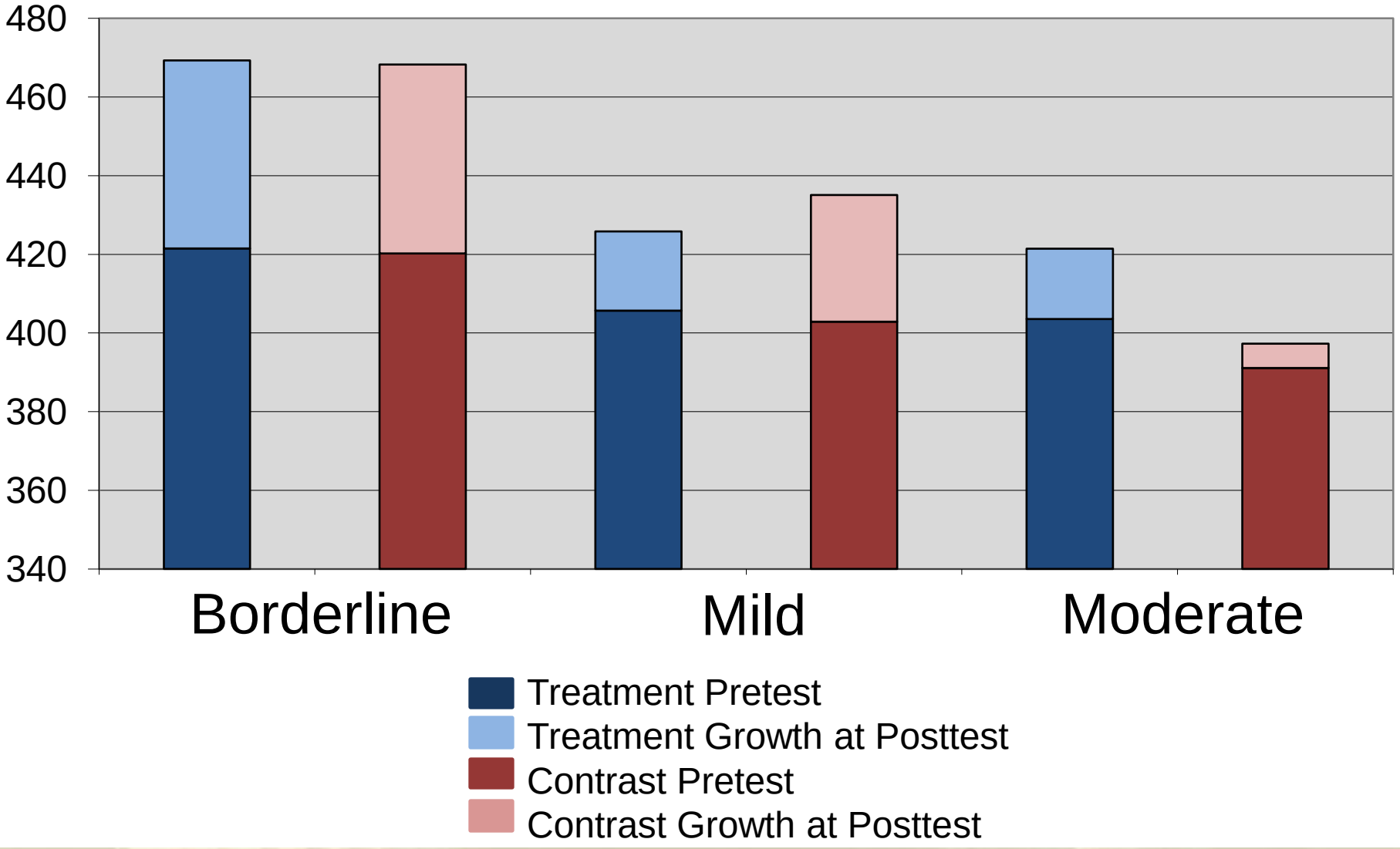
WLPB-R Letter-Word ID Test
Pretest and Posttest Mean Standard Scores



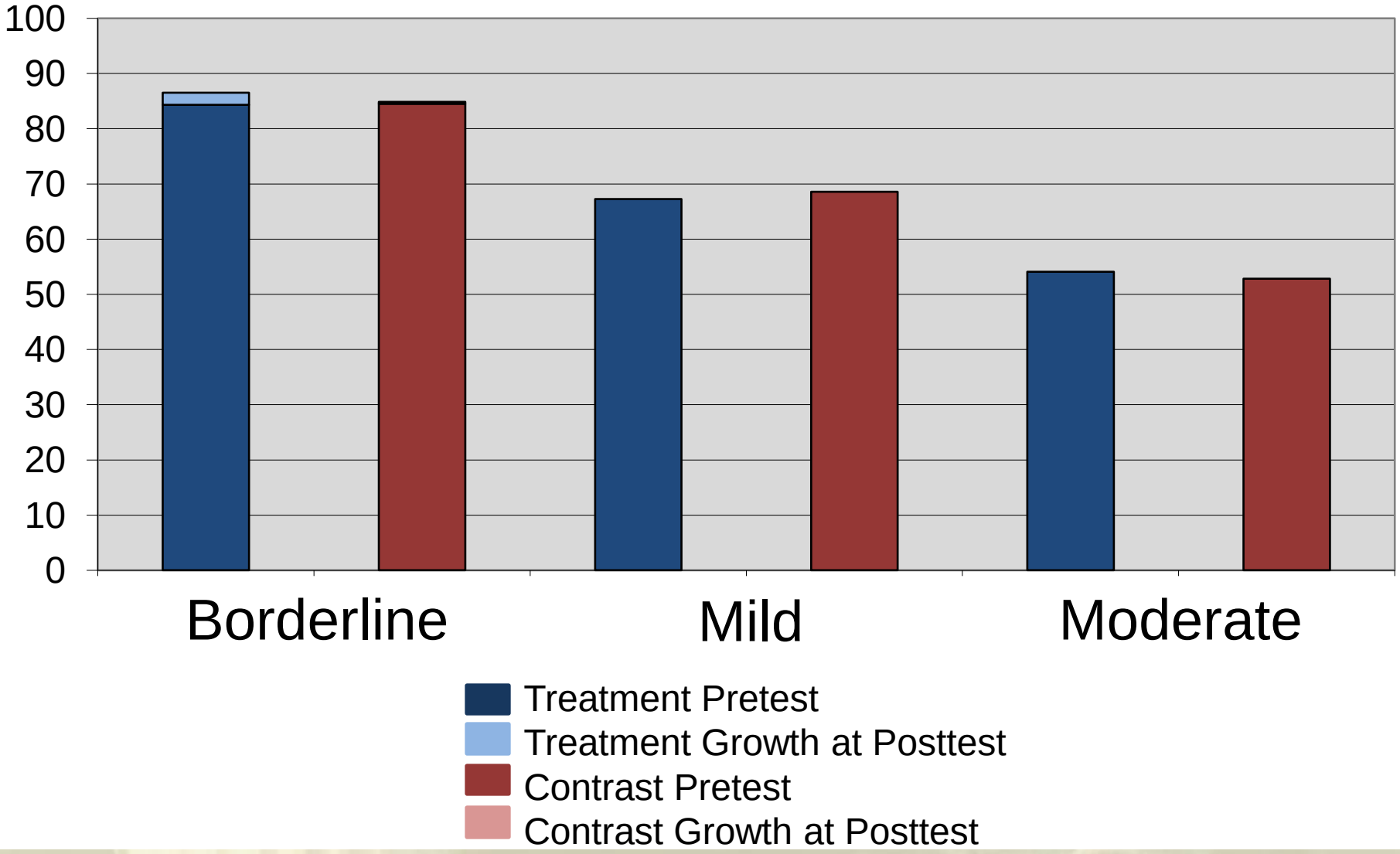
WLPB-R Word Attack Test
Pretest and Posttest Mean W Scores



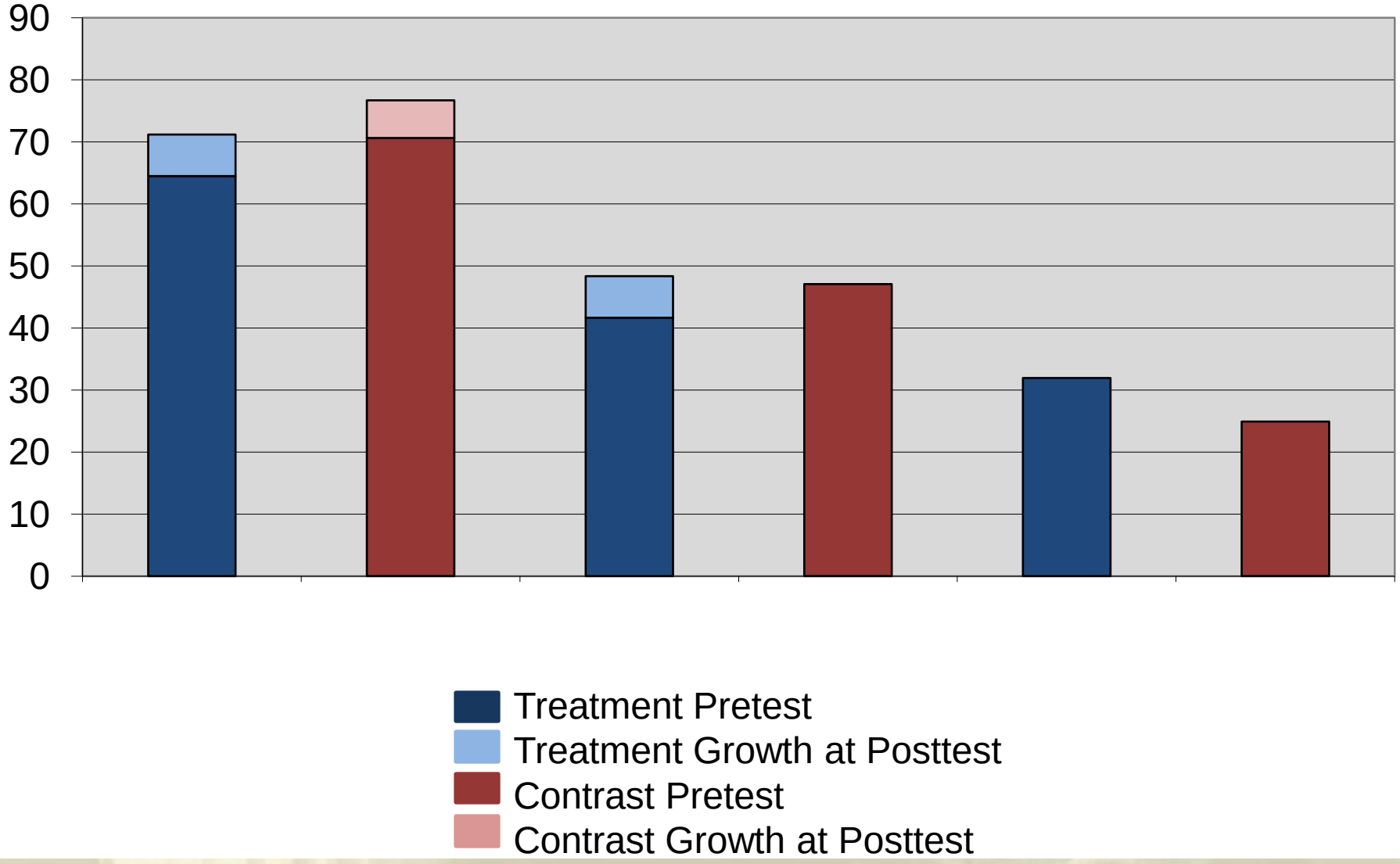
WLPB-R Passage Comprehension Test Pretest and Posttest Mean W Scores



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



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



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)

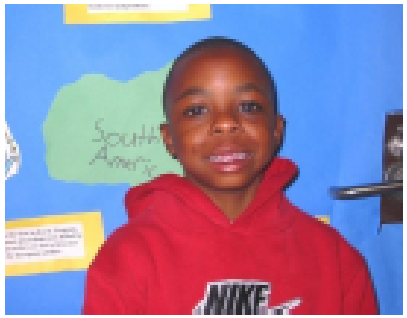
Results: Current Placement in the Curriculum (Spring 09)

- 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)

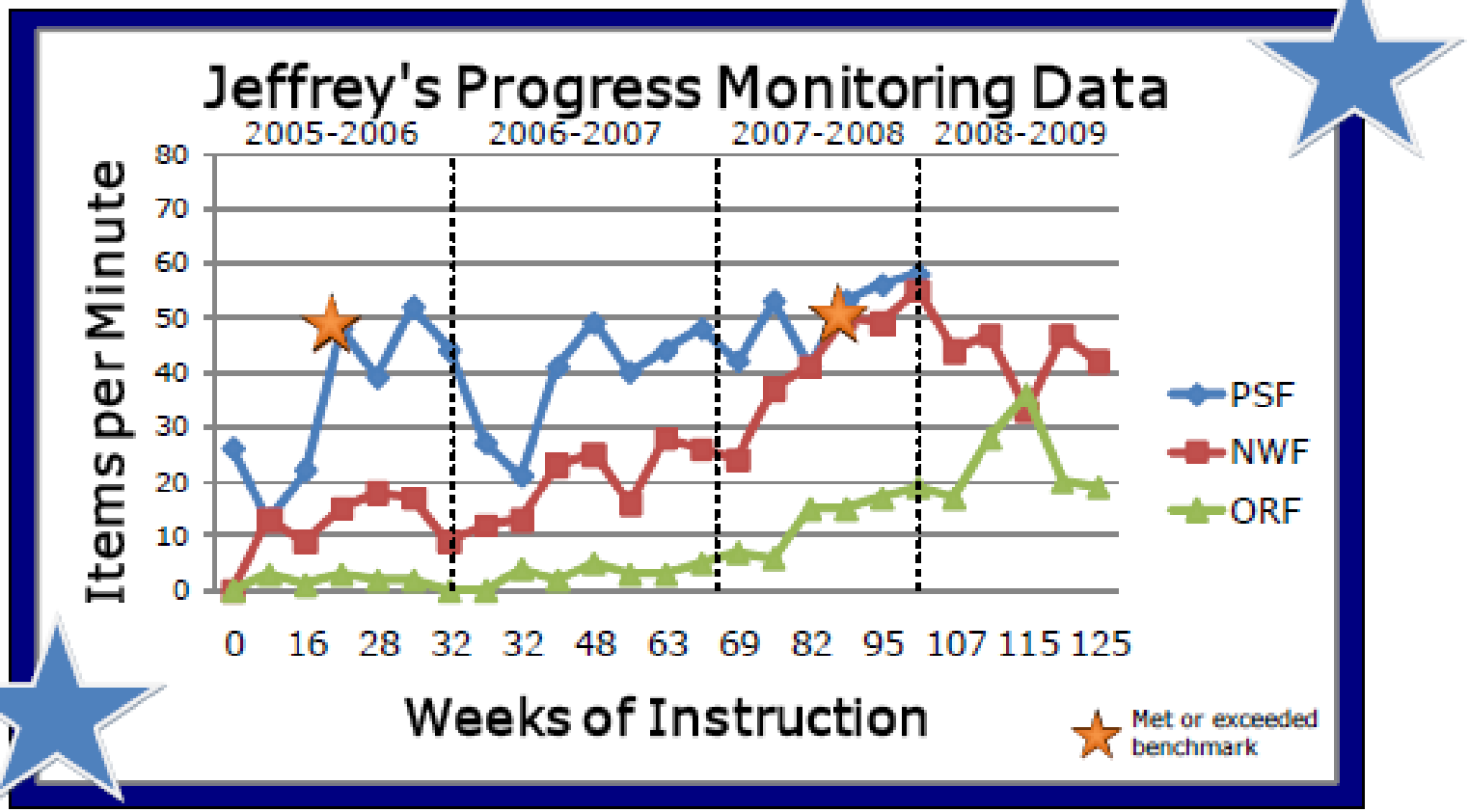
Halfway through Level One Students…

- 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 5th 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 Reade*rs by Rollanda O'Connor

Project Maximize

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