Using a Randomized Experiment for a Local Evaluation of the PCI Reading Program-Level One® Presenters: Megan Toby and Jenna Zacamy



Introduction.

This study is a randomized control trial (RCT) conducted in two Florida districts, Brevard and Miami-Dade County Public Schools, during the 2007-2008 school year. PCI Education sought rigorous evidence of the effectiveness of the PCI Reading Program - Level One for students with severe disabilities. For this experimental study, we randomly assigned teachers to two groups: a group trained on and using the PCI Reading Program - Level One (PCI group) and a control group using their existing reading program. As an initial study of this program, our goal was to determine whether or not *PCI* helps severely disabled students succeed in learning the specific skills on which it is focused.

Research Questions.

- Do students of teachers using PCI Reading learn to recognize sight words more successfully than students of teachers using the existing district reading programs for that population?
- Do students who score lower on the sight word or phonological pretests benefit more from PCI than students who score higher on the pretests?
- Do students in lower grades benefit more from *PCI* than those in higher grades?
- Do students of teachers with four or more years of special education teaching experience benefit more from PCI than those who have teachers with fewer than four years experience teaching special education?

Multiple Methods Approach.

Design:

- RCT with implementation observations and surveys
- Unit of randomization: Teacher
- Matched pair design with fair coin toss assignment
- Blocked by pairs of teachers
- Participants (#s used in final analysis): 20 schools, 40 classes, 35 teachers (20 PCI, 15 control), 128 students
- Non-verbal students, those with a perfect score on sight word pretest, and others who did not meet participation requirements were not included in the sample

Data Sources:

- Demographics for teachers and students
- Student pre- and post-intervention sight word test scores
- Phonological pretest data
- Teacher emails, surveys, training observation, and informal interviews
- Classroom observations

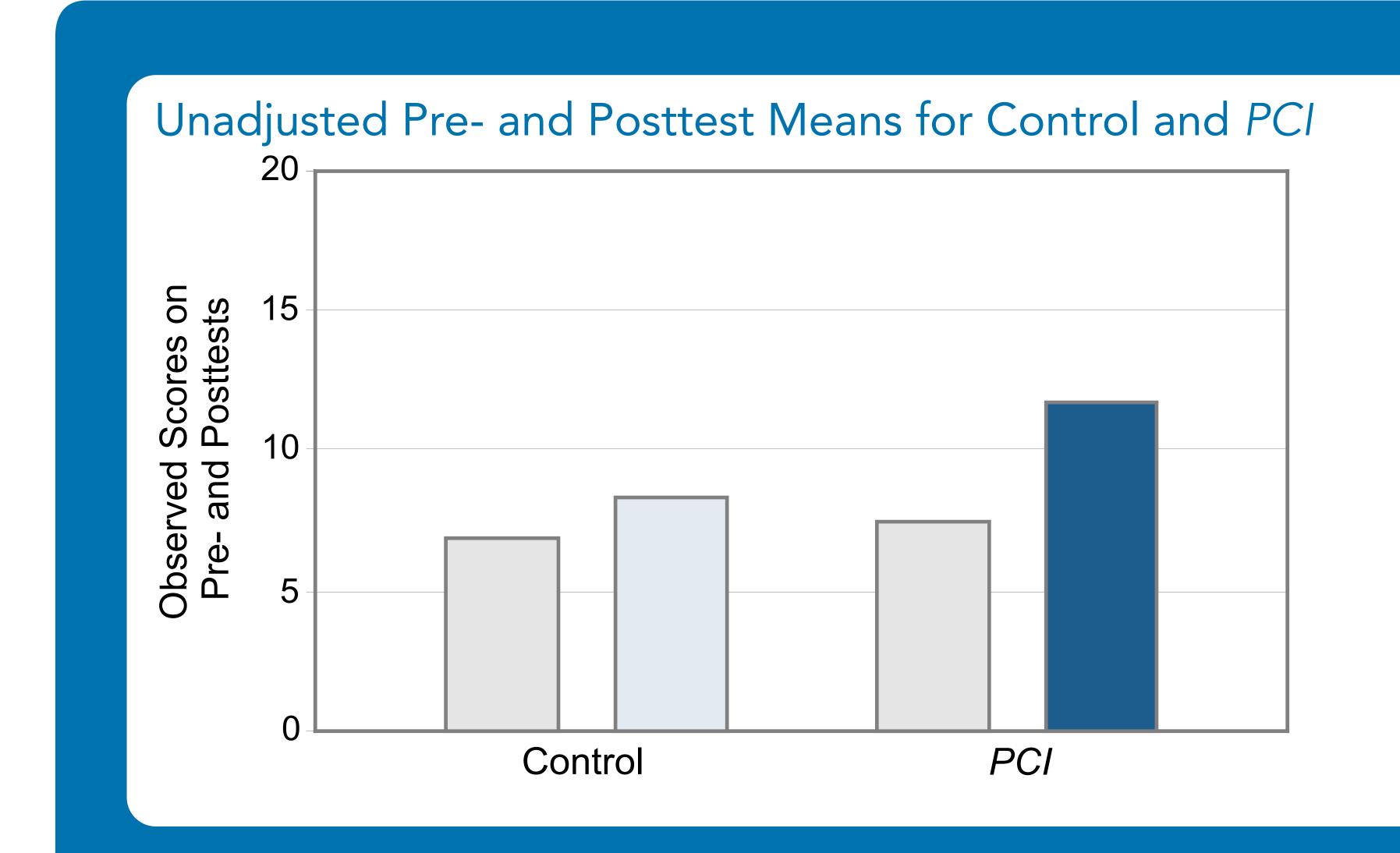
Analysis:

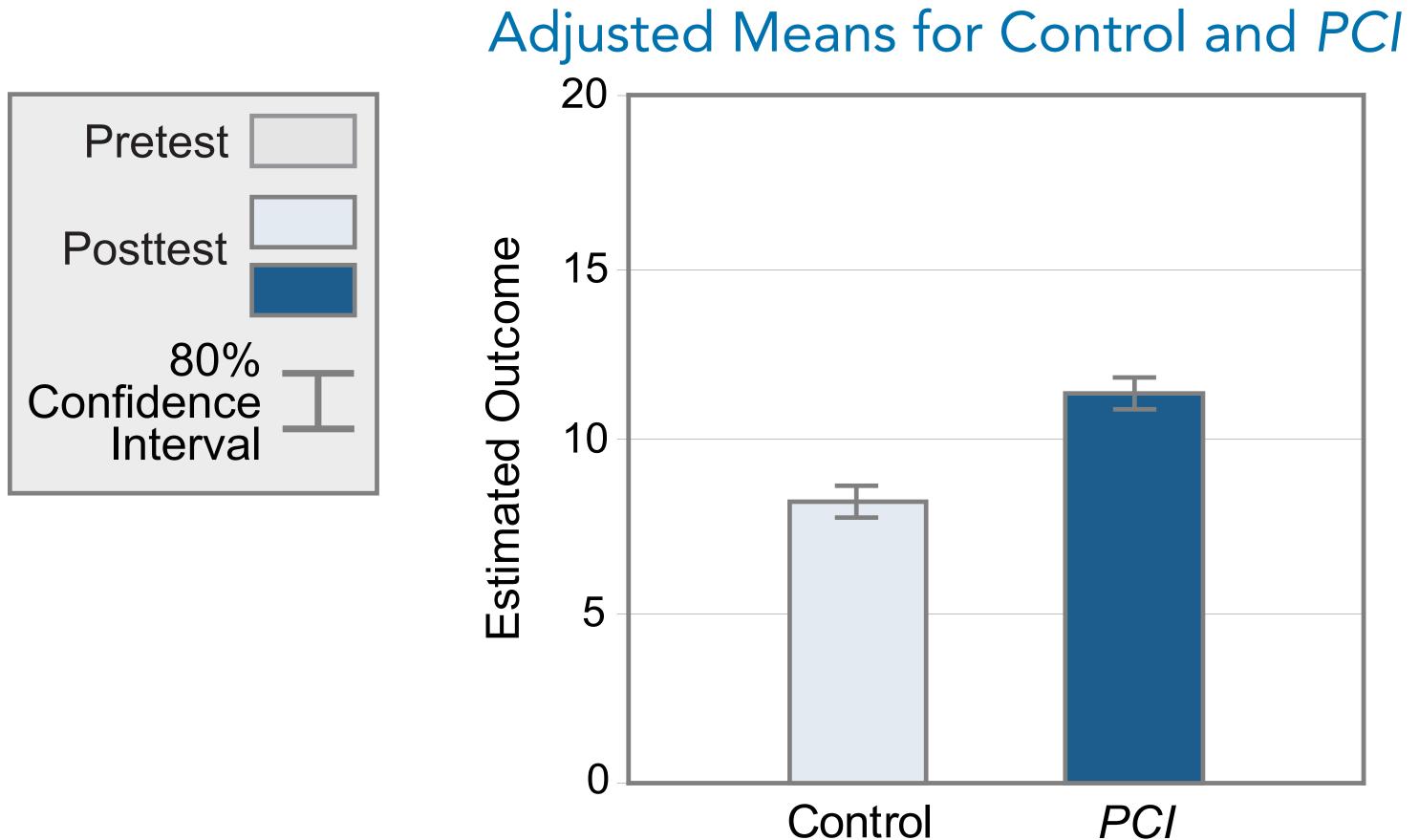
- Multi-level analysis (pretest is modeled to increase precision)
- Moderators: Student grade level, student performance on sight word pretest and phonological pretest, and teacher special education experience
- Sample divided into two groups. Separate analyses for: 1. Students who scored zero on sight word pretest
- 2. Students who scored above zero on sight word pretest We can reasonably assume that the second group understood the pretest.

Findings

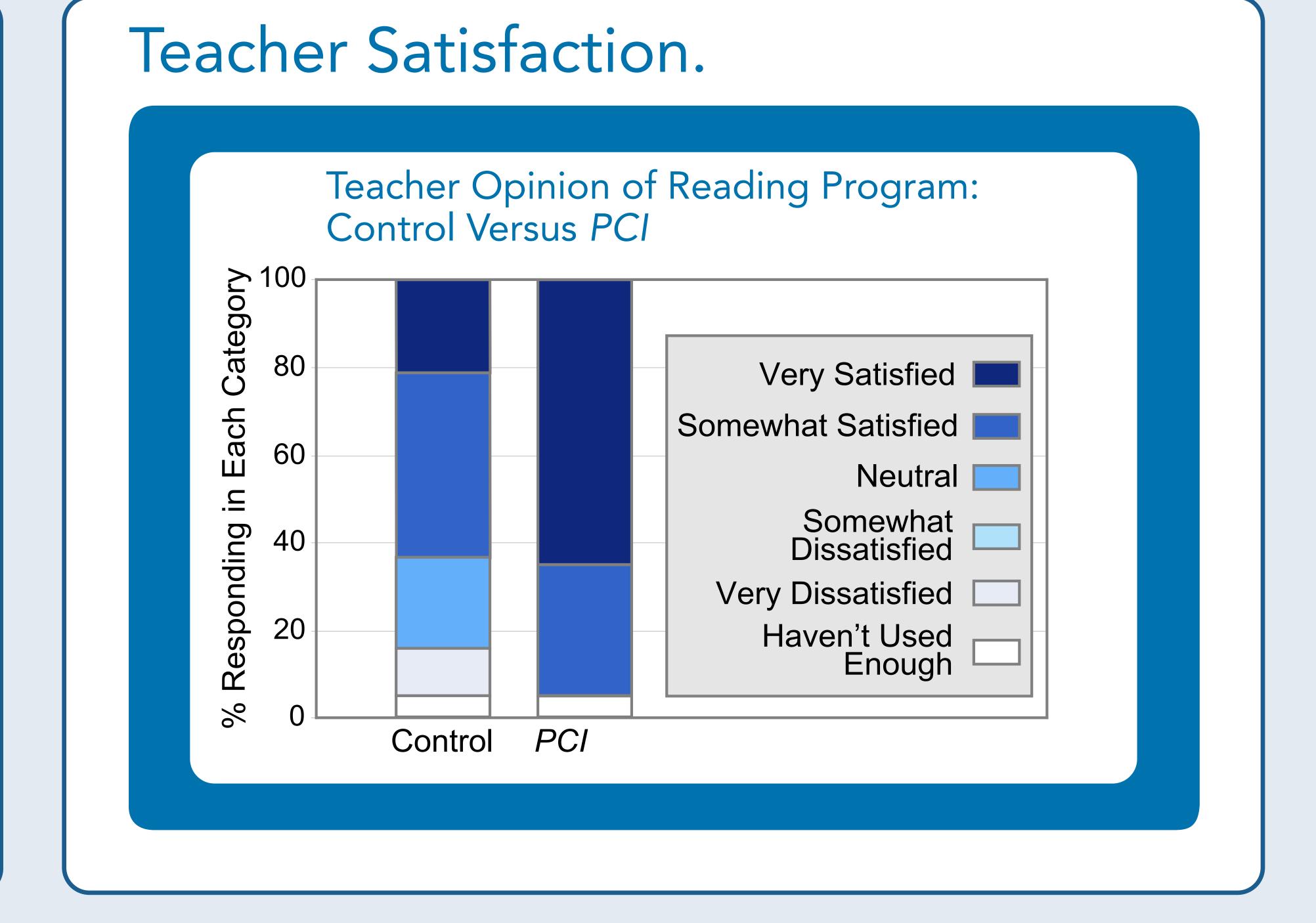
Main Impacts.

The results of this experiment showed that students in the PCI program had substantially greater success in learning sight words than students in the control group—a difference equivalent to a 21 percentile point improvement.





Moderating Effects. Impacts for Students in the Top Control and Bottom Quartiles of the PCI Phonological Test Confidence Interval Top Quartile **Bottom Quartile**



Control

Implementation Summary.

- All teachers in the *PCI* program received training and followed the *PCI* lesson cycle as specified by the publisher.
- PCI teachers reported full implementation of the program, meeting the publisher's minimum implementation compliance of 20 minutes per day, and most of the teachers supplemented the PCI program with other curricular materials.
- Teachers in the control group used a variety of materials for reading instruction.
- PCI teachers reported higher levels of student enjoyment, as well as general satisfaction with the program, than did teachers in the control group.

Intervention.

- PCI Reading Program Level One is a sight word based program designed to help nonreaders become successful readers. Developed specifically for students with developmental disabilities, autism, and significant learning disabilities, PCI is a mastery-based, individualized program where students can learn at their own pace. The program is also multisensory based, so students can use various cues and manipulatives to help them learn. The program aims to teach students 140 sight words and common nouns and verbs through visual discrimination.
- Minutes of daily instruction per student: Ideal instructional use=45 minutes/day Minimum use compliance=20 minutes/day

Cautions.

Assessment:

• Because the sight word outcome measure is closely aligned with the Level One program, this is an efficacy study in which we examine whether the program achieves its stated goals rather than whether PCI makes a difference in general reading

Attrition (Students: 33% overall, 19% differential):

- Teachers unable to attend training
- Students missing required parental consent and/or missing pretest scores
- We did not expect students without parental consent or those missing pretest scores to be selectively excluded at different rates from control vs. PCI
- The differences between conditions in 1) the proportion of students with posttests and 2) student achievement on pretest for students with both pre- and posttests were small and easily due to

Summary of Findings.

- The experiment was able to detect a 21 percentile point improvement in sight word scores for students in the *PCI* program.
- Separate analyses were conducted for those scoring zero on the pretest and those scoring above zero. We found a significant impact for *PCI* within each
- Students with higher scores on the phonological assessment benefit more from PCI than students who scored lower.
- The benefit of *PCI* is unrelated to student performance on the sight word pretest.
- The effect of *PCI* did not vary across grade level.
- The small number of teachers with fewer than four years experience teaching special education prevented us from examining moderating effects of teacher experience.

To request the full report of this experiment, visit www.empiricaleducation.com Toby, M., Ma, B., Jaciw, A., & Cabalo, J. (2008, October). The efficacy of PCI's Reading Program – Level One: A report of a randomized experiment in Brevard Public Schools and Miami Dade County Public Schools. (Empirical Education Rep. No. EEI_PCI-07100-FR1-Y1.O1). Palo Alto, CA: Empirical Education Inc.

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