

Comparative Effectiveness of PCI Education’s *PCI Reading Program*: Phase 2: A Report of a Comparison Group Study in Brevard Public Schools and Miami-Dade County Public Schools

Introduction. PCI Education sought scientifically based evidence on the comparative effectiveness of the *PCI Reading Program* through a five-year longitudinal study. Phase 1 of the study consisted of a randomized control trial studying the efficacy of the *PCI Reading Program- Level One* that was conducted in the 2007-2008 in Miami-Dade County Public Schools and Brevard Public Schools with supported level students in grades 3–8 and their teachers. This report presents the findings from Phase 2, which studied the efficacy of the *PCI Reading Program- Level One and Level Two*. Phase 2 was built upon the Phase 1 RCT and was conducted in the 2008-2009 school year in the same two Florida school districts with the same population of students and teachers as Phase 1. The specific questions addressed in Phase 2 were whether students whose teachers used *PCI* achieved (1) higher sight word reading scores and (2) higher phonological assessment scores than students whose teachers used their existing reading programs. PCI Education was also interested in whether the program’s impact on sight word recognition was mediated by the amount of time teachers spend teaching those skills. Additionally, we investigated whether effects of *PCI* differed for specific subgroups of students: those who scored lower on sight word or phonological pretest, those in lower or higher grades, those who had teachers with more experience teaching Special Education, autistic students, and students who were English Language Learners. As an initial research base for the *PCI Reading Program*, this efficacy study was designed to determine whether students who are exposed to *PCI* learned more of the specific sight words taught in the program than students who were not exposed to the program.

Teachers who participated in Phase 1 were asked to use the program in Phase 2. We also tracked the students who had been exposed to *PCI* in Phase 1 and asked their Phase 2 teachers to use the program. We recruited additional teachers, who used their existing reading program and served as the comparison group. We were therefore able to extend the Phase 1 experimental design and analysis to use a matched quasi-experimental design as well as use an extra-experimental approach to estimate the impact of *PCI* after two years. The latter method used the first year gains of the *PCI* group to estimate the two-year impact given the former control group received *PCI* in Phase 2.

Findings. In both the quasi-experimental and extra-experimental approaches to estimating the two-year impact of *PCI*, we found that students in the *PCI* classrooms achieved significantly higher scores on the sight word assessment than students who were not exposed to the program. The difference found in the quasi-experiment (adjusted effect size of 0.89 with a .06 *p* value) was equivalent to a difference of 31 percentile points, and the difference found in the extra-experimental approach (adjusted effect size of 0.98 with a *p* value of .02) was equivalent to a difference of 34 percentile points. With a second year of exposure to the program, we found that students continue to improve their sight word recognition and that the effect of *PCI* was larger after two years than it was after one year. We did not report the impact of *PCI* on phonological skills because very few students progressed to *Level Two*- the program level in which phonological skills are introduced. Additionally, because we did not collect individual student usage data, we were not able to examine whether the impact of *PCI* on sight word recognition was mediated by the amount of time teachers spent teaching those skills.

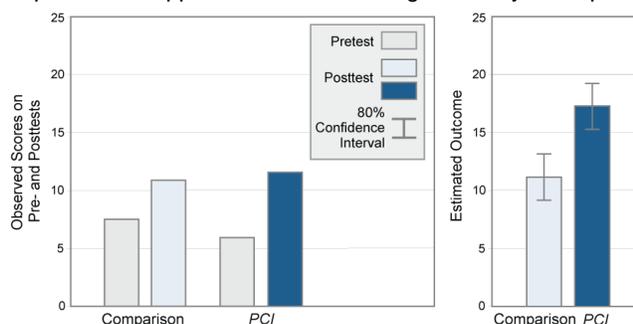


Figure 1. Impact on Sight Word Recognition Using Quasi-Experimental Approach: Unadjusted Pre- and Posttest Means for Comparison and *PCI* (Left); Adjusted Means for Comparison and *PCI* (Right)

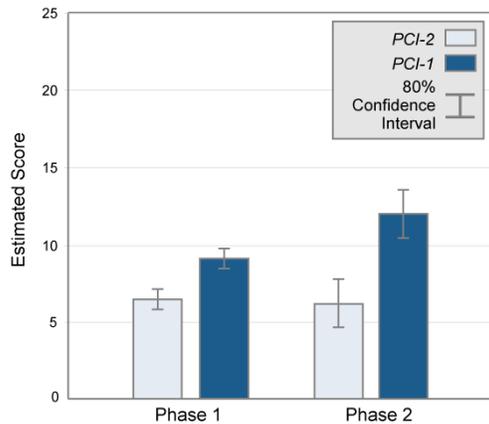


Figure 2. Impact on Sight Word Recognition Using Extra-Experimental Approach: Year 1 Impact (Left); Year 2 Impact (Right)

When examining moderator effects using the quasi-experimental approach, we found that the sight word pre-assessment was not a significant moderator of the impact on sight word post-assessment scores. We have strong confidence that students whose teachers have more than four years of Special Education teaching experience benefit more from *PCI* than students with teachers who have fewer than four years of Special Education teaching experience. Due to the sample size and imbalance between the two groups on the phonological pre-assessment, these were the only moderators we were able to examine with this approach.

Using the extra-experimental approach, we were able to examine the moderator effects of the sight word and phonological pre-assessment and teachers' years of teaching Special Education. While we found no significant moderating effects, it is important to note that these analyses may be underpowered, given the small sample sizes in the program and control groups, and deserve additional exploration.

Overall Teacher Impressions. Qualitative data obtained from surveys, observations, and informal interviews show that, as in Phase 1, teachers were very satisfied and students were highly engaged with the program. Almost all of the teachers in the *PCI* group reported that they would continue to use the program after the study is over. Both teachers and administrators were encouraged that *PCI* fulfilled the need for a reading program specifically designed for this population of students. However, teachers reported that the primary difficulty in implementing the program was finding the time for the individualized instruction components of the program. Many teachers in the *PCI* group also reported using additional, supplemental reading materials. Moreover, student progress through the program was much slower than expected by the program developers—only half of the students learned more than 20 words.

Design and Analysis. The study used a matched quasi-experimental design, comparing assessment scores of 26 students who had received exposure to *PCI* for two years to 51 students who had received no exposure to *PCI*. We also used an extra-experimental method to estimate the two-year impact of *PCI*, which compared scores of 28 *PCI* students who were part of the randomized *PCI* group in Phase 1 to scores of 12 Phase 1 control group students who used *PCI* in Phase 2. Multi-level analysis (hierarchical linear modeling) was used to estimate the program impact and the moderating effect of relevant variables. It takes into account the hierarchical nature of the data where student data were grouped within teachers. Information on student and teacher background characteristics as well as program implementation was gathered through online surveys, observations, and teacher interviews. The impact estimates were adjusted for any chance imbalances on relevant characteristics about students and teachers between the two groups. The two complimentary methods produced consistent impact estimates which provided us with convergent validity and greater confidence in our results.

Conclusion. This study provides evidence of the efficacy of the *PCI Reading Program*. The significantly large impact after two years found in both analytic approaches and high levels of teacher satisfaction with the program provides useful information for school districts looking for a reading program for severely disabled students. However, as we continue our research of the *PCI Reading Program* in both districts over the next three years, it will be equally important to examine why student progress is slower than expected.

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