

Corrective Math Evidence of Effectiveness

Two U.S.-based studies demonstrate the effectiveness of Corrective Mathematics in improving the performance of secondary-grade students in mathematics:

Study #1: Flores, M., & Kaylor, M. (2007). "The effects of a Direct Instruction program on the fraction performance of middle school students at-risk for failure in mathematics." *Journal of Instructional Psychology*, 34(2), 84-94.

This study used a Pretest-Posttest design to examine the effects of the Basic Fractions module of Corrective Mathematic on 30 seventh-grade students (ages ranging from 12 to 14 years) at-risk for failure in mathematics from a culturally and linguistically diverse school in a rural district outside of a large southwestern U.S. city. Students were divided into three classes, each with 10-12 students. Instruction lasted seven weeks and covered 14 lessons. The course was an elective, taken in addition to the students' regular seventh grade math course. Each class period lasted 50 minutes, with the first 20 minutes devoted to review, and the remaining time spent on either instruction with the Direct Instruction program or the traditional program. Students were divided into two groups and would alternate the form of instruction based on the day of the week. Fidelity was monitored and the authors reported procedural fidelity at 90%. Students' knowledge of fractions was tested before starting the program (pretest) and after finishing the program (posttest) with a curriculum-based assessment.

Results indicated the intervention had a strong positive effect, with statistically significant differences between pre-test and post-test scores on both the total measure and the measures of individual skills. The mean performance on the pre-test was 20%, with scores ranging from 0-57%. The mean performance on post-test was 77% with scores ranging from 36-100%. Only three students scored below 75% correct on the post-test.

Study #2: Parsons, J., Marchand-Martella, N., Waldron-Soler, K., Martella, R., & Lignugaris/Kraft, B. (2004). "Effects of a high school-based peer-delivered Corrective Mathematics program." *Journal of Direct Instruction*, 4(1), 95-103.

This study was designed to investigate the effects of the Corrective Mathematics program on 10 high school students and their peers in grades 10 to 12 from a suburban high school in the Pacific Northwest of the U.S. when the instruction was provided by their peers. Nine peer tutors instructed the learners as individuals or in groups of two five days a week for 80 minutes each day over a period of 10 weeks. Both the learners and the peer tutors were tested before and after implementation with the Woodcock-Johnson—Revised Tests of Achievement (WJ-R ACH) Calculation and Applied Problems subtests. Results indicated that the learners and the peer tutors had higher scores on both subtests of the WJ-R ACH after 10 weeks. The associated effect sizes

ranged from .59 to 1.30. Although the sample size was relatively small, three of the four changes were statistically significant.