

Research: The Punctuation Strategy

Overview

The Punctuation Strategies CD is a computerized program for teaching students to apply most of the punctuation rules. Commas rules are not covered in this program. (They are covered in the Commas Strategies CD.) This study was conducted with students with learning disabilities, including 52 middle-school students and 36 high-school students. A pretest-posttest control-group design was employed, with students randomly assigned to the experimental or control group. Students worked through the interactive computerized program independently. They took quizzes at various points during the program, which were scored by the teacher. They had to reach the mastery criterion in order to be allowed to progress to the next lesson or next portion of a lesson within the program.

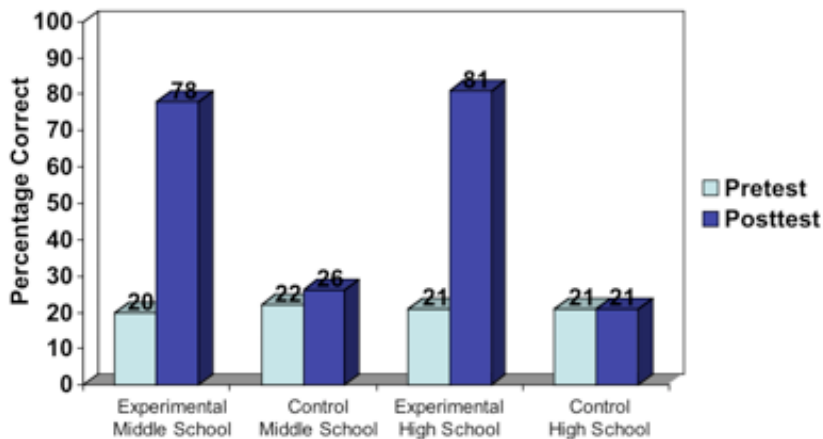
Results

Two tests were used. In one, students were required to insert punctuation marks into sentences where punctuation marks had been omitted. In the other test, students were required to demonstrate the use of the punctuation rules in their own writing. On the pretest where students had to insert punctuation marks, the whole group of experimental students correctly inserted 20% of the punctuation marks, and the whole group of control students correctly inserted 22% of the punctuation marks. On the posttest, the whole group of experimental students correctly inserted 79% of the punctuation marks and the whole group of control students correctly inserted 24% of the punctuation marks. The experimental students' results compared favorably to the results of same-age comparison students without disabilities who inserted 28% of the punctuation marks correctly without instruction.

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The results of an Analysis of Covariance using the pretest scores as the covariate indicated that there was a significant difference between the posttest scores of the two groups [$F(1, 83) = 341.7, p < .0005$], in favor of the experimental group. The effect size between the groups (partial eta squared) was .805, representing a very large effect size. No differences were found between the middle-school and high-school students' results. (See Figure 1 for the middle-school and high-school students' results.)

Figure 1: Correcting Punctuation Errors

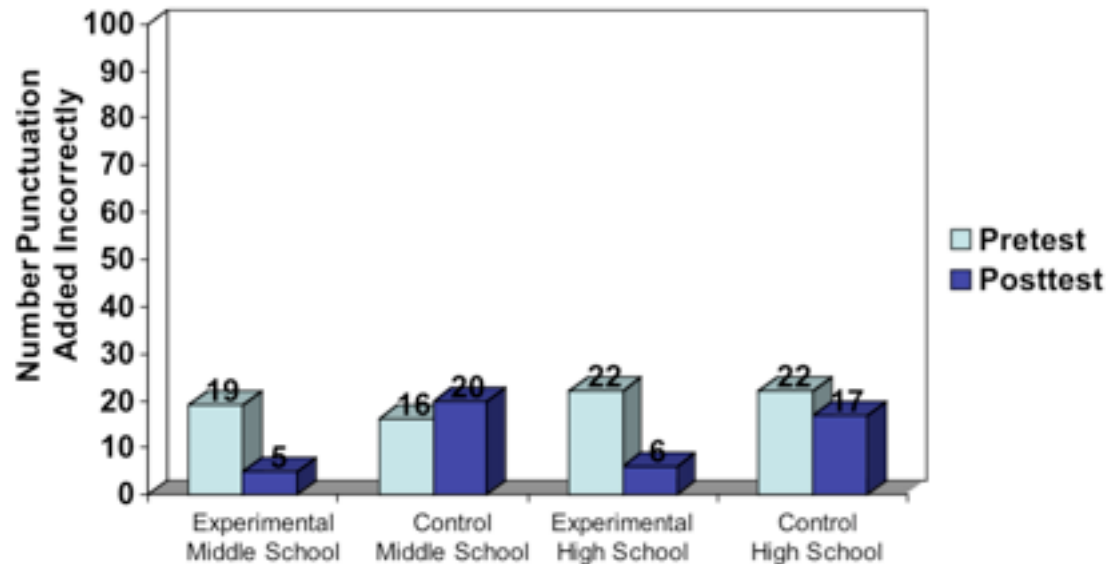


With regard to the number of punctuation marks the students inserted incorrectly, the whole group of experimental students inserted a mean of 20 marks on the pretest and 5 on the posttest. The whole group of control students inserted a mean of 19 marks incorrectly on the pretest and 19 marks on the posttest. An ANCOVA revealed a significant difference between the two groups' posttest scores [$F(1, 83) = 64.0, p < .0005$], in favor of the experimental group. The effect size between the groups (partial eta squared) was .435, representing a very large effect size. No differences were found between the middle-school and high-school students' results. (See Figure 2 for the results for middle-school and high-school students.)

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On a test of student use of the strategies where students demonstrated their use of punctuation marks in their own writing, the whole group of experimental students earned an average of 19% of the points available on the pretest and 89% of the points on the posttest. The whole group of control students earned an average of 11% and 19% of the points on the pretest and posttest, respectively. An ANCOVA revealed a significant difference between the groups' posttest scores [$F(1, 83) = 679.3, p < .0005$], in favor of the experimental group. The effect size (partial eta squared) was .891, representing a large effect size. No differences were found between the middle-school and high-school students' scores on this measure. (See Figure 3 for the results for the middle-school and high-school students.)

Figure 2: Number of Punctuation Marks Added Incorrectly



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Conclusions

The Punctuation Strategies CD program is an effective means of teaching punctuation strategies to students. All students reached mastery on all the lessons in the program. Experimental students' use of the strategies increased from pretest to posttest, and their posttest scores far exceeded the scores of a same-age comparison group of students without LD. Experimental students' posttest scores were significantly different from the posttest scores of the control students after the pretest scores were used as a covariate. Effect sizes were very large across the measures. Since no differences were found between middle-school and high-school students' scores, the program appears to be equally effective for students at both school levels.

Reference

Schumaker, J. B., & Walsh, L. (2009). Effects of a hypermedia program on the punctuation and capitalization skills of students with learning disabilities. Phase II Final report for SBIR Grant #5 R44 HD043618-03.

Figure 3: Percentage of Points Earned when Writing Sentences to Demonstrate Punctuation Use

