

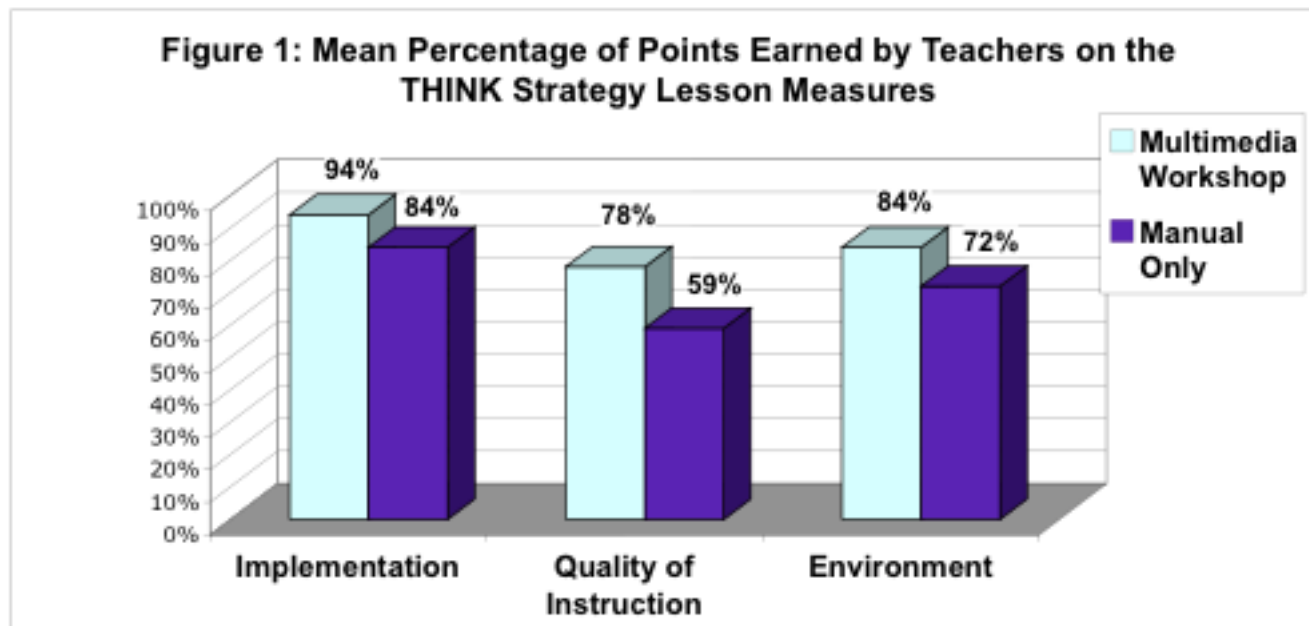
# Research: The THINK Strategy PD CD Program

## Overview

The THINK Strategy is used by cooperative groups to solve complex problems. The research was conducted in 16 fifth-grade general education classes. The sixteen teachers of these classes were randomly assigned to one of three groups. Five teachers independently worked through this CD program (hereafter referred to as the "multimedia workshop" group) to learn how to provide instruction in the THINK Strategy. They taught a total of 139 students the strategy. Six teachers simply read the instructor's manual for the THINK Strategy and taught the strategy to their 123 students. They will hereafter be referred to as the "manual-only" group. Five additional teachers and their 92 students served as comparison classes. The comparison teachers did not teach the THINK Strategy to their students.

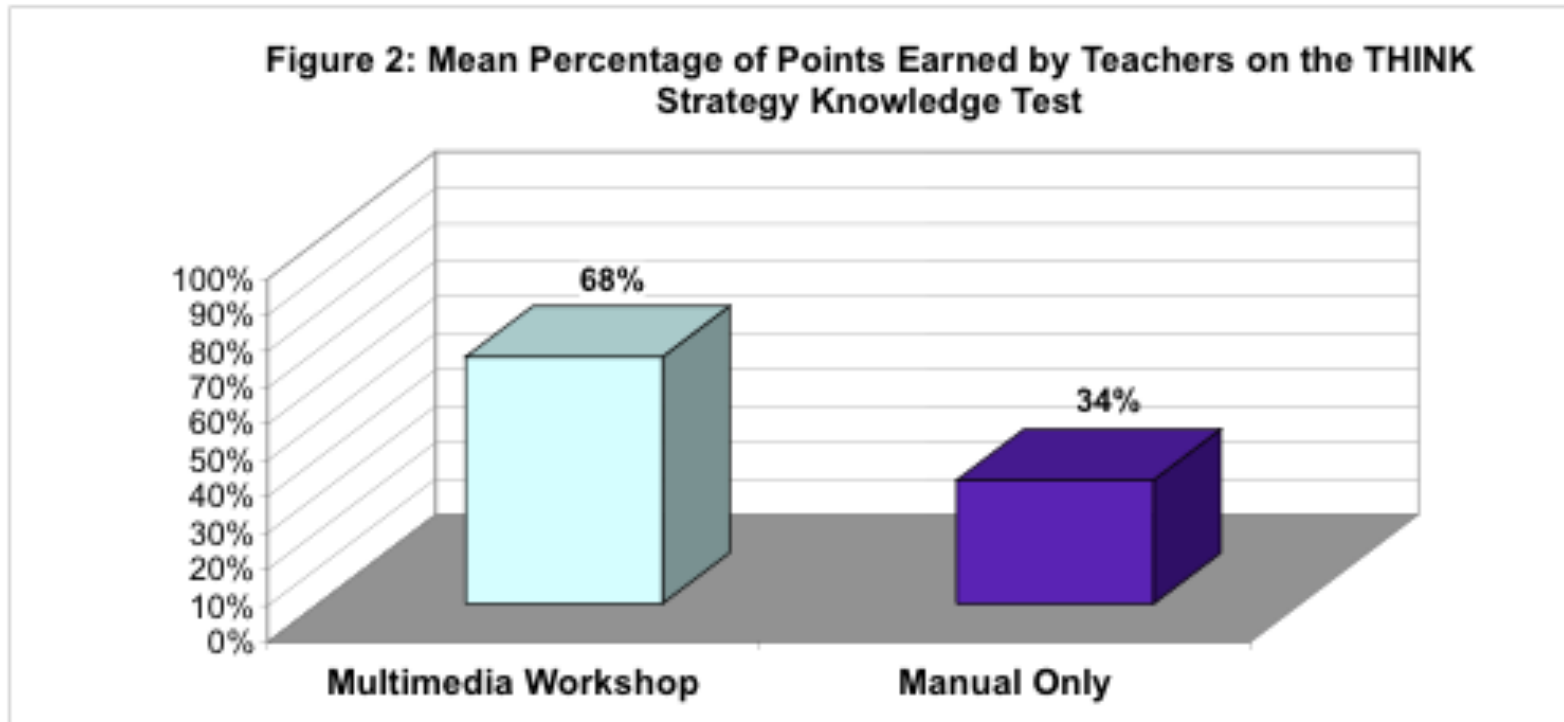
## Results

Measures were gathered on the fidelity of the multimedia-workshop teachers' and manual-only teachers' implementation of the instruction, their quality of instruction, and the quality of the instructional environment they created. The results are shown in Figure 1. Statistical analyses revealed a significant difference between the two groups on the implementation measure,  $t(5) = 2.648$   $p = .046$ , and on the quality of instruction measure,  $t(10) = -2.565$   $p < .0286$ , in favor of the multimedia group in both cases. There was no difference between the environments created by the teachers.



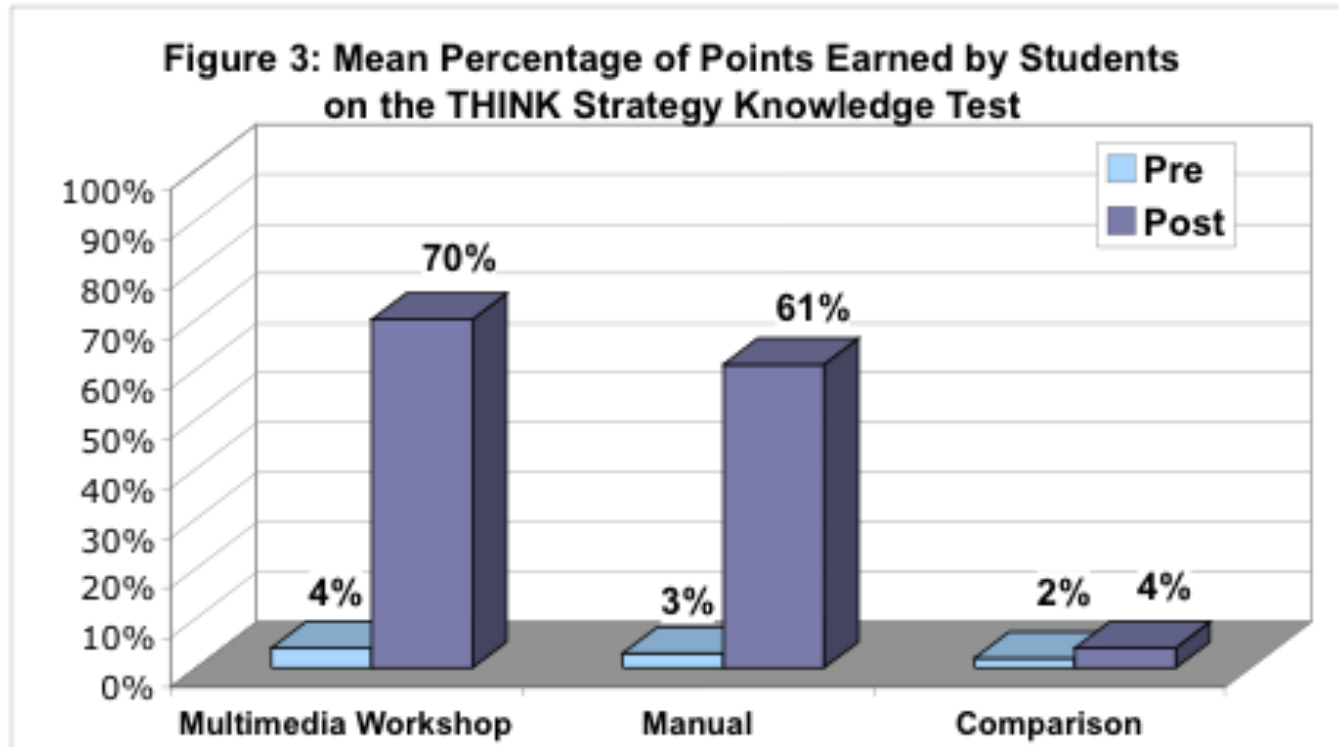
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Figure 2 displays the mean percentage scores that the two groups of experimental teachers earned on a test of their knowledge of the instructional methods and the strategy. This test contained open-ended questions requiring written answers. A t-test for independent groups revealed a significant difference in favor of the multimedia workshop group,  $t(10) = -3.899$ ,  $p < .003$ .



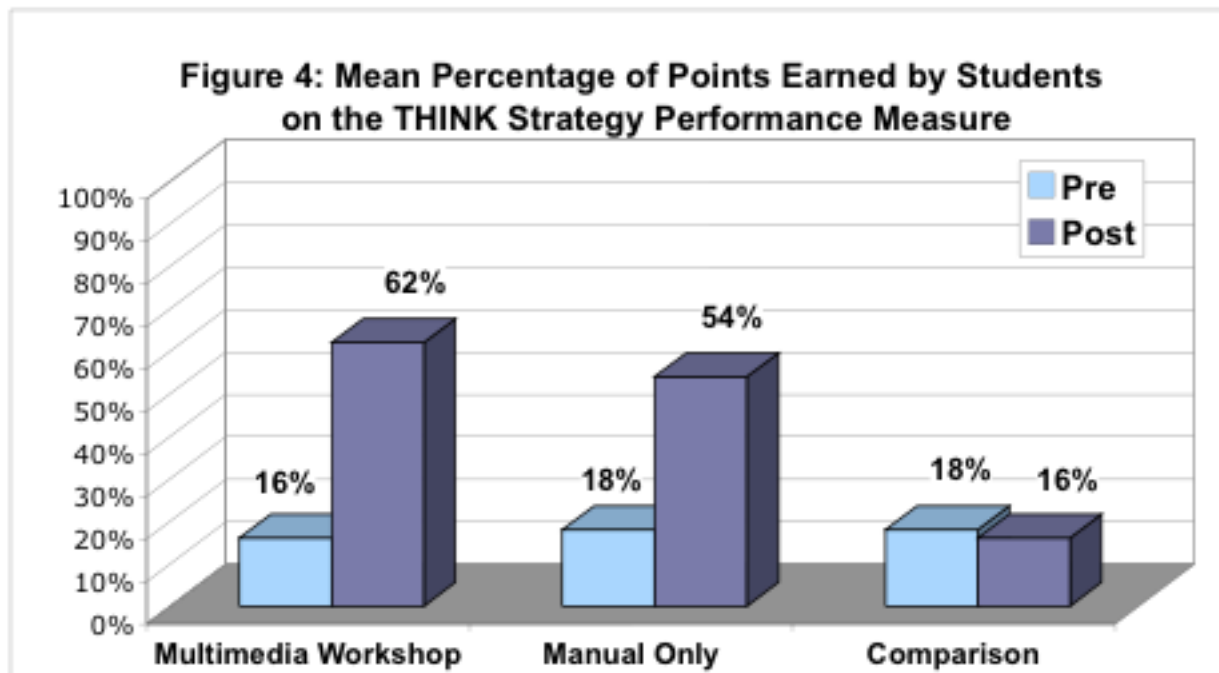
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Figure 3 displays the mean percentage scores earned by students of the three groups of teachers on a written test of the students' knowledge of the THINK Strategy. The data were analyzed comparing the three groups of students' raw posttest scores while controlling for the pretest scores. The results showed that the adjusted mean scores on the posttests were significantly different,  $F(2, 14) = 44.150, p < .000, \eta^2 = .863$ . Follow-up comparison tests revealed significant differences between the posttest scores of the comparison and the multimedia-workshop groups,  $p = .000$ , and of the comparison and the manual-only groups,  $p = .000$ . The posttest scores of the multimedia-workshop group and the manual-only group were not statistically different from each other.



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Figure 4 displays the mean percentage of points earned by the students as they used the THINK Strategy in cooperative groups in their classrooms to complete assignments related to solving problems. The performance data were analyzed comparing the three groups of students' raw posttest scores while controlling for the pretest scores. The results showed that the adjusted mean scores on the posttests were significantly different,  $F(2, 14) = 16.200, p = .000, \eta^2 = .5698$ . Follow-up comparison tests revealed significant differences between the posttest scores of the students in the comparison and the multimedia-workshop groups,  $p = .003$ , and between students in the comparison and the manual-only groups,  $p = .012$ . The posttest scores of students in the multimedia-workshop group and the manual-only group were not statistically different from each other.



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## Conclusions

These results show that the Professional Development CD Program is effective in instructing teachers in how to teach the THINK Strategy to students. The levels of implementation and quality of instruction of the teachers who used the CD program were significantly higher than those created by teachers who only read the instructor's manual. In addition, the teachers who used the CD program demonstrated significantly more knowledge about the program than the manual-only teachers. Although there were no significant differences between the two groups of experimental students, the students of the teachers who used the CD program performed better than the students of the manual-only students on both measures. Both groups of experimental students performed significantly and substantially better than the comparison students on both measures. Thus, not only is the CD program effective with teachers, the instructional program associated with the THINK Strategy is effective in producing student change.

## Reference

Vernon, D.S. (2001). *Effects of a professional development software program for the THINK Strategy: Progress Report*. SBIR Phase II #R44HD36139. Washington, D.C.: National Institute of Child Health and Human Development.