

James, H.(2001) *An examination of the relative effectiveness of step-by-step explicit instruction and transitional/basal instruction in teaching arithmetic story problems to middle school students with mild disabilities*. Unpublished doctoral dissertation, Auburn University.

DISSERTATION ABSTRACT

The method of teaching arithmetic story problems to students with mild disabilities could make a significant difference to their performance in this area. Two different methods of teaching arithmetic problems to a group of middle-school students with mild mental retardation were examined. One group was taught using a step-by-step explicit approach derived from direct instruction methods. The second group was taught by a traditional/basal approach based on methods regularly employed in Public School classes.

Data from 35 students, divided into 4 intact groups, were processed. Eighteen students received the traditional/basal method, while 17 students received the step-by-step explicit method. A pretest was given to establish baseline data, and 5 tests (three weekly tests, a posttest, and a maintenance test) were administered to provide data for analysis of student performance on the two teaching approaches.

Results of ANCOVA, with covariate pretest, indicated that students who received the traditional/basal approach scored significantly higher than students receiving the step-by-step approach, on weekly test 1, weekly test 2, and the posttest. On weekly test 3, and the maintenance test there was no significant difference between the treatment groups. Error analysis showed that translation errors (choosing the wrong arithmetic operation for the problem equation) were most frequent for both groups. Students attitudes to the problem solving process did not differ significantly for the groups, and can generally be described as positive.

The lack of more favorable results for the step-by-step explicit one of the problems of intact groups in educational research. The error analysis indicates the need for strategy instruction in selecting the correct arithmetic operation when solving arithmetic story problems. In general students tended to show greater interest in arithmetic story problem solving when teachers regularly and

consistently focused on the process. It appeared to be due to initial group differences that persisted even after the introduction of a covariate. This seems to be