

Article Critique  
EDT 660

Your Name

Tournaki, N. (2003). The differential effects of teaching addition through strategy instruction versus drill and practice to students with and without learning disabilities. *Journal of Learning Disabilities, 36*, 449-558.

**I. Statement of the Problem**

a. Research Topic

In this article, Tournaki identifies the research topic in her first sentence “When a basic arithmetic fact is executed without conscious monitoring and attention, it is considered to have become automatic.”

b. Research Problem

Tournaki narrows the research topic by identifying the research problem through the first 2 paragraphs. She justifies the study of the problem by noting that “Researchers have maintained that teaching children different strategies can help the learning and retention not only of higher order concepts and problems, but even of the basic addition facts.” She continues to state the purpose at the end of the 4<sup>th</sup> paragraph, “...in the present study, the minimum addend strategy was taught to students with and without LD in order to determine its effects on each group’s math performance.”

Tournaki makes the problem and purpose of the study very clear and no inference is required on the reader’s part. She notes the deficiencies in the existing evidence by pointing out that “none of them{studies}directly compared the performance of students with and without LD when taught through two different teaching methods, as is done in the present study.”

### c. Research Questions/Hypotheses

Tournaki poses 2 research hypotheses in the 5<sup>th</sup> paragraph including:

“students without LD will perform significantly higher than students with LD”

“all students, with and without LD, will perform significantly higher when taught through strategy instruction than through drill and practice.”

A final research question is addressed, although posed as a statement:

“a near transfer task was given to students immediately after the posttest in order to detect differences resulting from either method of instruction or student characteristics.”

The hypotheses make clear Tournaki intends to compare students with and without LD in math performance as she notes earlier in her research problem.

## II. Review of the Literature

In her review of the literature, Tournaki makes several important points. First, She addresses earlier research that found LD students benefited from drill and practice in her 1<sup>st</sup> and 2<sup>nd</sup> paragraphs. In the 3<sup>rd</sup> paragraph, she move on to a discussion of strategies that students have used successfully in solving addition problems. She identifies the minimum addend strategy as the most effective. She further notes that students with LD may not learn this strategy without specific instruction. She then reviews 3 studies that compared the effects of teaching different strategies for solving math problems to students. She concludes her review by noting that none of the studies reviewed have specifically addressed the comparisons she makes in her study.

Overall, Tournaki’s review of the literature was sufficient to establish the purpose of the study and to justify it. She also refers back to the literature in her Discussion section noting how her results support prior research.

### **III. Methods**

The methods begin with a Participants section which outlines the number of students involved, geographical area, and label (LD or not LD). It also provides the ethnic/racial percentages as well as the percentage receiving free lunch. Also important, the mean chronological age was given and evidence of the LD students' problems in achievement. This information made clear who were the participants. The exact sampling method was not given.

The materials used in the intervention and the dependent variables were described (posttest and transfer test). A pretest which was used as a control variable and was also described adequately.

Procedures were outlined for each step of the study and were adequately described such that one could replicate the study. Of some confusion was the use of a latency measure (how long it took the students to finish the pretest) for participant selection and in the posttest analysis. This was not mentioned specifically in the hypotheses although it does relate to the automaticity noted in the literature review. ANCOVAs were used which are appropriate statistical tests for comparing 3 or more groups on more than 1 dependent variable when a control variable is used.

### **IV. Results and Discussion**

The results are explained in text and in tables. They do address the hypotheses. The first hypothesis was "students without LD will perform significantly higher than students with LD". Results indicated that students without LD performed better than students without LD. The second hypothesis was "all students, with and without LD, will perform significantly higher when taught through strategy instruction than through