

**“A Critique of Butyniec-Thomas and Woloshyn’s Study of Explicit-
Strategy and Whole-Language Spelling Instruction Methods”**

**Rob Power
MUN ID: 9236571**

**Education 6100: Research Designs and Methods in Education
Assignment #1
Date Posted: October 21, 2002**

Table of Contents:

Introduction	Page 2
Hypotheses and Related Literature	Page 2
Variables and Operational Definitions	Page 3
The Research Design	Page 4
Statistically Significant Results	Page 6
References	Page 8

Introduction:

Jean Butyniec-Thomas and Vera E. Woloshyn's article "The Effects of Explicit-Strategy and Whole-Language Instruction on Students' Spelling Ability" (1997) describes the process and findings of their study into the effects of combining two teaching strategies on the achievement of primary school students on spelling tests. The report makes it easy to understand the working hypothesis of the authors, and demonstrates how this hypothesis was derived from previous research and gaps in that research. It also clearly lays out the research design used, making it easy to identify the strengths of the design, as well as its weaknesses in terms of design, and internal and external validity. Finally, Butyniec-Thomas and Woloshyn describe their results, and their implications as they relate to the treatment conditions, and educational practices.

Hypotheses and Related Literature:

Butyniec-Thomas and Woloshyn developed their study around the hypothesis that students receiving a combination of explicit-strategy and whole-language instruction methods will demonstrate greater spelling ability than will students who receive either explicit-strategy or whole-language instruction only (Butyniec-Thomas and Woloshyn, 1997). In this case, their null hypothesis would be that there would be no difference between the spelling abilities of children receiving the combined explicit-strategy and whole-language instruction, and that of children receiving either explicit-strategy or whole-language instruction only.

These hypotheses were clearly derived from the researchers' examination of literature and previous research in the area of teaching spelling between the 1960's and the 1990's. Butyniec-Thomas and Woloshyn cited Hodges (1982) and Marino (1980), who showed that a variety of strategies were employed by students who demonstrated strong spelling abilities. The researchers connected their hypotheses to Scott (1993) and Wong (1986), who showed the

usefulness of instruction in morphological structures and the use of spelling grids, as well as to studies into the effectiveness of the use of mental imagery to help improve spelling ability (Caban et al., 1978; Radaker, 1963; Sears and Johnston, 1986). They point out that using real (whole-language) opportunities to help children learn how to spell (Eldredge, 1991; Goodman, 1991; Stahl, McKenna and Pognucco, 1994; Zarry, 1991) will result in improvements in spelling ability, but that there is little difference in the gains from using whole-language instruction as opposed to conventional teaching methods (Almasi, Palmer, Gambrell and Pressley, 1994; Graham and Harris, 1994). To justify their research, Butyniec-Thomas and Woloshyn show that while some literature has claimed explicit-strategy and whole-language instruction are incompatible (McIntyre and Pressley, 1996; Shapiro, 1992; Spiegel, 1992), little research has actually been carried out into the effects of combining these teaching strategies (McIntyre and Pressley, 1996).

Variables and Operational Definitions:

Butyniec-Thomas and Woloshyn's research design is fairly simple. While there are a number of intervening variables to be controlled or accounted for, there is only one independent variable, and one dependent variable to be examined. The independent variable, in this case, was the mode of instruction (Butyniec-Thomas and Woloshyn, 1997). The dependent variable was the students' spelling ability (Butyniec-Thomas and Woloshyn, 1997). That being said, it is necessary to operationally define exactly what the researchers meant by those variables.

Mode of Instruction: The method of spelling instruction provided to the students, which includes the use of either explicit-strategy instruction (teaching students specific strategies to help them spell words, and telling them how, when and why to use each strategy (Butyniec-

Thomas and Woloshyn, 1997)), whole-language instruction (providing students with real opportunities to encounter words in their reading, and to learn to spell those words by using them in their own writing (Butyniec-Thomas and Woloshyn, 1997)), or a combination of both strategies.

Spelling Ability: Student's achievement on spelling tests, including standardized tests such as the *Canadian Test of Basic Skills*, and spelling dictation pretests and posttests of training words (specifically encountered or taught words) and transfer words (derivations of the training words, or the rules learned from the training words) (Butyniec-Thomas and Woloshyn, 1997). The spelling dictation posttests include tests that were carried out immediately following the treatments, two-weeks following the treatments, six-weeks following the treatments, and nine-weeks following the treatments (Butyniec-Thomas and Woloshyn, 1997).

The Research Design:

The research design for Butyniec-Thomas and Woloshyn's study is an example of causal-comparative research (Bieger and Gerlach, 1996). That is, the researchers wanted to determine if receiving either teaching strategy, or a combination of strategies, caused an increase in spelling ability. To determine this, the researchers used what appears to be a combination of true-experimental design, and quasi-experimental design (Bieger and Gerlach, 1996). The study resembles a true-experimental design in that it utilizes a format similar to the pretest-posttest control group design (Bieger and Gerlach, 1996), except that there are three treatment groups being observed, and neither group can truly be called a control group. The study resembles a quasi-experimental design (Bieger and Gerlach, 1996) in that it utilizes elements of the multi-group time-series format. The actual research design used by Butyniec-Thomas and Woloshyn can be summarized in Figure 1 below.

Figure 1
Butyniec-Thomas and Woloshyn's Research Design

$$R \{ \begin{array}{l} O_1 \rightarrow O_2 \rightarrow X_1 \rightarrow O_3 \rightarrow O_4 \rightarrow O_5 \rightarrow O_6 \\ \{ O_7 \rightarrow O_8 \rightarrow X_2 \rightarrow O_9 \rightarrow O_{10} \rightarrow O_{11} \rightarrow O_{12} \\ O_{13} \rightarrow O_{14} \rightarrow X_3 \rightarrow O_{15} \rightarrow O_{16} \rightarrow O_{17} \rightarrow O_{18} \end{array}$$

The lack of an actual control group is not a cause for concern. In educational situations, it is rare that students receive no treatment at all. Comparing the causal effects of each treatment is valid in terms of internal validity. What is of note is the fact that random sampling was only applied to two of the treatment groups. Students who had previously received explicit-strategy instruction were randomly assigned to either the explicit-strategy only or the explicit-strategy and whole-language instruction treatments. Students who had only received whole-language instruction were assigned to the whole-language instruction treatment. While the use of cluster sampling is common in educational research (Bieger and Gerlach, 1996), this particular mix of sampling strategies raises questions about the study's internal validity. Other possible threats to internal validity can be seen in such factors as history, testing, and statistical regression (Bieger and Gerlach, 1996, pp. 77-85; Leedy and Ormrod, 2001, pp. 103-105, 230-236). It is clear that there is a difference in the histories of the treatment groups. The explicit-strategy only and explicit-strategy plus whole-language instruction groups had previous experience with explicit-strategy methods, which may have improved their chances of success under their treatment conditions. The whole-language only group had previous experience only with whole-language instruction, which research has shown to present no gains over other conventional teaching methods (Butyniec-Thomas and Woloshyn, 1997). The number of tests administered could pose a problem. Being subjected to numerous tests may have sensitized students to the fact that they

were being studied, and may have affected their performances. Finally, there is no indication that students achieving extreme scores on the pretests were accounted for in the study design, meaning that statistical regression could affect the validity of the results. Factors such as maturation, instrumentation, and mortality, all appear to pose minimal threats to the study's internal validity.

The sampling methods used by the researchers also raise questions about the external validity of the study (Bieger and Gerlach, 1996, pp. 77-85; Leedy and Ormrod, 2001, pp. 105-106, 174, 210), especially in terms of population and ecology. All of the students involved were from one school, and all spoke English as their native language. Both of these facts raise doubts about the generalizability of the study results. The previous training of students selected for each treatment group is also of concern, as their experiences with whole-language and explicit-strategy instruction may create a degree of selection-treatment interference. Again, the effects of repeated testing may have influenced the performances of the students involved, calling into question the generalizability of the results. Experimental arrangement could have had an effect on the performances of students involved, especially in the case of the explicit-strategy only and the explicit-strategy plus whole-language instruction groups. These students all came from the same original cluster, and were randomly divided into two groups. This fact may have heightened their sensitivity to being studied, and affected their performance. Factors such as multiple-treatment interference, experimenter effects, and specificity of variables, all appear to pose minimal threats to the external validity of the research design.

Statistically Significant Results:

The statistically significant comparisons described by Butyniec-Thomas and Woloshyn support their original hypothesis, and show a positive causal relationship between the combination of

instructional strategies and students' spelling abilities. First, the researchers report that the pretests administered to the students showed no significant differences between the abilities of students in either of treatment group. Apparently, all treatment groups were statistically similar at the beginning of the study, which makes it easier to compare the treatment effects (Bieger and Gerlach, 1996, pp. 49-62).

The researchers describe two types of posttests administered at several intervals. The first of these was a series of spelling dictation tests using the training words from the treatment conditions (Butyniec-Thomas and Woloshyn, 1997). The results indicate that students who receive a combination of explicit-strategy and whole-language instruction perform equally as well in the short term as students who receive explicit-strategy instruction only, and they outperform all other students in terms of long-term tests of spelling ability.

On the spelling dictation posttests for transfer words (Butyniec-Thomas and Woloshyn, 1997), students receiving explicit-strategy instruction performed equally as well in the short term as students receiving the combined treatment. However, students receiving the combined treatment significantly outperformed students from the other treatment groups in long term tests of their spelling abilities. Students in both the combined treatment and the explicit-strategy only groups displayed better spelling ability on all posttests than students receiving whole-language instruction only. In terms of the researchers' hypothesis, the results of this study indicate that explicit-strategy and whole-language instruction are indeed compatible as instructional methods, and that the use of such a combination will provide long term benefits in terms of students' increased spelling abilities.

References:

- Almasi, J. F., Palmer, B. M., Gambrell, L. B., & Pressley, M. (1994). "Toward disciplined inquiry: A methodological analysis of whole language research." In S. Symons, V. Woloshyn, & M. Pressley (Eds.), *The scientific evaluation of the whole language approach to literacy development*. A special issue of *Educational Psychologist* (pp. 193-202). Hillsdale, NJ: Erlbaum.
- Bieger, George R., and Gail J. Gerlach (1996). *Educational Research: A Practical Approach*. . Albany, New York: Delmar Publishers.
- Butyniec-Thomas, Jean, and Vera E. Woloshyn (1997). "The Effects of Explicit-Strategy and Whole-Language Instruction on Students' Spelling Ability." *The Journal of Experimental Education*, volume 65, Summer 1997.
- Caban, J. P., Hambleton, R. K., Coffing, D. G., Conway, M. T., & Swaminathan, H. (1978). "Mental imagery as an approach to spelling instruction." *The Journal of Experimental Education*, 46(3), 15-21.
- Eldredge, L. (1991). "An experiment with a modified whole language approach in first-grade classrooms." *Reading Research and Instruction*, 30(3), 21-38.
- Goodman, Y. M. (1991). "The history of whole language." In K. S. Goodman (Eds.), *The whole language catalogue* (pp. 386-387). Santa Rosa, CA: American School Publishers.
- Graham, S., & Harris, K. (1994). "The effects of whole language on children's writing: A Review of the literature." In S. Symons, V. Woloshyn, & M. Pressley (Eds.), *The scientific evaluation of the whole language approach to literacy development*. A special issue of *Educational Psychologist* (pp. 187-192). Hillsdale, NJ: Erlbaum.
- Hodges, R. E. (1982). *Improving spelling and vocabulary in the secondary school*. Urbana, IL: National Council of Teachers of English.
- Kernaghan, K., & Woloshyn, V. E. (1995). "Providing Grade one students with multiple spelling strategies: Comparisons between strategy instruction with metacognitive information and traditional language arts." *Applied Cognitive Psychology*, 9, 157-166.
- Leedy, Paul, and Jeanne Ellis Ormrod (2001). *Practical Research: Planning and Design*, 7th Edition. Upper Saddle River, New Jersey: Merrill Prentice Hall.
- Marino, J. (1980). "What makes a good speller?" *Language Arts*, 57, 173-177.
- McIntyre, E., & Pressley, M. (1996). *Balanced instruction: Strategies and skills in whole language*. Norwood, MA: Christopher-Gordon.

- Radaker, L. (1963). "The effect of visual imagery upon spelling performance." *The Journal of Educational Research*, 56, 370-372.
- Scott, R. (1987). "Lessons in spelling." *ORBIT*, October, 10-14.
- Scott, R. (1993). *Spelling: Sharing the secrets*. Toronto: Gage Educational Publishing.
- Sears, N., & Johnson, D. (1986). "The effects of visual imagery on spelling performance and retention among elementary students." *The Journal of Educational Research*, 79, 230-233.
- Shapiro, H. R. (1992). "Debatable issues underlying whole-language philosophy: A speech language pathologist's perspective." *Language, Speech, and Hearing Services in the Schools*, 23, 308-311.
- Spiegel, D. L. (1992). "Blending whole language and systematic direct instruction." *The Reading Teacher*, 43, 38-44.
- Stahl, S. A., McKenna, M. C., & Pagnucco, J. R. (1994). "The effects of whole language instruction: An update and a reappraisal." In S. Symons, V. Woloshyn, & M. Pressley (Eds.), *The scientific evaluation of the whole language approach to literacy development*. A special issue of *Educational Psychologist* (pp. 175-186): Hillsdale, NJ: Erlbaum.
- Wong, B. Y. L. (1986). "A cognitive approach to teaching spelling." *Exceptional Children*, 53(2), 169-173.
- Zarry, L. (1991). *Literacy through whole language*. Winnipeg, Canada: Peguis.