

PRETEACHING VOCABULARY TO SECONDARY STUDENTS:
A CLASSROOM EXPERIMENT

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Over the past decade secondary teachers in the various content areas, and particularly in English, have been asked to assume responsibility for developing their students' reading skills (Early, 1975; Graves, Palmer, & Furniss, 1976). Numerous books have been written on the subject (Aukerman, 1972; Burmeister, 1974; Estes & Vaughan, 1978; Herber, 1970, 1978; Thomas & Robinson, 1972, 1977), many states now require a course in reading for all secondary teachers, and innumerable in-service programs for secondary teachers have espoused the slogan, "every teacher a teacher of reading."

We believe that this thrust toward getting secondary content teachers involved in developing their students' reading abilities is important and useful. However, this endorsement must be given with caution, for the vast majority of teaching procedures being recommended to content teachers lack anything like rigorous empirical validation. In response to this situation, a group of us at the University of Minnesota has been attempting to validate specific teaching procedures to be used by English teachers and teachers in other content areas. This work has been in progress for several years. A recent monograph (Graves, Palmer, & Furniss, 1976) describes many of the teaching procedures we are investigating, and two recent papers (Graves, 1977, 1978) describe various aspects of the research. However, before describing the procedure of interest here, teaching difficult vocabulary from a selection before students read the selection, it may be useful to very briefly

describe some general characteristics of the teaching procedures and the research.

The work has three general characteristics. First, the procedures investigated are intended to be used by teachers whose primary interest is teaching content, for example, English, rather than teaching reading, and are feasible for use by teachers with heterogeneous classes of 30 or so students. Second, the procedures are designed for use with relatively short selections such as short stories rather than longer selections such as novels. And, third, the procedures are ones which experience and common sense strongly suggest would work but about which we lack hard evidence.

The study described here exemplifies each of these characteristics. As noted above, the study investigates the effect of pre-teaching potentially difficult vocabulary from a selection immediately before students read that selection. Such a procedure is certainly feasible for English teachers; it is appropriate for use with short selections; and it is widely recommended (Cushenberry, 1972; Graves, Palmer, & Furniss, 1976; Herber, 1970, 1978; Lundby, 1972; Strang, McCullough, & Traxler, 1967). The belief is that preteaching vocabulary will assist students in both learning the vocabulary and in better comprehending the selection from which the vocabulary is taken. This study investigates both of these beliefs.

Method

This section describes the students who took part in the study, the materials used, the procedures followed, and the variables investigated and analysis of the results.

Students

Students participating in the study were 96 ninth graders and 96 eleventh graders attending a coeducational Catholic high school in a middle-class Minneapolis suburb. Within each grade level students were divided into three equal size ability groups based on

their total scores on the Nelson-Denny Reading Test (Nelson & Denny, 1960). Within each grade and ability level, half of the students were randomly assigned to the experimental group and half to the control group.

Materials Used

The materials used included two biographical sketches, a vocabulary knowledge survey, and vocabulary lessons, comprehension tests, and vocabulary tests for each biographical sketch.

The biographical sketches were "Triumph Over a Cold, Cruel Sea," an account of Florence Chadwick's attempt to swim the Irish Sea, and "Them As Has 'Em, Wears 'Em," an account of the extravagant life style of Diamond Jim Brady. Each sketch was about 1600 words long and written at the ninth-tenth grade level according to the Dale-Chall Formula (Dale & Chall, 1948). Both were taken from the Controlled Reader Study Guide, Level Lk (Taylor, Frackenpohl, Schleich, & Dungan, 1963).

The vocabulary knowledge survey was a multiple-choice test of 25 words taken from the two selections and subjectively identified by the researchers as likely to be difficult for the students. This test was given to all ninth and eleventh grade students in the school six weeks prior to the study. Those ten words from each selection known by fewer than 50% of the students were selected to be pretaught.

The vocabulary lessons consisted of eight-minute taped lessons and lesson answer sheets on ten words from each selection. On the tape one of the researchers pronounced each word, used it in a 20-50 word paragraph, paused to let students pick one of four possible synonyms for it on the answer sheet, gave the correct answer, and repeated the word with the correct answer. The complete text of the lesson was printed on the lesson answer sheet so that students could follow along as the taped lesson proceeded. A sample item as it appeared on the lesson answer sheet is shown on the following page.

impede

The avalanche impeded the progress of the mountain climbers. They were forced to detour around the slide. As a result, they reached the summit three days later than they had planned.

Impede means to _____ a. hinder _____ b. help
_____ c. discourage _____ d. stop

The paragraphs were not taken from the selections, but they did illustrate the meaning of the words as they were used in the selections.

The comprehension tests consisted of ten multiple-choice, sentence completion questions for each selection. These were taken intact from the Controlled Reader Study Guide, Level Lk.

The vocabulary tests consisted of ten multiple-choice, synonym matching items for each selection.

Procedures Followed

Students in both the experimental and control groups completed the study in a single forty-minute period, with half of the students in each group reading one selection and half reading the other. Students in the experimental group listened to the taped lesson, which included an explanation of the task, marked their responses on the lesson answer sheet, read the selection, and took the comprehension and vocabulary tests. Students in the control group received an explanation of the task, read the selection, and took the comprehension and vocabulary tests.

Variables and Analysis

The variables used in the study were grade (ninth, eleventh), ability (high, middle, low), selection (Chadwick, Brady), and treatment (vocabulary, no vocabulary). The analyses used to determine whether or not there were significant differences due to any of these factors were the analysis of variance and Newman-Keuls procedures. The results on the comprehension test and those on the vocabulary test were analyzed separately. Differences reported as

significant are significant at the $p < .01$ level; that is, these differences could be expected to occur by chance less than one in one hundred times and could thus be reasonably attributed to the factors employed in the study.

Results

As noted above, the results on the comprehension test and those on the vocabulary test were analyzed separately. The analysis of variance for comprehension scores showed significant effects ($p < .01$) for treatment, grade, selection, and ability. As shown in Table One below, students who were pretaught vocabulary

Table One
Comprehension Test Results:
Mean Percentage Correct for Each Factor

Treatment	Vocabulary 69.1%	No Vocabulary 60.3%
Grade	Ninth 60.2%	Eleventh 68.6%
Selection	Chadwick 67.8%	Brady 61.0%
Ability	High 69.1%	Middle 68.6% Low 55.3%

scored significantly higher than those who were not, eleventh graders scored significantly higher than ninth graders, and scores on the Chadwick sketch were significantly higher than those on the Brady sketch. The Newman-Keuls test indicated that high and middle ability students scored significantly higher ($p < .01$) than low ability students but did not score significantly differently from each other.

The analysis of variance for vocabulary scores showed significant effects ($p < .01$) for treatment, grade, and ability. The effect of selection was not significant at $p < .01$. As shown in Table Two

below,

Table Two
Vocabulary Test Results:
Mean Percentage Correct for Each Factor

Treatment	Vocabulary 90.0%	No Vocabulary 50.8%
Grade	Ninth 65.9%	Eleventh 74.9%
Selection	Chadwick 67.9%	Brady 72.9%
Ability	High 76.6%	Middle 71.6% Low 63.1%

students who were pretaught vocabulary scored significantly higher than those who were not and eleventh graders scored significantly higher than ninth graders. The Newman-Keuls test indicated that high ability students scored significantly higher ($p < .01$) than low ability students but that students in the middle ability group did not score significantly differently from those in the high ability group and that students in the middle and low ability groups did not score significantly differently from each other.

Discussion

The major finding of the study is, of course, that a procedure for preteaching vocabulary which did not require an impractical amount of teacher time to create or an excessive amount of student time to complete served to increase students' comprehension of the selections read. Moreover, the increase in comprehension scores was substantial, with students who were pretaught vocabulary producing approximately 15% more correct responses than those who were not pretaught vocabulary. While this increase may not appear huge, note that if we could find some method of increasing the general effectiveness of schooling by 15%, students could learn what now takes

them 12 years in just over 10 years.

A secondary finding is that the procedure for preteaching vocabulary did result in students learning the vocabulary taught. Students taught the vocabulary produced 80% more correct responses than those not taught it and demonstrated knowledge of 90% of the words taught. Of course, the fact that students learned what they were taught is hardly astounding. At the same time, all of us who teach know that our teaching isn't always successful. For this reason it is worth identifying a procedure that works.

The findings with respect to the other two variables are predictable. With respect to the two selections, there was no reason to expect that either the comprehension scores or the vocabulary scores for each would be identical, and they were not. With respect to the ability levels, there was reason to expect that higher ability students would do better than lower ability students, and higher ability students did consistently do better even though not all differences were statistically significant.

By way of conclusion we wish to make two points. First, the procedure for preteaching vocabulary described here was effective, and we encourage its use. Toward that end, the complete set of materials used in the study are available from the senior author on request. We encourage you to obtain these materials and adopt the procedures for use with your students and the literature you use. Second, the present study is just one in a series of studies designed to validate procedures used by teachers in secondary content areas. We would appreciate your assistance in suggesting additional procedures which need to be validated and in helping validate procedures. We are hopeful that with the assistance of a variety of teachers we can validate many more procedures.

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