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Using Vocabulary Studies to Teach Contextual Analysis in Grade Four

Susan M. Watts
Julie Bucknam

Increasingly, researchers are calling for four strands to comprise the elementary school vocabulary program: direct instruction in the meanings of individual words, the improvement of students' independent word learning strategies, motivation for word learning, and many opportunities for wide reading (Irvin, 1990; Graves, 1995). Strategies for independent word learning are particularly important because wide reading offers students the opportunity to learn as many as 3,000 word per year if they can successfully apply structural analysis and contextual analysis to the new words they encounter (Anderson, 1995). In fact, it has been argued that most vocabulary is learned from context, as opposed to direct instruction in individual word meanings (Sternberg, 1987), and many studies have shown that students benefit from being taught how to use contextual analysis to unlock the meanings of unknown words (Buikema and Graves, 1993; Carnine, Kameenui, and Coyle, 1984; Goerss, Beck, and McKeown, 1994; Jenkins, Matlock, and Slocum, 1989; Schwartz and Raphael, 1985).

However, there have been several criticisms of research on contextual analysis instruction (Kuhn and Stahl, 1996; Nist

and Olejnik, 1995). First, many studies failed to incorporate naturally occurring texts in the instructional process, relying instead on passages written specifically for the purpose of teaching contextual analysis. Such contrived passages often contain more context clues than are found in passages that children typically encounter. Second, most of the research has been short-term. Thus, Graves (1986) has called for long term studies and for studies of how various approaches to word learning fit into the larger picture of vocabulary development in school. Third, research has been criticized for using weak assessments of the effects of instruction (Kilian, Nagy, Pearson, Anderson, and Garcia, 1995). Specifically, assessments that require students to demonstrate that they either know or do not know the meaning of a word are insensitive to the incremental nature of word learning. Word knowledge exists on a continuum ranging from no knowledge to full knowledge with levels of partial knowledge in between (Beck and McKeown, 1991; Chambers, 1904; Dale, 1965). Thus strong assessments are those which capture degrees or levels of word knowledge.

The study reported here was designed to transcend some of the weaknesses of previous research and add to our knowledge about the potential benefits of teaching students to use contextual analysis as a tool for independent word learning. Specifically, the following research questions guided the study: 1) What is the effect of doing weekly vocabulary studies on students' proficiency in using contextual analysis? 2) What is the effect of doing weekly vocabulary studies on students' attitudes toward words and word learning?

Method

Participants. Students in two fourth grade classrooms participated in this study. Students in Julie's classroom were taught how to do vocabulary studies and did one vocabulary

study each week for five months. Students in the other, comparison classroom did no vocabulary studies over the course of the school year, nor did they learn how. Students in both classrooms were predominantly white and attended the same suburban elementary school in the midwest. Both classroom teachers used a literature-based approach to reading instruction. Performance on the Metropolitan Achievement Test-7 (Balow, Farr, and Hagan, 1993) indicated that most of the students read on or above grade level at the start of the study. Complete sets of data were collected for 29 students in Julie's classroom and 30 students in the comparison classroom.

Data Sources. This study included two sources of data. The first, the context clue test, was used to determine the effects of the vocabulary studies approach on students' abilities to use contextual analysis successfully. This test consists of ten passages, each containing a difficult word whose meaning must be determined by using the surrounding context (see Figure 1). After reading each passage, students are asked to define the unknown word using their own words and to list the clues that helped them to determine the word's meaning.

Figure 1
Sample Item from the Context Clue Test

On Tuesday, Jane was very stubborn. Her parents told her to clean her room before dinner. Jane played a game instead. At dinner time, Jane wasn't allowed to have dessert because she had not cleaned her room. Her parents then told her that she could watch TV only after she cleaned her room. Again, Jane refused to clean her room. Jane's parents couldn't understand why Jane was being recalcitrant.
Recalcitrant means:

What clues helped you decide on this meaning?

The test is similar in format to a test designed by Buikema and Graves (1993) and similar in content to a test designed by Carnine, Kameenui, and Coyle (1984). Therefore, the surrounding context included a synonym clue for the unknown word and clues varied across passages in their proximity to the unknown word. Each of the unknown words appears less than four times in a million running words at the fourth grade level (Carroll, Davies, and Richman, 1971). Although passage length prohibited the application of readability formulas, two classroom teachers and two professors of reading education judged the passages to be within the range of reading ability of the average third grader.

The second source of data, student interviews, provided information about students' attitudes toward words, word learning, and the vocabulary studies approach. An attempt was made to ask open-ended questions then probe student responses rather than asking "leading questions" that might direct students' responses (Patton, 1990). The interviews were guided by the following questions: 1) What do you think of when you hear the word vocabulary? 2) What do you think of learning new words? 3) In the past, how have you learned new words in school? 4) What do you do when you're reading by yourself and you come to a word you don't know? The May interview also included the question, "What do you think of the vocabulary studies you've been doing this year?"

Procedures. Students in both classrooms took the Context Clue Test in November and May of the school year during which the study took place. The tests were administered by the classroom teachers who read a standard set of instructions to students and let them work as long as they wished. In addition to explaining the format of the test and the way in which students were expected to respond, students were instructed that, "This is a test of what typical fourth

graders know about figuring out word meanings. You may find it difficult and that's O.K. You are not expected to do exceptionally well on it and your score will not count toward your grade in this class."

Six students, randomly selected from all of the students in Julie's class, were interviewed in November and May. Interviews were conducted by a graduate student and took approximately 10 minutes each. Students were informed that the purpose of the interview was to learn what fourth graders think about words. In both November and May, interviews were conducted after the context clue test was given. After the pretesting and interviewing in the fall, students in Julie's classroom were taught how to do a vocabulary study. The initial teaching period lasted for approximately two weeks after which students did one vocabulary study each week through the month of April.

Completing a vocabulary study. The vocabulary study process, a modification of Nist and Diehl's (1994) word study approach, is designed to provide students with an opportunity to practice contextual analysis using self-selected words and passages that they encounter in tradebooks.

The process requires students to first identify an unknown word in their reading material then to apply the following six steps: 1) Write the book title, page number, and unknown word on the top of the page; 2) Copy the sentence in which the unknown word appears; 3) Use the clues in the surrounding sentences to come up with an educated guess at the meaning of the unknown word and write your guess; 4) Write one or two sentences explaining which clues you used to come up with your guess and how you used those clues; 5) Look up the word in the dictionary and write the dictionary definition that best fits the context; and 6) Explain whether

your guess was close to the meaning of the unknown word and, if possible, why you were or were not able to come close given the available context. Two typical vocabulary studies appear in Figure 2.

Figure 2
Vocabulary Studies Completed by Two Students in Julie's Classroom (spelling has been corrected)

Example #1
1. worsteds, p. 41, *Dolly Madison*
2. Also she gave her a box full of colored worsteds.
3. I think worsteds means some kind of string because in the sentences before it tells that Dolly also gets a piece of cloth to sew on and you can't sew without string.
4. a piece of string or yarn made out of wool. I think mine's the same.

Example #2
1. sledge, p. 102, *The Lion, the Witch, and the Wardrobe*
2. It was a sledge, and it was reindeer with bells on their harness.
3. I think that a sledge is a sled or a sleigh, or something like that. I think it because further on (the next page) they say Santa in the sledge.
4. sledge. n. A large, heavy sled for carrying loads over ice, snow, etc. I think I was half right, because it was a sled, but I didn't know that it was to carry loads. I've learned a lot today.

The vocabulary studies process was designed to reflect Goerss, Beck and McKeown's (1994) guidelines for instruction in contextual analysis as well as research-based principles of effective vocabulary instruction more generally. Therefore it incorporates active involvement of the learner, in-depth work with the process, and practice with a variety of contexts over time (Irvin, 1990; Mezynski, 1983; Stahl and Fairbanks, 1986). It also includes a metacognitive component in Step 6, which invites students to reflect on their use of the strategy (Graves, 1987). Finally, by allowing students to select the word and passage for study, we hoped to increase motivation for

word learning and heighten students' word consciousness (Anderson and Nagy, 1993; Blachowicz and Fisher, 1996).

Teaching vocabulary studies. Students were taught to use vocabulary studies using Winograd and Hare's (1988) explicit instruction model for strategy development. This model consists of the following components: naming the strategy and explaining why it is important, explaining what the strategy consists of, modeling how to perform the strategy, explaining when to use the strategy during independent reading, providing time for guided practice, and providing time for independent practice. During the initial teaching period, Julie modeled the strategy using words in the book she was reading aloud to the class. She copied each word and its surrounding context on to a transparency. She then went through the steps of the vocabulary study process. Gradually, Julie talked less and encouraged her students to talk more. Ultimately, the class did a vocabulary study on its own. Students then selected an unknown word from a book they were currently reading on their own and repeated the procedure independently with Julie providing help as needed. After the initial teaching period, which lasted for approximately two weeks, students did a vocabulary study once each week using a word encountered in a book being read for reading instruction. Julie assigned one vocabulary study per week and allowed students to choose when they would do them, as long as they were done by Friday. Students kept their vocabulary studies in their vocabulary notebooks.

To assist students in doing their vocabulary studies, Julie had them record unknown words, as they were encountered, on Post-It notes kept on the inside cover of their books so that when they were ready to do their vocabulary studies, they had several words to choose from. Students also had personal copies of the steps involved in the process to serve as

reminders. Julie encouraged her students to seek help as they engaged in their vocabulary studies and she provided weekly written feedback to each student. In addition to written feedback, the strategy was reinforced by periodic whole-class reviews. Using transparencies of model student work, Julie reviewed the steps of the process and encouraged students to make observations about their peers' work.

Data Analysis

Context clue test. As discussed previously, the context clue test tapped two aspects of contextual analysis: the ability to glean knowledge about word meanings from context and the ability to identify helpful contextual clues. Student responses to the definition and clue prompts were scored separately and all responses were typed and corrected for spelling. Further, raters did not know whether they were scoring responses from Julie's classroom or the comparison classroom or whether they were scoring pretests or posttests. The author and a trained graduate student scored all student responses. Interrater reliability was 89%.

Data analysis

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Students' responses to the definition prompt were scored using a rubric designed to capture varying levels of

word knowledge. Each response was given a point value ranging from 0 to 4 where 0 indicates no response, 1 indicates a definition that is inadequate and incomplete, 2 indicates a definition that is incorrect but makes some reference to the text, 3 indicates a definition that makes sense within the context of the passage and is partially correct, and 4 indicates a definition that is completely correct. Correct definitions were those found in Webster's New World Dictionary (1988) that made sense in the context of the passage according to the author and two doctoral students in literacy education.

Students' responses to the clue prompt were also scored using a rubric designed to capture varying levels of metacognition regarding available clues. Here, each response was given a point value from 0 to 4 where 0 indicates no response, 1 indicates an inadequate, incomplete response, 2 indicates the identification of clues that are not related to the unknown word but are related to the text, 3 indicates a response that is partially correct, and 4 indicates a response that is completely correct. Correct clues were identified by the author and two doctoral students in literacy education. Students could obtain a total of 40 points on each component of the test and a total of 80 points on the test as a whole. The data were analyzed using an independent t-test.

Student interviews. Student interviews were audiotaped and transcribed. These transcripts were analyzed by the author and a graduate student for the main ideas in student responses. The ideas culled from the November transcripts were compared to those culled from the May transcripts.

Results. In order to determine whether students improved in their ability to use contextual analysis, each student's pretest score on the context clue test was subtracted from his/her posttest score to derive a difference or growth score.

An independent t-test was conducted to compare the growth of Julie's students on the context clue pretest to that of students in the comparison classroom. Results indicate that students in Julie's classroom made a significantly greater improvement in their ability to use contextual analysis than did students in the comparison classroom ($t=3.137$, $df=57$, $p<.05$). This finding suggests that the vocabulary studies approach contributed to increased ability to use contextual analysis as an independent word learning strategy. The average scores for both groups are shown in Table 1.

Table 1
Average Scores on the Pretest and Posttest of the Context Clue Test

	Pretest	Posttest	Difference
Group	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
Julie's Classroom	38.97 (5.05)	47.93 (5.12)	8.97 (6.94)
Comparison Classroom	40.97 (5.97)	39.23 (7.69)	0.47 (9.86)

Results of student interviews indicate a slight change in student attitudes toward words and word learning from November to May. Specifically, in May students had more expansive responses in Questions 2 and 4. In November, when asked what they thought of learning new words in school, students made one-sentence responses such as "It's O.K." In May, they volunteered more information such as, "I think it's important to learn new words because ... learning new words helps you in reading and writing and speaking," and "Learning new words is fun. I like to play word games and I like to use new words in my stories."

In November, students said they either skipped unknown words encountered while reading alone or they looked them up in the dictionary. In May, all six made reference to using context clues as one option. Finally, when asked their opinions of vocabulary studies, four students said they liked them and found them easy to do, one student said she thought they were "O.K." and "better than other ways of learning vocabulary," and one student said he didn't like them and found them difficult.

Discussion

Julie's students showed significantly more growth in their performance on the context clue test than did students in the comparison classroom. In addition, results of student interviews indicate that vocabulary studies may contribute to enhanced attitudes about word learning. Although Julie's students' posttest scores leave room for additional growth, it is important to note that learning from context appears to be an incremental phenomenon, the effect of which is more apparent on a global level than on a local level. In other words, students are more likely to display growth in their natural use of the strategy, on a daily basis, with a variety of reading materials, than on a single test (Kuhn and Stahl, 1996).

As an example of school-base research, this study did not involve many of the controls exerted in pure experimental research. Students were not randomly assigned to classrooms, the behavior of the comparison teacher was not controlled or monitored except to note that there was no instruction in vocabulary studies, and the sample was limited to two fourth grade classrooms in one suburban school. However, an advantage of school-based research is that it allows us to investigate the effectiveness of teaching techniques as they are implemented in a regular classroom. Thus, we are able to study the effects of a new instructional process on learning as well

as the way in which the process, itself, unfolds within the context of a real classroom.

In this case, Julie observed that students had difficulty with vocabulary studies at first but improved over time. One of the difficulties they had was considering only part of the context rather than considering all of the clues available to them. They tended to look only at the sentence in which the unknown word appeared without backward or forward referencing. Another difficulty was mistaking the meaning of the entire sentence for the meaning of the unknown word. Students also had difficulty explaining how their definition compared with the dictionary definition. They were eager to make a judgment of right or wrong but did not want (or, initially, know how) to explain how that judgment came to be. Julie felt that one of the strengths of the vocabulary study approach was that it gave her a "window" on students' thinking, showing precisely where in the process of using contextual analysis, students were having difficulty. She was then able to address these areas in review sessions.

In addition to providing an inside look at the way in which students apply contextual analysis to natural text, the vocabulary studies approach incorporates several research-based suggestions for vocabulary development. It appears that vocabulary studies hold promise as a technique for increasing the ability of elementary school children to learn word meanings independently during wide reading.

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