

The Motivation of Students Who Are Given Context Clues and Dictionary Definitions to Determine the Meaning of Unknown Words

By Chris Teerlinck

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Vocabulary development is a phenomenon that pleads for more research yet continues to be ignored in studies of secondary school students. All students face the daunting task of incorporating new words into their everyday vocabulary. However, there appears no simple solution or strategy that will ultimately allow them to feel comfortable with their new words. Ten years ago it was not uncommon in high school English classrooms for students to rely solely on the dictionary to learn new words. The latest trends in vocabulary instruction are aimed at students learning vocabulary words from the context in which they appear. Both use of dictionary and use of context clues have their strengths and merits. Yet both of these strategies also leave a great deal to chance and individual interpretation. Accordingly, there has been an increase in studies examining the effectiveness of using the two strategies together. What these studies fail to do, however, is examine students' motivation. Some research studies have determined how students proceed when they are presented with context clues and dictionary definitions, but none has asked why they act as they do. Within this study, students are asked to discuss their motivation. What this study attempts to do is figure out what students already know about determining a word's meaning and how and why they choose one particular strategy over another.

At the core of the debate of vocabulary acquisition is the term word. Miller and Wakefield(1994) sought to determine how many words students of different ages know. It may sound simple enough to understand, but there is a great deal of debate about how to measure and classify what a word is and how many words a student knows. Jeremy Anglin, commenting on Miller and Wakefield's study, says that "[the researchers] show clearly how estimates of vocabulary knowledge depend critically on one's definition of a word and, relatedly, on the source from which words are taken in dictionary sampling research"(Anglin, 1994). Researchers who attempt to estimate students' vocabulary knowledge must agree on what a word is. When considering what a word is, there must be some source or authority to which the definition of the word, "word", remains constant.

Generally speaking, the majority of researchers treat as words only those words that have a boldfaced entry in a dictionary. However, there are also problems with this definition. Simply stated, any attempt to create a definition of "word" runs the risk of being "defined too conservatively" or "defined too liberally by researchers"(Anglin 1994). Fischer estimates that competent speakers of printed school English need to have knowledge of about 88,000 words. Assuming this estimate is correct, each high school student is asked to accumulate knowledge of about 5,000 words per year. Anderson and Nagy (1992) estimate that the number of words students actually acquire each year is between 1,000 and 2,000 words.

Anglin further states that when we determine how many words students know, we have to differentiate between words they have already learned and "words that are known (or knowable) because they could be deciphered or constructed when the occasion requires it"(1994). Anglin uses the example of the cardinal number system to illustrate his point. If a student can count to a million or a billion, could it not be said that the student's vocabulary is that large? It is doubtful that people know the word nine-hundred-ninety-nine-thousand-nine-hundred and ninety-six. However, they do know how to use a system of numbering that goes on to infinity. Teaching students to use a system such as morphological analysis, for example, leads them to be able to "decipher and deconstruct" the meaning of the word. The word is not directly learned, but rather applied to a system to create a definition. When students use morphological analysis, they are capable of acquiring a large vocabulary. Therefore, when counting the number of words students know, then there must be some differentiation between words that are known and words that can be learned through using a system.

Morphological analysis, one of the primary strategies for facilitating language development, is discussed by Anglin and Miller and Wakefield. Certainly this strategy is effective, but it is not always easy for students to correctly parse words. Also there are many exceptions and roots that change forms, so students may not ever feel completely at ease relying on this strategy. It is possible to use this strategy as a tool. However, it should not be considered the ultimate authority on establishing the meaning of unknown words.

[\(Back to Top\)](#)

In the toolbox of strategies is another technique that is effective, but not necessarily any better than morphological analysis: Looking up unknown words in the dictionary. Nist and Olejnik(1995) note that there has been very little research on dictionary use and dictionary definitions. Nonetheless, it is the strategy that many students rely on in the English classroom. Despite the lack of research to support this practice, it is all too frequently used.

A familiar task employed when relying on dictionary definitions is what Miller and Gildea(1987) call the LUCAS task: Students Look Up the word in the dictionary and Compose A Sentence. Miller and Gildea (1987) and Scott and Nagy(1990) come to the conclusion that this task does not always produce the intended results. Instead of looking at the entire definition, students find a familiar piece or fragment of the definition and simply "write a sentence substituting the unknown word with the familiar word"(Nist and Olejnik, 1995). They will incorrectly determine the word's meaning by assuming one word in the definition can be used as a synonym. Using the dictionary definition in this way often leads to errors. For this reason, many educators avoid having students determine an unknown word's meaning by using the dictionary. No researcher gives merit to the task of finding a word's meaning from the dictionary, though Graves (1987) suggests using a dictionary as a last resort.

Conversely, research on determining meaning through context clues is endorsed by many experts in the field. Nagy (1989) has suggested that students can learn an unknown word with as little as one encounter with it. This phenomenon is called incidental learning. The benefit of this strategy is that students do not have to use an outside source to determine the meanings of words. The text allows students to generate meaning.

Anderson and Nagy(1992) have concluded that "how easily a new word is learned from context also depends on the informativeness of the context and the number of times the word is encountered" (p.42). The quality of the context clue plays a vital role in the students' ability to determine the meaning of unknown words. Works of literature, in contrast to non-fiction, tend to lack the informativeness that leads to word recognition. When writers choose to use a particular word, significant context clues are not always provided for readers. The writer may choose to use the word only once in the text. Adequate context clues may not be provided because the author incorrectly assumes his or her readers have a certain level of vocabulary knowledge. To offset this lack of context clues, teachers can create exercises that provide adequate context. However, these exercises often seem unnatural and contrived to students because they do not occur during the natural course of reading.

Other experts have argued that incidental learning leaves too much to chance. Anglin would certainly argue that students can recognize a word, but may not necessarily have learned the word. Because using either context clues or dictionary definitions does not guarantee learning a word's meaning, many research studies have suggested using both strategies together. Stahl and Fairbanks(1987) note that this mixed method approach is the most effective way to stimulate vocabulary development.

Using a mixed method approach, Ute Fischer(1994) found that students often rely on the dictionary, rather than context, as the ultimate authority to gain meaning. In his study, a group of students was given both the dictionary definition of an unfamiliar word and the text in which the word appeared. Instead of using the two sources, the students most often relied only on the dictionary definition. Because of this reliance on the dictionary, they incorrectly identified the target word. Fischer(1994), Nist and Olejnik (1994), Miller and Gildea(1987), and Scott and Nagy(1991) have suggested that students' mistakes are caused by the dictionary entries not by their process of using the dictionary. Dictionaries attempt to define a word in the smallest possible space. Some definitions may be vague or assume knowledge of words that students do not have. As Anderson and Nagy (1992) emphasize, "Dictionaries are designed as reference works, not teaching aids, and the practical consideration of length limits their informativeness"(p. 19).

A curious phenomenon in the research is that even when students are presented with explicit directions for determining a word's meaning, successful results are not guaranteed. In Fischer's study(1994), students in one group were given both the dictionary definitions and context clues and told to use all of the materials to establish meaning for unknown words. Instead of using both methods, the students most often simply relied on the dictionary definition. This corroborates what Gildea, Miller, and Wurtenberg (1988) found: American 5th grade students most often rely only on the dictionary definition despite being given both the word in context and the dictionary definition and instructed to use both sources.

Fischer(1994) sought to determine if students who were given the text and the dictionary definition of an unknown word would compose correct sentences more often than students who were given only one source, either the text or the dictionary definition. The students with both sources produced only 7% more correct sentences than the students who had only the dictionary definition and 9% more correct sentences than students who received only the text. These results caused Fischer to conclude that "the students in [his] study therefore did not conceive of the text as a valuable source that could add to their understanding"(571).

Nist and Olejnik(1995) conducted a study in which college freshmen were given context clues and dictionary definitions and told to compose a sentence. The students were separated into four groups. The first group received strong context clues and a strong dictionary definition. The second group received text with strong context clues and a weak dictionary definition. The third group was given a text with weak context clues and a strong dictionary definition. The final group received a text with weak context clues and a weak dictionary definition. Students most often used the dictionary definition even when presented with strong context clues. Two of the groups received weak dictionary definitions but still attempted to generate meaning from a weak definition.

In both studies the students who were expected to have the most success—those presented with both sources-- most often performed on par with the groups who received only the dictionary definition or the context clues. The mixed method approach, endorsed by Stahl and Fairbanks(1988), should have produced the better results. Why didn't it? Did students not know how to use the two sources, context clues and dictionary definitions? Was it that they did not know how to use the two as complements? Were they reluctant to spend the time to consider each source, believing that the dictionary is supposed to be the most important source? More research needs to be done in the area of vocabulary development to answer these questions.

In previous studies, researchers have presented students with the two sources, dictionary entries and context clues, and they have assumed the students know how to use the sources, separately and in combination. They have not surveyed their subjects to see if they have been taught how to use each source. Further complicating their research, they have not examined students' reasons for relying on the dictionary and making little or no use of the context clues. These two issues are quite substantial and deserve further investigation.

The purpose of this study is to study the motivation of previously instructed students when they are given context clues and dictionary definitions and asked to compose an original sentence that demonstrates their knowledge of a word. Rather than assuming that the students know how to use dictionary definitions and context clues, I directly instructed them on how to use both sources and then assessed their ability to use dictionary definitions and context clues, both separately and in combination. Where other studies have focused on quantifying the strategies students have used, this study examines the students' own rationale for choosing a particular strategy for figuring out the meaning of a word. To achieve this goal, I inquired into the reasons why students depend on one source --context clues or dictionary definitions-- rather than the other.

[\(Back to Top\)](#)

SUBJECTS

Subjects for the current study consist of three 10th grade honors English classes from a large urban school district in Central New York. This particular school was singled out for the wide-ranging socioeconomic background of its students. The number of subjects included was 85, but because of frequent absenteeism only 67 students completed all parts of the research study. I chose honors tracked classes because I assumed honors students would be familiar with using a dictionary and context clues.

EXPERIMENTAL DESIGN

Students first filled out a pre-test survey to determine how familiar they were with using either context clues or dictionary definitions to determine the meaning of unknown words.(See Appendix A) The pre-test survey established whether or not students were taught how to use context clues and dictionary definitions. The second part of the survey asked students to demonstrate their ability to use context clues or dictionary definitions by composing an original sentence with the target word.

Due to the fact that the survey revealed that some students were not familiar with using context clues or dictionary definitions, four mini-lessons were created relating to context clue and dictionary entry use. The first mini-lesson directly taught students how to use a dictionary entry to learn more about an unknown

word.(See Appendix B) After this mini-lesson, students practiced writing original sentences when they were given only the dictionary entry. The other three mini-lessons directly taught students how to recognize context clues.(See Appendix C-E) After each lesson, students practiced writing original sentences using only context clues.

MINI-LESSONS

Based on the results of the student survey, each succeeding class meeting included one mini-lesson on dictionary usage or context clues. Following the mini-lesson, students had the opportunity to practice with either technique. In addition, the homework assignment for each night was related to the larger short story unit and to the particular strategy we had discussed that day. Students received instruction on the technique, practiced the technique in class, and completed a homework assignment relating to the particular technique of the day.

Mini-Lesson #1: Dictionary Definitions (AppendixB)

Although 62 of the 67 students composed an acceptable sentence when they were given a dictionary definition, one mini-lesson was devoted exclusively to dictionary usage. The mini-lesson uses a section of WriteSource 2000 that describes all of the information in each dictionary entry. Students were directly instructed on what they could learn from one word's dictionary entry. Students practiced using the dictionary during a group exercise. In addition, because so many students indicated that they owned a dictionary, they were asked to complete a similar task in addition to their reading assignment for the night.

Mini-Lesson #2: Context Clues (Appendix C)

The first mini-lesson regarding context clues was also based on a section of WriteSource 2000. Students were presented with seven types of context clues. After practicing with each type of context clue, the students looked at their list of vocabulary words that related to the current story. Students attempted to determine the meaning of the words using one of the seven types of context clues they had just been taught. Additionally, they were given a similar task for homework based on their reading for the night.

Mini-Lesson #3: Context Clues (Appendix D)

The third mini-lesson was more of a quiz. Students attempted to define five words that many of them had never seen before. Each word was used in a sentence. The only hint that I gave to students was telling them which type of context clue to use for each word. After students completed their assignment, we reviewed the answers as a large group.

Mini-Lesson # 4: Is context enough or should a dictionary also be utilized? (Appendix E)

The fourth mini-lesson introduced students to a technique described by Blachowicz and Zabroski (1990) which brought together the two different ways of determining the meaning of unknown words. Blachowicz and Zabrowski's technique requires students to LOOK, REASON, PREDICT, and then RESOLVE or REDO. Students look at the word and the context clues. They reason what intent the author had in using the word. Then, they predict a possible meaning. As a final step, they decide if there is enough information to determine the word's meaning or if they need to consult a dictionary. Students practiced using this technique once as a large group before they moved into smaller groups to use it to work on words from the current story they were reading. Students had a homework assignment, in addition to their normal reading, that gave them an opportunity to practice using the technique.

For all of the mini-lessons, students were given one class exercise to practice the technique and one homework assignment to use the technique on their own. As a final assignment, they were given an opportunity to practice the Blachowicz and Zabrowski technique prior to their vocabulary assessment. Following the mini-lessons, students practiced using dictionary definitions and context clues together for one week. Then they were given a vocabulary assessment containing both the context in which the word appears and the dictionary entry.(See Appendix F) They received eight target words, context clues, and dictionary definitions. Immediately after the vocabulary assessment, they filled out a post-assessment questionnaire which asked them to choose one example from the assessment they had just taken and describe the process they had used to determine the target word's meaning.(See Appendix G) Students were asked to explain their process in detail and also identify how many of the eight words they would feel comfortable using in their writing. The post-assessment questionnaire differed from the student survey by asking students if the direct instruction they received had altered the way they determined the meaning of an unknown word.

METHOD/DATA COLLECTION

Data collection for this study consisted of a student survey, vocabulary assessment, and post-assessment questionnaire. The student survey, which measured the vocabulary instruction students had already

received asked if they knew how to use a dictionary and if they had ever been directly taught how to use it. It also asked them to demonstrate their ability to use a dictionary definition by composing an original sentence when given a definition. The second part of the survey asked students what they had been taught about using context clues and required them to demonstrate their ability to use context clues by composing an original sentence when given a short passage.

The vocabulary assessment had students compose original sentences when given a particular word in context as well as the dictionary definition. They were instructed to use all of the information they were presented with, as in Fischer's study. An example is the following passage from "To Build a Fire" by Jack London and the following definition from the American Heritage College Dictionary:

The man flung a look back along the way he had come. The Yukon lay a mile wide and hidden under three feet of ice. On top of this ice were as many feet of snow. It was all pure white, rolling in gentle undulations where the ice-jams of the freeze-up had formed.
undulation- Noun- a wavelike form, outline or appearance.

[\(Back to Top\)](#)

SELECTION OF WORDS

Words for this study were drawn from students' reading assignments. The researcher and the cooperating teacher determined the words. A general theory about vocabulary instruction is that words not taken from the students' current reading are unnatural and disconnected from students' learning. For this reason, the words chosen for the vocabulary assessment were taken directly from the most recently read short story, Edgar Allan Poe's "The Cask of Amontillado."

Students also filled out a post-assessment questionnaire which asked them to explain how they determined the meaning of the vocabulary words as they composed their sentences. They were asked if they thought one of the two sources, dictionary definition or context clues, was better for determining the meaning of a word. If they relied more heavily on one of the sources rather than the other, they were asked to explain their reasons. Students were also asked if they used any other means of determining the meaning of the word, for example, morphological analysis, because they might have been taught a method of examining prefixes, suffixes, and roots.

DATA ANALYSIS

Sixty-seven pre-assessment surveys were used to determine the range of the vocabulary instruction students had received. Two students filled out the survey using yes or no answers. If students left no answer for a question, their answer was presumed to be no. If students did not write a sentence, their lack of response was considered an unacceptable sentence. The pre-test survey was analyzed by two raters to assess whether students had composed sentences that showed their understanding of a word based on either context clues or dictionary definitions. The raters agreed 92.5% of the time. After analyzing the data from these surveys, a determination was made regarding the number of mini-lessons that were devoted to learning how to use a dictionary and learning how to use context clues. Only one mini-lesson was devoted to review of dictionary entries because so many students provided an acceptable sentence. It was decided that students needed more work using context clues, so three mini-lessons were devoted to using how to learn different types of context clues.

The vocabulary assessment entailed students writing original sentences when given dictionary definitions and context clues for a given word. Students were asked to use all of the information they had been given to compose their sentences. Two raters examined the sentences to see if students had used the word correctly. Raters agreed 94.9% of the time.

Following the test, students answered a post-test questionnaire. Two raters examined the students' questionnaires for any similarities or unique responses. By comparing the post-test questionnaire to the pre-test survey, a conclusion was drawn regarding the effectiveness of teaching students how to use a dictionary and context clues to determine the meaning of unknown words.

RESULTS and PRE-TEST SURVEY:

Dictionary Definitions

The student survey used in this study determined the students' familiarity with using context clues and dictionary definitions. The first section of the survey was concentrated on dictionaries and dictionary

definitions. Students were asked if they owned a dictionary, when was the last time they had used a dictionary, and whether or not they had been directly instructed regarding the use of dictionaries. Finally, students were asked to compose an original sentence when they were given only a dictionary definition.

After students identified their familiarity with using dictionary definitions to compose a sentence, they moved to the second section of the survey regarding their knowledge of context clues. Students were asked to define a context clue, describe their recollection of any direct instruction regarding the use of context clues they had received, and compose an original sentence when they were given a passage with context clues for a given word.

The survey started with a very simple question: did they presently own a dictionary. Sixty-six students out of 67(98.5%) indicated that they presently own a dictionary. The students were then asked to identify the last time they used a dictionary. Forty-nine (73.1%) indicated that they had used the dictionary in the previous two weeks. Of the remaining 18 students, 14 (20.9%) had used the dictionary earlier in the school year, and 4 (6%) had not used the dictionary in the last year.

The next question in the survey asked students if they had ever been directly instructed in how to use the dictionary. Twenty-eight students (41.8%) responded that they remembered being directly taught how to use a dictionary. Of the remaining 39 students, 10 (14.9%) indicated that they were directly taught, but they could not remember who taught them or what exactly they had been taught. The other 29 (43.3%) students either left the question blank or simply wrote "no." One student's reply indicated that the instruction he had received regarding dictionary definitions was very limited. Student #42 recalled what he had been taught about using a dictionary: "Look up the word alphabetically, look at the definition and then use the word appropriately (student emphasis) in a sentence".

Although only 28 students remembered being directly taught how to use a dictionary, most of the students were able to compose a sentence when they were given only a dictionary entry for a given word. Sixty-two students, or 89.8%, composed a correct sentence when they were given the dictionary entry for the word EMIGRATE. Inter-rater reliability was very high for this exercise, with the two raters agreeing on 57 of the sentences. After further discussion, 62 responses satisfied the raters' criteria for a correct sentence.

The most common error students made when composing sentences with a dictionary definition was turning the target word, "emigrate", into a noun. Four of the five students who composed incorrect sentences wrote sentences that were similar to Student #4's: "The emigrates across the street were tortured in their home land." Only one student out of 67 left this question blank. This student did not indicate why the question was left unanswered.

Individual responses are located in Appendix H.Context Clues

The section of the survey that dealt with context clues started with students being asked to define the term "context clues." Thirty-four students were able to define the term context clues, while 33 wrote definitions that were considered inaccurate or only partially accurate. Only one student left this question blank. An example of an accurate definition comes from student #24: "Context clues are information given by surrounding sentences, phrases, or words that may aid in the giving of the meaning of an unknown word." The accurate responses all used the key terms "surrounding sentences", "phrases" and "words".

Table 1		
Technique	No. of Students Who Received Direct Instruction	No. of Students Who Composed Acceptable Sentence
Dictionary Entry	28	62
Context Clues	31	28

[\(Back to Top\)](#)

As Table 1 illustrates, only 31 of the 67 students (44.9%) said that they had been directly taught how to use context clues to determine the meaning of an unknown word. Not surprisingly, even fewer students,

28 (40.6%) were able to compose a correct sentence when they were given a lengthy passage with context clues and one underlined target word. On this section of the survey, 23 (34.3%) students gave no answer at all.

Many responses on this section of the pre-test survey were almost identical to the sentence from the passage:

"Today he would learn English and tomorrow wow them with an impeccable Fourth of July speech, followed by a successful lecture at the Institute for Public Studies."

For example, student # 46 wrote: "I gave an impeccable speech." The student merely slightly altered the sentence from the passage. For this reason, the researcher and the cooperating teacher had a more difficult time identifying sentences that were correct. After much debate, the researcher identified 30 sentences that should be considered correct. The cooperating teacher identified 26 sentences that she believed should be considered correct. A compromise was reached, and the total number of students who composed a correct sentence when given context clues was set at 28.

The most surprising result of the pre-assessment survey was that students were able to compose a correct sentence when they were given only a dictionary definition despite the fact that they could not remember being directly taught how to use a dictionary. The percentage of acceptable sentences diminished greatly when students were given only a passage with context clues and a target word. All of the students who were not directly taught how to use context clues to determine a word's meaning, and three students who had been directly taught how to use context clues, were unable to generate acceptable sentences. (See Table 1) From the data collected, it is evident that not being directly instructed on how to use a dictionary did not hinder students' ability to compose a sentence when they were given only a dictionary definition. Conversely, not being taught how to use context clues clearly led to students being unable to compose a sentence when they were given only context clues. Students who were taught how to use context clues composed correct sentences 90.3% of the time while students who were not taught the clues composed no correct sentences.

VOCABULARY ASSESSMENT

The vocabulary assessment consisted of eight words from Edgar Allen Poe's "The Cask of Amontillado" (See Appendix F). Students were given the context in which each word appears, as well as a dictionary definition for all eight words. They were instructed to use all of the information that was given to them to determine the meaning of the target words and to compose an original sentence that demonstrated their understanding of the word.

Example Exercise

I had told them that I should not return until the morning, and had given them explicit orders not to stir from the house.

explicit (adj): clearly stated

Table 2 identifies the words used and the number of correct responses for each word. Questionable responses are sentences that either one or both raters found to be inadequate.

Table 2 — VOCABULARY ASSESSMENT RESULTS				
TARGET WORD	CORRECT	INCORRECT	QUESTIONABLE	I.R. RELIABILITY
precluded	28 (41.8%)	34 (50.7%)	5 (7.5%)	92.5%
retribution	34 (50.7%)	31 (46.3%)	2 (3%)	97%
accosted	42 (62.7%)	23 (34.3%)	4 (6%)	94%
afflicted	49 (73.1%)	16 (23.9%)	2 (3%)	97%
explicit	45 (67.2%)	17 (25.4%)	5 (7.5%)	92.5%
recoiling	24 (35.8%)	38 (56.7%)	5 (7.5%)	92.5%

termination	53 (79.1%)	13 (19.4%)	1 (1.5%)	98.5%
subsided	50	14	3	95.5%
Average	40.625	23.25	3.375	94.94%

Of the total number of sentences (536), 325 were correct (60.6%) and 211 were incorrect (39.4%). The average number of correct responses for a given question was 40.625. The number of incorrect responses for a given question was 23.25, with 3.375 responses per question being questionable. Inter-rater reliability was 94.94%. On this particular test, no points were taken away for incorrect spelling or punctuation.

POST-ASSESSMENT QUESTIONNAIRE

Immediately following the vocabulary assessment, students answered a post-assessment questionnaire (See Appendix G) designed to elicit responses detailing the process they used to determine an unknown word's meaning and use it in an original sentence. Students were asked to explicitly describe the step-by-step process that they used.

The first question on the post-assessment questionnaire asked students to describe step-by-step how they wrote a sentence for one of the questions on the vocabulary assessment. The raters separated responses into four groups depending on the strategy used. Students who mentioned the Blachowicz and Zabrowski method by name or indicated they tried to determine the word's meaning before the looked at the dictionary definition were placed in one group. Using Blachowicz and Zabrowski's method, students would first see if they could determine the word's meaning using only the context clues before consulting the dictionary definition. Nine students, or 13.4%, used this method. Student # 15 described his process the following way:

"I read the sentence first. Then I thought about what we had done in class so I tried to figure out the word just by myself before the definition. I still wasn't sure so I read the definition."

Students who indicated they read the sentence and then the dictionary definition were placed in another group. This method was the most popular, with 41 (61.2%) students using the context clue and the dictionary definition as compliments. Student #57 provided more detail about her process:

"I read the underlined word to see if I knew it. I had heard of the word before, but I didn't really know what it meant. So then I tried to figure out the word through the context. After reading the sentence, I looked at the definition. The definition was specific enough that I probably could have written a sentence without the context. After I had thought about the c.c.'s and the definition, I wrote my sentence."

[\(Back to Top\)](#)

This student mentions an aspect of dictionary definitions that researchers have identified as worthy of more research. The quality of the definition plays an important role in a student's understanding of an unknown word. Because question #2 on the vocabulary test had a strong definition, a sentence demonstrating the word was not really necessary.

The third group, consisting of 15 students (22.4%), indicated that they looked at the definition first to see if they could determine the meaning of the word. These students had decided that they could determine an unknown word's meaning if the definition was a good one. One student, #11, said that she started to read the passage "but realized I did not have to. The definition made the word's meaning very clear to me." The student realized that a precise dictionary definition allows students to avoid having to figure out the word in context.

The remaining two students (3%) left this question completely blank. Table 3 provides the number of students who used each method and their success rate for composing correct sentences when using the given method.

Table 3			
Method	No. of students	Composed Correct Sentence	Success Rate
Blachowicz and Zabrowski Method	9	7	77.8%
Using dictionary and context clue	41	35	85.5%
Dictionary definition or context clue	15	8	53.3%
Other method	2	0	0%

When students used the Blachowicz and Zabrowski method, they composed correct sentences 77.8% of the time. Students performed the best when they considered both the context and the dictionary definition before they came to a decision about what the word meant, correctly composing a sentence 85.5% of the time. When students relied on only one source to determine the meaning of the word, they were able to compose a correct sentence only 53.3% of the time. Two students did not elaborate on the method they used. The second question on the post-test survey asked students to identify which source was most beneficial in determining the meaning of unknown words. Table 4 provides the results:

Table 4	
Source	Number of Students Citing it as most beneficial
Context clues	2
Dictionary definition	10
Both context clues and dictionary definition	55
Neither context clues or dictionary definition	0

Two students (3%) indicated that context clues were the most important source, 10 (14.9%) replied that dictionary definitions were most important, while 55 (82.1) responded that both dictionary definitions and context clues together were the most important. No students indicated that they believed neither context clues nor dictionary definitions were the most important aspect of determining an unknown word's meaning.

Of the 67 students who took the vocabulary test and filled out a post-test questionnaire, 48 (71.6%) said that they would feel comfortable using all of the words in their own essays or compositions. However, it should be recognized that students composed a correct sentence only 60.5% of the time. It would have been very interesting to monitor their essays to see if in fact they used these words correctly in their writing.

DISCUSSION

At first glance, composing an acceptable sentence only 60.5% of the time when one is given the context in which the word appears as well as the dictionary definition is alarming. However, this percentage is similar to the one in Nist and Olejnik's (1996) study. In their study, students performed four different vocabulary tasks. They scored highest on a multiple choice/matching task and most poorly on a task that required them to generate their own sentences. The students generated adequate sentences just over 60% of the time. Nist and Olejnik conclude, "This is not surprising, since producing new sentences, particularly when using words for which there is no prior knowledge, is a difficult task indeed"(1996).

While it is a difficult task, it is certainly a task that high school students should be attempting to master. Students in the present study had limited experience with composing original sentences with their vocabulary words, and so it is not surprising that they performed so poorly. The students expressed frustration because they had never been exposed to a vocabulary assessment that required them to generate their own sentences. This type of test was very new to them. Prior to this test, their vocabulary assessments were either multiple choice or matching. They simply had to memorize a short definition for a matching exercise. They did not really have to know how to use the words. If teachers continue to rely on multiple-choice tests to assess students' knowledge of unknown words, students will never be able to develop the metacognitive skills that are essential when reading outside of the classroom. Teachers do a disservice to students by not letting them generate sentences containing new vocabulary. Teaching students to use context clues and the dictionary is another way teachers can emphasize process rather than product. Students will be better served if teachers let them come to an understanding of unknown words by using them in their writing.

There is an interesting development when the students' pre-assessment survey is compared to their post-assessment questionnaire. On the pre-assessment survey, only 34 students knew what a context clue was. After receiving two weeks of instruction on how to use context clues, 55 students indicated that the most important way to determine a word's meaning is using context clues and a dictionary definition. This development is noteworthy because a majority of the students (55 of 67) now believe that they can learn information not only from a dictionary definition, but also from the context clues. Unfortunately, all 55 of these students have not mastered the art of using both sources to generate a clear understanding of a word. However, it is apparent that the students will benefit from having another way to determine a word's meaning.

The results of the students' vocabulary assessment show both the difficulty of the task they were assigned and the unfamiliarity with a new type of assessment. There were 15 students who scored higher on the vocabulary test administered in this study than they had on other tests throughout the year. Of those students, three were interviewed and asked why they believed they scored higher. One student, #35, explained her success very succinctly: "I knew that all the information I needed was there, so I just took my time and read the sentence and then the definition. It was easy to write a sentence because all of the information I needed was in front of me." This student struggled with past vocabulary tests, all of which were multiple choice or matching tests, because she felt like she was "missing something in the other tests." She scored higher than usual because she used a technique that demystified the way that she was supposed to come to an answer.

The 15 students who scored higher on this assessment have developed, or at the very least used, metacognitive skills that will aid them throughout the rest of their life. There will not always be a teacher handing out definitions to memorize. Students cannot simply regurgitate information. Instead, they have to process the information they are given and create a sentence which demonstrates their meaning of a word. By encouraging these metacognitive skills, teachers promote the ability to independently learn, both in school and out.

While 15 students scored higher, almost three times as many, 44, scored lower on this particular assessment. Clearly these two figures show the difficulty of the task students were asked to perform. The time constraints of this study clearly limited students' ability to perform this new task. If students were given more time to practice with these techniques, there is little question that their scores would improve. Would students ever be able to approach the averages they attained on elementary matching and multiple choice tests? A study not limited by rigid time constraints could better answer that question.

[\(Back to Top\)](#)

The students' unfamiliarity with vocabulary assessments or tasks that ask them to compose original sentences for new words is clearly evident through the results of this study. It is possible that students have been previously taught to incorporate one source of information more readily than the other. I was attempting to teach in two weeks what other teachers should have spent years doing. Does a poor performance on the vocabulary assessment necessarily mean that they are incapable of using context clues and dictionary definitions to determine a word's meaning? Their poor performance on the vocabulary assessment may have been affected by their limited experience with composing sentences to show their meaning of an unknown word. While it is a difficult task, as the experts have stated, it is a task that is of much greater benefit than simple memorization.

POTENTIAL SIGNIFICANCE / IMPLICATIONS

1. Students, even those who we consider the brightest, have not necessarily received beneficial direct instruction regarding the use of dictionary definitions or context clues. While educators hope these skills are taught before students reach the high school level, they should not assume that students have even been exposed to these two crucial skills. Regardless of the grade level, instruction that requires students to recognize and use context clues and dictionary definitions empowers students to make educated deductions based on all of the information that is available to them.

2. As is often the case with both teachers and students, the process is not considered as important as the product. While students did offer some thought regarding their process, their descriptions lacked a systematic, thought out procedure which they could use whenever they read and discover an unknown word. The post-assessment questionnaire produced clearer descriptions of their process than their initial pre-assessment survey. However, these descriptions were still very brief. Encouraging students to self-reflect will encourage them to delve into each and every step they take. Few students will remember the sentence they wrote for the word "termination" in tenth grade; what they will remember is the process that they used to determine the word's meaning.

3. When students were asked to respond to how many words they would feel comfortable using in their writing, a large percentage said they would feel comfortable using all of the words. The results of the vocabulary assessment, however, clearly showed that only some of those students knew the precise meaning of the unknown words. How do teachers best handle situations in which students have not mastered the material? In my class, a new short story was introduced, along with more new vocabulary. Should I have given students more opportunities to use the words from "The Cask of Amontillado", asking them to generate more sentences and incorporate the words into longer pieces of writing? This is a concern all English teachers face.

LIMITATIONS

The present study, while trying to answer some of the questions that previous researchers have ignored, does have limitations that could be avoided in future studies. The first is that the unknown word given on the pre-assessment survey may have been one with which many students were already familiar. This probably accounted for the high percentage (89.8%) of students who composed a correct sentence. Choosing an unfamiliar word would no doubt change the number of correct responses. Also, the dictionary definition for the target word was very precise. Choosing a word with a more imprecise definition would most certainly lower the number of correct responses.

Students in the present study indicated that they were not equipped to determine a word's meaning when they were given only the context in which the word appears. This is a limiting variable that was not reported in previous studies. Future studies could certainly follow the direction of this study and prepare students more thoroughly for their assessment and give them a greater amount of time to practice using a technique that demands the ability to recognize and use context clues and a dictionary definition.

The most significant limitation of this study is that students were asked to explain their perceptions of what they were doing when they were given a word in context and a dictionary definition. Some students were able to articulate their strategy very well, while others left the explanation of their actions blank. Despite practice in filling out surveys and questionnaires, perhaps students did not know how to explicitly and thoroughly describe the process by which they came to write their sentences. Giving students mini-lessons in self-reflection, providing examples of good explanations, and encouraging them to clearly outline their steps would prepare them to write about their thought processes.

As a follow-up study, it would be interesting to see if student strategies for determining the meaning of unknown words evolve over time. All of the students in the present study were close in age. As students mature, perhaps they develop the ability to perform more difficult tasks like the one required in this study. The results of this study only represent a sampling of urban Central New York 10th grade students.

A possible avenue for exploration in future studies would be to have one class take a multiple choice or matching test while another took a test that gave them the context clues and the definitions. Following the tests, their writing could be examined for the number of times they actually used the words. Because of the limited amount of time of this study, it is uncertain whether the students have really internalized the words and would use them in their own writing.

Despite the gains that some students achieved, giving them only two weeks to practice the strategies most certainly limited their performance. If students were given more time to practice the techniques,

there is little question that their scores would have improved. However, students in the present study did have the advantage of working with context clues and dictionary definitions close to the time of their assessment. It is quite possible that they used both context clues and the dictionary definition to generate the meaning of the words even though they had not developed this complex ability fully. The question that remains is whether or not they would continue to define the meaning of unknown words in this way.

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[\(Back to Top\)](#)