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BULARY INSTRUCTION IN FOUR MIDDLE SCHOOL CONTENT CLASSROOMS: A CASE STUDY

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ABSTRACT

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Students in the middle school grades encounter more content vocabulary in informational texts than ever before in their schooling. In order for students to gain content knowledge, they must learn the content area’s vocabulary. In order to prepare students to meet the demands of content vocabulary in the middle school grades, teachers must explicitly teach specific content vocabulary and vocabulary learning strategies and skills.

The purpose of this case study was to observe and report the vocabulary instruction that occurred over the period of one week in four 7th grade content classrooms: Language Arts, Math, Social Studies, and Science. The researcher observed the four content teachers of these classes every day for one week at the suburban, Northwest Ohio junior high school at which this study occurred. An interview took place following the one-week observation, which gave insight into each teacher’s educational background.

It was concluded that the amount and types of vocabulary instruction varied across content area classrooms. Generally, specific important direct instruction strategies (such as contextual analysis or conceptual development), indirect instruction (that would provide for independent vocabulary acquisition and reinforcement of direct instruction), and verbally rich environments, were absent from instruction. When extended time was spent on vocabulary activities, it did not always equate to effective instruction. It seemed that teachers who had received training in content area reading strategies reflected a higher frequency of vocabulary instruction and devoted more instructional time to vocabulary instruction.
I wish to dedicate this to my Mom and Dad, who have always been there for me and given me never-ending support and love this year, as always.
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CHAPTER I. INTRODUCTION

Vocabulary plays an important role in schooling as well as daily communication. Consistent findings report that a large vocabulary is highly associated with school success, and a small vocabulary predicts poor school performance (Anderson & Nagy, 1992). Vocabulary knowledge is not only highly correlated with standardized achievement test scores, intelligence quotient (IQ) scores, and reading comprehension, it is also instrumental in determining the difficulty levels of textbooks, playing a significant role in readability formulas (Anderson & Nagy). Vocabulary is also crucial to understanding content area material. Gunning (2003) suggests, “The key to understanding the discipline is to grasp the discipline’s vocabulary” (p. 56).

Because vocabulary knowledge and instruction are important to school success and are so highly related to comprehension, studies have identified various research-based components of effective vocabulary instruction to help improve teaching methodologies in school classrooms. From this research, it has been determined that, for vocabulary instruction to be effective, it must provide multiple exposures to words, support background knowledge and learners’ schemata, help learners get beyond the “acquainted level” of word knowledge, promote and teach independent word learning, allow for incidental learning, teach context, teach structural analysis, involve both direct and indirect instruction, motivate, teach problem solving, allow for wide reading, foster word consciousness, engage learners actively, and provide for a rich verbal environment (Baumann & Kameenui, 2004). Researchers have also established guidelines to help teachers choose vocabulary words for instruction (Stahl & Kapinus, 2001).

Although effective instruction has been identified by research, Baumann and Kameenui (2004) found that the vocabulary gap between proficient and struggling readers grows each year.
While various issues play a role in this phenomenon, the questions arise: “Are effective vocabulary instruction practices being translated to the classroom?” What have observational studies of vocabulary instruction taking place in content classrooms found? Is it possible there is a gap between research and practice?

Statement of the Problem

Currently, much research exists about what constitutes effective vocabulary instruction, the importance of vocabulary instruction in developing independent word learners, and vocabulary’s link to comprehension. However, an avenue that has not been so extensively researched is whether this “researched” instruction is being translated into practice. To date, Scott, Jamieson-Noel, and Asselin (2003) have identified five observational studies, including their own, describing the vocabulary instruction that occurs in content classrooms. Four of these five studies are significantly dated (approximately 20 years) and three of the four simply examined vocabulary instruction in language arts reading lessons only, rather than across all the content areas (Scott et al.). Various authorities (Blachowicz, 1987; Graves, 1987; Scott, et al.) have stressed the need for more observational research describing the vocabulary instruction occurring in content classrooms. Therefore, the problem this study addressed was observing and describing the vocabulary instruction that occurred in four content classrooms of one suburban middle school.

Research Question

To address this issue, this study targeted the following driving question: What vocabulary instruction is occurring in four seventh-grade content classrooms in one Northwestern Ohio suburban middle school? Thus, the purpose of this study was to describe and interpret the
vocabulary instruction that took place in one science, one math, one social studies, and one
language arts classroom.

Justification

Teaching vocabulary in the content areas is crucial to students’ learning in the content
areas. Gunning (2003) suggests, “One of the chief barriers to learning in the content areas is that
posed by the technical vocabulary that each employs” (p. 56). Not only is vocabulary instruction
essential to comprehension in general (Nagy, 1988), it is necessary since “current texts are
overloaded with technical terms” (Gunning, p. 56).

Because vocabulary knowledge and learning is important to content area learning and
comprehension, research has identified the various characteristics of effective vocabulary
instruction, the knowledge needed to select words for instruction, and various research-based
word learning strategies. However, one important and particular area of vocabulary research has
not yet been extensively researched. Only five known observational studies were found that
describe the type of vocabulary instruction that is being implemented in content classrooms.
Only one of these five studies occurred within the last 18 years; only two of these five observed
content area vocabulary teaching in a classroom other than language arts (Scott, et al., 2003).

Vocabulary experts concur that much more observational research is needed to determine
whether vocabulary research is being translated into practice in the content classrooms
(Blachowicz, 1987; Scott et al., 2003). Therefore, this case study examined whether research-
based, effective vocabulary instruction was evidenced in the designated content classrooms. If
vocabulary instruction was not observed, then the relay of knowledge between research and
practice must somehow be bridged.
Definition of Terms

The following terms were used throughout this case study. This listing was designed to clarify terms that may be unclear:

1. Effective Vocabulary Instruction—This type of instruction provides multiple exposures to words, supports background knowledge, helps learners get beyond the “acquainted level” of word knowledge, promotes and teaches independent word learning, allows for incidental learning, teaches context skills, teaches structural analysis, motivates, teaches problem solving, allows for wide reading, involves both direct and indirect instruction, fosters word consciousness, actively involves learners in word learning, and provides for a rich, verbal environment (Baumann & Kameenui, 2004).

2. Incidental Learning—This type of learning occurs with having multiple exposures to a word or concept and primarily through independent learning (Nagy, 2005).

3. Direct Vocabulary Instruction—Throughout this study, direct instruction refers to explicitly teaching students concepts, words, or word learning strategies, by way of modeling and engaging students in word learning instruction in the process of teaching the words or concepts. The goal of this is to directly teach designated words/concepts as well as the skills and strategies needed for independent word learning (Chall, 1987).

4. Indirect Vocabulary Instruction—Throughout this study, indirect instruction refers to implicitly increasing students’ vocabulary by providing instructional time for wide reading and other incidental word learning that allows students to practice independent word learning skills such as context, structural analysis, and word consciousness (Chall, 1987).

5. Independent Learning—This type of learning occurs when one has developed and is able to exercise context, structural analysis, and other skills and strategies to determine the
meaning of unknown words. Independent word learners “know which words to choose for study and can use the tools they need to gain meaning” (Blachowicz & Fisher, 2002, p. 9).

6. Vocabulary Strategy—As it pertains to this study, a vocabulary strategy is a particular instructional tool and way of going about directly, or explicitly, teaching predetermined words or concepts as well as the independent word learning skills required to learn words independently. Effective vocabulary strategies are based on the characteristics established for effective vocabulary instruction (Lenski, Wham, & Johns, 2003).

7. Active Engagement—“Involving students in class discussion that incorporates vocabulary and providing opportunities for students to apply the newly acquired vocabulary to different situations” (Lenski et al., 2003, p. 46).

8. Problem Solving—This occurs when a learner manipulates a word to actively construct the meaning of the word (Blachowicz & Lee, 1991).

9. Word Consciousness—An interest in and awareness in words (Graves & Watts-Taffe, 2002) that focuses on language in general and helps learners “develop a mind-set for learning to pay attention to words, opposed to only a particular set of words” (Baumann & Kameenui, 2004, p. 208).

10. Contextual Analysis—As it pertains to this study, this is an examination of the words and textual clues surrounding an unknown word that enable one to determine the general meaning of the unknown word (Baumann & Kameenui, 2004).

11. Structural Analysis—As related to this study, this is an examination of the various parts of a word, including the base, prefix, and suffix, which enables the learner to determine the general meaning of the word from its parts (Lenski et al., 2003).
12. Motivation—A willingness to learn concepts/words and word learning strategies and
skills (Baumann & Kameenui, 2004).

Limitations

One limitation of this study was that the school involved was located in a small suburb of
Northwest Ohio. Therefore, the results of this study reflected the results of the language arts,
math, science, and social studies classes of this school alone.

A second limitation was that the study did not address the realm of the assessment that
teachers used to assess the vocabulary learning that was taking place. The reason for this
primarily involved the time component allowed for this case study. Thus, the issue at hand was
to study and describe what vocabulary instruction took place in the four content classrooms,
rather than assessment of vocabulary knowledge.

A third limitation of this study was that, due to time constraints, the data collection and
observations of vocabulary instruction in these four content classrooms only occurred over a
period of five days. It was necessary to limit observation and data collection to permit field note
collection, transcription, analysis, and interpretation within the time frame allotted for this study.

A fourth limitation was that a professional development in-service, which touched on the
issues of morphemic analysis and the importance of content literacy, was conducted at the
beginning of November, 2005, which was about three months before this study occurred.
Therefore, this one-day teacher in-service may have somehow indirectly heightened the
awareness of the teachers at this school and the ones involved in this study about the importance
of content vocabulary.
CHAPTER II. REVIEW OF LITERATURE

This study described the vocabulary instruction that occurred throughout the course of a week in a seventh grade language arts, math, social studies, and science classroom at one suburban middle school in Northwestern Ohio. The literature review framing this study and described in this chapter first examines research about current vocabulary instruction in content classrooms. It then explores why vocabulary instruction in the content areas is necessary. In addition, the elements influencing vocabulary acquisition, including word processing, levels of word knowledge, direct, indirect, brief, and rich instruction, are discussed. Finally, components of effective vocabulary instruction are discussed, examples of effective vocabulary instruction are explored, suggestions for choosing instructional strategies are offered, and a description of ineffective instruction is provided.

Current Vocabulary Instruction in Content Classrooms

Limited observational, descriptive research currently exists to show what vocabulary instruction is actually occurring in content area classrooms. The most recent study that examined vocabulary instruction in such contexts was completed by Scott, et al. (2003). Only four other observational studies were found by the researcher, as well as by Scott et al., that investigated vocabulary instruction in the content classrooms. These include Blachowicz (1987), Jenkins & Dixon (1983), Durkin (1979), and Beck, McKeown, McCaslin, & Burkes (1979).

These four studies also vary considerably, and as mentioned by Scott et al. (2003), each studied “vocabulary instruction within the constraints set by specific lessons” (p. 270). The commonality of the studies lies in their purposes, which were to describe the amount and quality of vocabulary instruction taking place in the classroom. Of them all, only Durkin (1979) studied instruction that occurred beyond reading lessons when she examined vocabulary instruction in
social studies lessons. However, her study can be viewed as limited because it does not reflect
current instructional practices in content area curricula (Scott et al.). These varying constraints
hinder these existing studies for two reasons: “(1) They can inflate the perceived percentage of
time devoted to vocabulary instruction during a day, and (2) They do not capture vocabulary
learning in related language arts activities such as spelling or writing, during instruction in
subjects such as math or science, or in integrated thematic units” (Scott et al., pp. 270-271).

While the described weaknesses can be found in the four studies prior to Scott et al.
(2003), these studies are the only existing observational studies found that identify vocabulary
instruction that takes place in the classroom, and it is important to note that each of the studies
found a “mismatch between characteristics of effective vocabulary instruction noted in research
and the type of instruction found in the classrooms,” (Scott et al.). Scott et al. describe similar
findings in their study, noting that even in classrooms with rich contexts, little actual vocabulary
teaching occurred, but rather “considerable mentioning and assigning” (p. 282).

While only two of the five existing studies observed content classrooms, all of the
existing studies found the vocabulary instruction observed to be meager, which Graves (1986)
suggests is “consistent with the assessments of a variety of authorities who have observed that
the vocabulary instruction in school lacks purpose, breadth, and depth” (p. 78). In other words,
vocabulary instruction seemed to lack purpose, did not account for a large amount of
instructional time, and was inconsistent.

Because of this limited amount of observational research on vocabulary instruction in
content classrooms, there is a great need for more observational research to uncover what
vocabulary instruction is being practiced in content area classrooms. Blachowicz (1987) and
Scott et al. (2003) both concur, with Blachowicz calling for further investigation into whether
teachers actually teach the strategies they report that they teach. Graves (1987) explains the situation well, writing, “Admittedly, this is a very small set of studies on which to base generalizations about the amount and quality of vocabulary instruction in schools” (p. 178).

Why Implement Vocabulary Instruction in Content Classrooms?

Vocabulary’s link to comprehension and learning must be acknowledged; implementing effective vocabulary instruction is crucial to successfully teaching students the subjects in the academic content areas. Gunning (2003) suggests, “One of the chief barriers to learning in the content areas is that posed by the technical vocabulary that each employs…The key to understanding the discipline is to grasp the discipline’s vocabulary” (p. 56). Furthermore, as students advance from grade to grade, the technical terminologies in informational textbooks become increasingly more advanced and difficult. In fact, terms given a large amount of attention in the middle grade content areas include technical terms, figurative terms, multiple meaning words, easily confusable words, and acronyms (Gunning). If students do not have the independent learning skills and strategies needed to determine unknown words/concepts, or if the words are not determinable by using independent skills and strategies alone, the students will not be able to comprehend the unknown words/concepts. Therefore, it is important vocabulary instruction take place in content classrooms.

In addition, the middle school grades, especially, are a time when students are expected to learn more and more content information from reading informational textbooks (Anderson & Nagy, 1992). Gunning (2003) supports this, contending, “Current texts are overloaded with technical terms” (p. 56). However, many students are unable to comprehend what they are reading for a variety of reasons, which may include that they cannot understand the vocabulary
of the text or have not been taught vocabulary strategies to help them determine word meanings. The result is that comprehension, and thus content area learning, suffers.

Of the relationship between vocabulary and school success, Anderson and Nagy (1992) write, “Squaring with teachers’ experience, one of the most consistent findings of educational research is that having a small vocabulary portends poor school performance and, conversely, that having a large vocabulary is associated with school success” (p. 14). Nagy’s and Herman’s (1987) earlier research also acknowledges the strong correlation between vocabulary knowledge and reading comprehension: “It would seem that there is a direct causal relationship between the two” (p. 28). Thus, vocabulary acquisition is crucial to reading comprehension and student learning.

Vocabulary knowledge is so extensively linked to comprehension and learning in general that vocabulary, as well as effective vocabulary strategies, must be used and taught in the classroom to help students learn. Because vocabulary acquisition and development (which is largely influenced by wide reading, independent learning, and incidental learning, which will be discussed later in depth) among proficient readers increases each year and that of struggling readers decreases each year, this gap, which Stanovich (1986) calls the Matthew Effect, can only be decreased by teaching and using effective vocabulary and word learning strategies. Baumann and Kameenui (2004) affirm that students should be taught vocabulary as well as vocabulary learning strategies.

Vocabulary Acquisition

Word Processing

Three different kinds of word learning tasks and three levels of word processing are needed to learn words (Graves & Prenn, 1986). Teachers must be able to choose the appropriate
vocabulary strategy to match the word learning tasks, or levels, of students (Graves & Prenn).
The first word-learning task involves learning a word that is already in the oral vocabulary. This
task is usually mastered by the fourth grade. Readers who typically face this task are beginning
readers. The second word-learning task involves words that are not in the oral and reading
vocabularies, but for which concepts about the word exist. This task is much more challenging
than the first, and the majority of words learned throughout middle and secondary school are
those in this category. The third and most difficult word-learning task involves learning words
for which an available concept does not already exist. This level of learning occurs through the
middle and secondary grades.

For each of these different levels of word learning tasks, which help determine the type
and intensity of vocabulary instruction needed, three processes must be applied (Sternberg,
1987). The first process, selective encoding, requires that the reader separate relevant from
irrelevant information so that he/she is able to formulate a definition. The second process, called
selective combination, requires the learner to formulate a definition by combining the relevant
clues. The third process, called selective comparison, requires the student to relate new
information about a word to information already known (Sternberg). These processes will vary in
the extent to which they are experienced, based on the learner’s level of prior word knowledge.
This dictates what kind of vocabulary instruction should be administered.

**Levels of Word Knowledge**

To fully “know” a word, the word must exist in all of one’s four different vocabularies,
which include the speaking, writing, reading, and listening vocabularies. These four vocabularies
can be further broken into two categories. The speaking and writing vocabularies are classified
as expressive vocabularies. The reading and listening vocabularies are classified as receptive vocabularies (Baumann & Kameenui, 1991; Lenski et al., 2003).

Beck, McKeown, McCaslin, and Burkes (1979) established, and Graves and Prenn (1986) concur, that for a word to become “known” in any of these four vocabularies, a person can pass through three different levels of word knowledge. A word at the “unknown level” is simply unfamiliar. A word at the “acquainted level” is recognizable, with the reader applying attention to the word; however, the reader does not fully know the word. A word at the “established level” is one that is fully understood and easily recognized.

While it is important to be aware of which levels of word knowledge students have to determine what kind of vocabulary instruction to choose, how might one go about determining students’ levels of word knowledge? Drum and Konopak (1987) suggest the key to determining the levels of word knowledge is directly related to assessing background knowledge, and that students have four main categories of background knowledge concerning knowledge of words. These four categories include, “a. perceptual knowledge (physically similar words), b. syntactic knowledge (internal structure or grammatical function of words), c. semantic knowledge (general meaning dimensions of a word), and d. specific definitional knowledge” (Drum & Konopak, pp. 79-80). Along with being aware of students’ background knowledge about words, Beck, McKeown, and Kucan (2002) suggest that teachers assess the background knowledge of the “qualitative dimensions” of students’ word knowledge to determine which instructional strategies to choose. These five qualitative dimensions of word knowledge include “1. generalization (the ability to define a word), 2. application (the ability to select or recognize situations appropriate to a word), 3. breadth (knowledge of multiple meanings), 4. precision (the
ability to apply a term correctly to all situations and to recognize inappropriate use), and 5.
availability (the actual use of a word in thinking and discourse)” (Beck et al., p. 10).

*Direct, or Explicit, Instruction*

Effective vocabulary instruction helps students develop word knowledge at least at the
“acquainted level,” and ideally at the “established level.” It involves multiple exposures to
words, teaches words that are crucial to the understanding of content area concepts, as well as
words that are crucial to understanding text in general, and involves using strategies that will
increase incidental learning and facilitate independent word learning. Since incidental learning
helps most readers increase and develop their vocabularies, why is direct instruction needed?
Two main arguments support direct instruction.

First, to increase their vocabularies readers must be independent learners and possess the
skills needed to acquire words. Even the most senior of students many times have not mastered
the skills previously discussed. Baker, Simmons, and Kameenui (1995a) agree, “Students with
poor vocabularies, including diverse learners, need strong and systematic educational support to
become successful independent learners” (p. 7). Also, as previously mentioned, if vocabulary
instruction is not direct, students who do not possess the independent word learning skills
possessed by their more skilled and experienced counterparts will continue to fall further and
further behind in their vocabulary development. In other words, the Matthew Effect will
continue. Thus, while wide reading, sustained silent reading, and incidental learning must occur
to support vocabulary growth, direct instruction is crucial in teaching word learning skills.
Ultimately, there must be a balance between explicit (direct) and implicit (non-direct, or implied)
instruction.
Secondly, direct vocabulary instruction is needed because some words, such as those that are unknown, including various words representing important content area concepts, and words that cannot be determined from using context or structural analysis, simply cannot be determined or learned without the help of direct instruction. Stahl and Kapinus (2001) agree that direct instruction is important both for teaching these kinds of words as well as word learning skills: “Some words are not likely to become part of one’s vocabulary without direct instruction. In addition, effective vocabulary instruction helps students understand what they must do and know in order to learn new words on their own” (p. 13). Baker, Simmons, and Kameenui (1995b) also stress the importance of direct vocabulary instruction in the content areas, “Vocabulary acquisition is crucial to academic development. Not only do students need a rich body of word knowledge to succeed in basic skill areas, they also need a specialized vocabulary to learn content area material” (p. 35).

Finally, Allen (1999) also supports direct vocabulary instruction, concurring with her colleagues that direct vocabulary instruction is needed to help students learn unknown words, content area words and concepts, and independent word learning skills. She cites five main reasons that direct vocabulary instruction should occur in every content area classroom, most of which are among those previously mentioned: “1. to increase reading comprehension; 2. to develop knowledge of new concepts; 3. to improve range and specificity in writing; 4. to help students communicate more effectively; and 5. to develop deeper understanding of words and concepts of which they were partially aware” (Allen, p. 11).

*Indirect, or Implicit, Instruction*

Independent, or implicit, vocabulary instruction is sometimes equated with wide reading (Marzano, 2004), as it is closely related to incidental and independent word learning. Indirect
instruction involves allowing students instructional time for wide reading and time to practice independent word learning skills and strategies. The argument for indirect instruction made by Stanovich (1986) is that because vocabulary knowledge is both a cause and consequence of wide reading, allowing children time to read will increase the words they learn, and consequently, make it easier for them to read and increase their motivation to read more often.

A second argument for indirect instruction is made by Nagy and Anderson (1984). They found that approximately 88,500 words are encountered through school print by children in grades three through nine and explain that direct instruction cannot possibly teach all of those words. Stahl and Fairbanks (1986) took this research a step further and found that a vocabulary program that taught about 10-12 words a week throughout the course of a year would result in covering only about 400 words a year, not all of which would become truly learned. They concluded then that much word learning must occur through indirect instruction, or wide reading.

However, there is a significant gap between the numbers of words learned by skilled readers versus poor readers. Allington (1984) found that when participating in wide reading sessions at school, the poorest reader read sixteen words in one week compared to the most skilled reader who read 1,933 words in one week. Thus, direct instruction is still needed to help bridge the general vocabulary knowledge gap, teach word learning skills, and especially teach critical content area terminology that would be difficult to learn otherwise (Marzano, 2004).

Brief Instruction

While researchers have determined the characteristics of effective vocabulary instruction, the amount of time required for effective instruction has not been established. Nagy (1988), however, found a positive correlation between more versus less time on vocabulary instruction
and students’ word learning. At the same time, Nagy cautions that regardless of the amount of time spent on vocabulary instruction, it is the quality of the instruction that is most important. Also, while no prescribed amount of time has been established to help qualify instruction as “effective,” Nagy does suggest that vocabulary instruction should play an important and consistent role in content area classroom instruction.

As for the benefits of brief instruction, Graves and Prenn (1986) acknowledge that there is most definitely a place for brief instruction. This enables students to move past the first level (unknown level) of word knowledge, and at the very least, helps students recognize a word, prevents them from stumbling over it, and better prepares them for more intensive future instruction. Jenkins, Stein, and Wysocki (1984) and Graves and Prenn contend that even a brief introduction to a word increases the chances that the reader will have a better understanding of its meaning the next time they encounter it.

“Rich” Instruction and a “Rich Verbal Environment”

Rich instruction, a term discussed by Baumann and Kameenui (2004), involves using effective vocabulary instruction strategies consistently and incorporating the various elements of effective instructional components (such as active involvement, multiple exposures, multiple examples, various independent learning strategies, meaningful learning, motivation, etc.). If students are to be motivated and excited about word learning and effectively learn words, this rich instruction must take place. Baumann and Kameenui elaborate on rich instruction:

Rich instruction is very open-ended; it is not some particular set of activities but rather any activity that gets students to use, think about, and become involved with words. The major concept is to provoke thought. Give students a lot of information about the words, and a variety of information—examples, contexts,
pictures, relationships. Then have them engage in interactions—create contexts, compare features of words, explain their reasoning, and discuss meanings and uses. (p. 21)

Rich instruction helps to create a rich verbal environment, which plays an important role in creating an atmosphere conducive to effective vocabulary instruction and word learning. Beck et al. (2002) describe a rich verbal environment as one in which words are noticed, mature language is used, various word resources are present, and exploration takes place within and across words. While having a rich verbal environment at school is important to all students, it is especially important for students who do not experience such an environment at home or elsewhere (Baumann & Kameenui, 2004). For example, research shows that “by the time students hit the first grade, there is already a wide gap in the number of words known orally between students from homes of higher socioeconomic status and those from homes of lower socioeconomic status” (Baumann & Kameenui, p. 22).

**Selecting Words/Concepts for Instruction**

In choosing which words to select for vocabulary instruction, teachers should again, as previously mentioned, assess what students already know and how well they know what they already know (Stahl, 1986). In other words, which levels of word knowledge (unknown, acquainted, established), which categories of background knowledge (perceptual, syntactic, semantic, specific definitional), and which qualitative dimensions of word knowledge (generalization, application, breadth, precision, and availability) do students have for the words under consideration? Stahl suggests that a pre-assessment of this word knowledge be done through a checklist, or informally through class discussion.
After assessing students’ background knowledge of the possible words, the first guideline in selecting words for instruction is to choose words that will be important to understanding the text or words that students will likely encounter again and again (Stahl, 1986). Because students of the middle grades are learning new content area concepts and words for these concepts at a high rate, Stahl and Kapinus (2001) stress that it is “crucial for teachers of the content areas to teach words that are critical concepts for understanding the content and mastering the processes in subject areas” (p. 13). These words kinds of words are called “tier two” words, otherwise known as “low frequency words with specific application” (Stahl & Kapinus, p. 13). Thus, words that are important to understanding textual concepts and/or content area concepts are important for comprehension and should be explicitly taught.

The second guideline for choosing words for instruction is to assess the likelihood of whether a person could determine the word’s meaning from context. Stahl (1986) advises teachers to choose words for instruction that students will encounter in a variety of situations but which are not easily definable in context. In addition to words that are not easily definable in context are words that are important to the understanding of the text, but which are not frequently encountered. These level two tier words apply to this second guideline because these words are usually not definable via context. Although their occurrence in text is oftentimes infrequent, these words are important to understanding content area concepts.

Stahl and Kapinus (2001) offer an additional guideline for language arts and English teachers, advising “tier three” words should be the primary focus of vocabulary instruction. Tier three words, they suggest, are “sophisticated words that are frequently encountered and employed by mature, informed language users” (Stahl & Kapinus, p. 13). Finally, McKeown, Beck, Omanson, & Perfetti (1983) recommend that teachers be on the lookout for words that
group themselves into similar categories, as teaching words that are related are easier for students to learn.

Characteristics of Effective Vocabulary Instruction

*Multiple Exposures to Words*

Once the vocabulary words have been chosen and instruction begins, Beck and McKeown (1983) and Graves and Prenn (1986) suggest that an important component of effective instruction includes planning for multiple exposures to the words in a variety of contexts. Graves and Prenn found that allowing for multiple exposures in a variety of contexts calls for students to “associate the word with a range of experiences, readily access the word, articulate one’s understanding of the word, flexibly use the word, and recognize the synonyms, metaphors, and analogies that employ the word” (p. 598). Graves and Prenn (1986) discuss how multiple exposures increase students’ qualitative dimensions of word knowledge (generalization, application, breadth, precision, and availability) and in turn, increase student’s intimate knowledge of the studied words.

Thus, multiple exposures to words are a key element of effective vocabulary instruction. Multiple exposures to words help develop full understanding, moving words from the “unknown” or “acquainted” levels of word knowledge to the “established” level and increasing one’s background knowledge (perceptual, syntactic, semantic, specific definitional) of a word as well as one’s qualitative dimensional knowledge (generalization, application, breadth, precision, and availability) of a word.

*Wide Reading, Incidental Word Learning, and Developing Independent Word Learners*

While multiple exposures to chosen words helps develop students’ word knowledge, Nagy and Herman (1987) conclude that large and long-term gains in reading vocabulary and
reading comprehension cannot occur without increasing students’ incidental word learning, which is learning that takes place, primarily, through wide reading, which fosters independent word learning. Other researchers agree that incidental word learning accounts for the majority of words students learn each year. Nagy and Herman suggest, “The general increase in reading comprehension produced by vocabulary instruction may be the result, not of the words specifically covered in instruction, but of the increased incidental learning that the instruction may produce” (p. 30). In other words, instruction that teaches one how to learn words independently, which produces incidental learning, accounts for increased reading comprehension from vocabulary instruction.

Beck, Perfetti, and McKeown (1982) describe the cycle that occurs when instruction that teaches independent word learning is implemented, adding to the conversation that effective vocabulary instruction increases interest in learning words, which leads to a development of word consciousness, which increases the learning of other words, which increases one’s ability to learn new words from context. Thus, effective vocabulary instruction must increase students’ ability to learn independently, which will, in turn, increase incidental learning and reading comprehension.

Nagy and Herman (1987) suggest that some elements of effective vocabulary instruction that inspire independent word learning include instruction that gives attention to affixes (structural analysis), context clues, awareness of words and their meanings, and motivation. Sternberg (1987) concurs, suggesting that vocabulary instruction that includes de-contextualization skills is one way to give students independence and confidence in their word learning. In addition to providing direct instruction that gives attention to affixes and structural analysis, context clues, awareness of words and their meanings, and motivates one to learn
words, Nagy and Herman suggest the second part of teaching students to be independent word learners is to provide time for independent learning to occur. This would increase the opportunity for students to learn more words as well as practice vocabulary strategies.

**Active Engagement and Problem Solving**

Along with using instruction that incorporates the five areas of vocabulary instruction identified by Nagy and Herman (1987) to effectively teach independent word learning skills, Lenski et al. (2003), Blachowicz and Lee (1991), Nagy (1988), Stahl and Fairbanks (1986), and Beck, Perfetti, and McKeown (1982) identify two additional characteristics of instruction that teach independent word learning skills. These are active engagement and problem solving.

Lenski et al. (2003) describe active engagement as “involving students in class discussions that incorporate new vocabulary and providing opportunities for students to apply the newly acquired vocabulary to different situations” (p. 46). They assert that when students are actively engaged, they are “being helped to become independent learners” (p. 46). Described as actively constructing meanings of words (Blachowicz & Lee, 1991), problem solving allows not only for additional practice in using and manipulating words, but creates for the learner a sense of word ownership (Beck et al., 1982; Blachowicz & Lee, 1991; Lenski et al., 2003; Nagy, 1988; Stahl & Fairbanks, 1986).

Knowing that effective vocabulary instruction teaches and promotes structural analysis, use of context clues, word awareness, problem solving, active engagement, has an element of motivation, and allows time for independent learning, how might these characteristics be incorporated into vocabulary instruction? Nagy (2005) recommends that teachers model how to use knowledge of context and word parts when encountering an unknown word and give students plenty of time for guided practice in which they can use such strategies. Nagy and Herman
(1987) suggest that sustained silent reading (SSR) serves as an excellent way to allow students
time to practice their independent word learning skills. Nagy also recommends that teachers
make both themselves and students aware that there are limitations to using contextual and
structural analysis methods, and that some times, context and structural clues are just not
conclusive enough to enable the reader to determine a word’s meaning.

Context

As previously mentioned, using context clues to determine a word’s meaning is one
characteristic of effective vocabulary instruction that increases the ability to be an independent
word learner. Being able to use context clues to determine word meanings is essential to
incidental learning. Nagy and Anderson (1984) found that when reading content area texts,
skilled readers were able to determine the meanings of unknown words primarily by relying on
context clues. It has been established that context clues play an important part in determining
word meanings and should play a role in effective vocabulary instruction, but what should a
teacher know about context clues in order to effectively teach students?

First, teachers must be aware of the eight types of contexts in which new words might
occur, so that these context possibilities can be relayed to students (Sternberg, 1987). Sternberg
identifies these eight types of contexts cues, as including “temporal cues, spatial cues, value
cues, stative descriptive cues, functional descriptive cues, causal/enablement cues, class
membership cues, and equivalence cues” (p. 92).

Second, teachers must be aware of the four different types of contexts in which these
eight context cues might occur. Because all contexts are not the same and are often more or less
helpful in determining the meanings of unknown words, it is important that students be aware of
the contexts that will not be helpful in determining the meanings of unknown words. Baumann
and Kameenui (2004) and Beck, McKeown, and McCaslin (1983) note the four types of contexts in which words can be found. Directive contexts allow for a word’s meaning to be easily inferred. General contexts allow a person to place a word within a general category. Nondirective contexts make it difficult for a reader to infer meaning about the word in question. Misdirective contexts cause the reader many times to assume an incorrect meaning about the word in question.

Baumann and Kameenui (2004) suggest that because students may not immediately understand the kinds of associations that are helpful in determining word meaning in relation to context, teachers should “work through contexts by reading and thinking aloud to model for students how to use information to infer a word’s meaning” (p. 24). Thus, being able to use context clues is an important part of independent learning, but for context clues to be helpful, teachers and students must understand that all contexts are not the same and some are simply not helpful. Modeling how to use various contexts is an important part of effective instruction.

Word Consciousness

Word consciousness is an important characteristic of effective vocabulary instruction. Baumann and Kameenui (2004), Anderson and Nagy (1992), and Graves and Watts-Taffe (2002) explain that word consciousness is an interest in and awareness of words. Baumann and Kameenui expand upon this term by suggesting that the underlying tenet of word consciousness is that “modeling word consciousness with a focus on language in general, as opposed to a particular set of words, will help students develop a mind-set for learning to pay attention to words” (p. 208).

Word consciousness is crucial to effective vocabulary instruction for two main reasons. First, it acts as a cluster for various types of word knowledge and skills called metalinguistic awareness, an umbrella term that includes morphological awareness, or awareness of and
between the meanings carried by word units such as prefixes, suffixes, base, and root words, syntactic awareness, and metasemantic awareness, or knowledge of antonyms, synonyms, figurative language, and metaphors (Baumann & Kameenui, 2004). Being aware of these kinds of knowledge can positively contribute toward knowing words at the “established level.”

Second, according to Baumann and Kameenui (2004), the knowledge and beliefs about word learning and instructional practices implied by word consciousness suggest four main understandings that are crucial to effective vocabulary instruction, and include the following:

Word knowledge is complex: Knowing a word is more than knowing a definition;
Word learning is incremental: It is a process that involves many small steps;
Words are heterogeneous: Different kinds of words require different learning strategies; and definitions, context, and word parts can each supply important information about the meaning of a word, but each of these source has significant limitations. (p. 204)

These beliefs that word consciousness embodies support what researchers know about effectively acquiring vocabulary, the levels of word knowledge, and the skills needed to develop independent word learners. Yet, Baumann and Kameenui suggest that one of the most important aspects of word consciousness is that it helps motivate learners by helping them to scaffold success. Without experiencing success in some aspect of word learning, motivation declines and instruction cannot be effective (Baumann & Kameenui). Successes can be as small as developing a love for words, realizing one has recognized a new word, and as big as using one’s metalinguistic awareness to determine the meaning of a word.
Relating New Vocabulary to Background Knowledge

When teaching students new words, a very important part of effective instruction is that the new information be related to the learner’s background knowledge. Related to the concept of schema theory (which states that people learn by adding and taking away the ideas they have about concepts, as new information is introduced), Lenski et al. (2003) suggest that linking new knowledge to old knowledge allows the new knowledge to become meaningful to the student, causing better assimilation of new knowledge. Lenski et al. contend, “No longer do we believe that memory is built sequentially from an accumulation of facts” (p. 45). Instead, researchers confirm that meaning is tied to and depends on the connected relationship between words and ideas (Lenski et al; Nagy & Scott, 2000).

Relating new words to background knowledge also involves the active engagement component of vocabulary learning, which is one component of effective instruction that encourages independent learning. By relating new words to background knowledge, students feel personally connected to the word and have an increased chance for developing ownership of new vocabulary (Blachowicz & Fisher, 2000; Lenski et al., 2003). In addition, Blachowicz and Fisher found that teaching words by relating new words to background knowledge results in a higher level of retention and usage.

Thus, relating new words to background knowledge makes learning meaningful, actively engages the reader in learning, establishes a personal connection between the reader and the word, enables the reader to feel ownership for the word, and results in a higher level of retention and usage.
Examples of Effective Instruction

Content teachers have at their disposal a wealth of instructional strategies designed to develop students’ vocabulary knowledge. Gunning (2003) suggests that instructional approaches can be loosely grouped into four broad categories: (1) Brainstorming Techniques, (2) Conceptual Techniques, (3) Graphic Organizers, and (4) Other or Miscellaneous. According to Gunning, “In brainstorming, students are asked to tell what comes to mind when they hear a certain term or phrase” (p. 63). Semantic mapping is one example of a vocabulary activity involving brainstorming. Conceptual techniques add a second dimension to vocabulary study: they illustrate how concepts are related. Conceptual techniques include Word Webs and maps, concept maps, the Frayer Model, Concept of Definition, and Structured Overviews. These techniques overlap into the next category, as they can also be considered graphic organizers. According to Gunning, “Graphic organizers include charts, diagrams, and other visual devices that help students establish and display relationships” (p. 73). Examples include Pictorial Maps, Venn Diagrams, and Semantic Feature Analysis. Finally, techniques placed in the miscellaneous category include Syllabic Analysis, Morphemic Analysis, Contextual Analysis, Dictionary Use, Vocabulary Self-Collection Strategy, Sustained Silent Reading, explanation, discussion, and illustration (Gunning).

Choosing Strategies for Vocabulary Instruction

How should teachers determine what strategies to use when teaching specific words? Once the words to be taught have been established, the first guideline in strategy determination is to analyze the chosen words and assess the learners’ background knowledge of the chosen words and concepts. This will help the teacher distinguish which levels of word learning tasks the learners will require (Graves & Prenn, 1986). If the word is one for which the learners have an
available concept, the word can easily be taught by relating the word to the learners’ background knowledge and by providing various concrete and contextual examples of the word (Stahl, 1986). If no concept for the word exists in the learners’ background knowledge, more intensive and direct instruction will be required to learn it, with many provisions for examples and nonexamples (Stahl).

A second guideline for selecting vocabulary strategies for specific words is to consider the conceptual difficulty of the entire text, rather than merely considering the conceptual difficulty of specific words. In a comparison of studies on the effects of vocabulary instruction on comprehension, Nagy (2005) suggests that “the greater the proportion of unfamiliar words in the text, the more intensive the instruction required to improve comprehension” (p. 35).

Other guidelines that should carry weight in determining which vocabulary strategies to use in vocabulary instruction include the varying levels of importance, frequency, and applicability of different words (Allen, 1999). Because of the many guidelines to consider when determining vocabulary instruction, Allen created a list of ten questions to help teachers decide whether their instruction should be “incidental, offer mediated support, or provide direct instruction” (p. 7). Allen’s questions include the following:

1. Which words are most important to understanding the text?
2. How much prior knowledge will students have about this word or its related concept?
3. Is the word encountered frequently?
4. Does the word have multiple meanings (is it polysemous)?
5. Is the concept significant and does it therefore require pre-teaching?
6. Which words can be figured out from the context?
7. Are there words that could be grouped together to enhance understanding of a concept?

8. What strategies could I employ to help students integrate the concept (and related words) into their lives?

9. How can I make repeated exposures to the word/concept productive and enjoyable?

10. How can I help students use the word/concept in meaningful ways in multiple contexts? (p. 7)

A Description of Ineffective Vocabulary Instruction

While the various characteristics of effective vocabulary instruction have been described and discussed, it is helpful to be aware of the characteristics of ineffective vocabulary instruction so that it may be avoided. Nagy (1988) suggests that one characteristic of ineffective instruction is that its methods fail to foster in-depth word knowledge that goes beyond the ‘acquainted level.’ Nagy identifies one such ineffective method as requiring the memorization of definitions and recommends that methods such as these be replaced “with more intensive instruction aimed at producing richer, deeper, word knowledge” (p. 3).

Nagy and Herman (1987) found this type of definitional instruction largely focuses on abbreviated definitions or synonyms, which fails to provide rich, in-depth contextual understanding. Miller and Gildea (1985) found, for example, that when asked to create sentences with words they were asked to learn through dictionary definitions, 63% percent of students wrote sentences that were considered odd or unnatural. Furthermore, a study by McKeown (1993) found that when students were asked to answer questions about the meanings of words for which only dictionary definitions were provided, 60% percent gave unacceptable responses.
Thus, various researchers have found that when the definitional approach is the main or only approach to word learning, vocabulary instruction is always ineffective.

Another characteristic of ineffective instruction is one that Nagy (1988) has termed “redundancy of text.” In other words, words selected for direct instruction are those for which learners already have an idea of the meaning or for which learners are able to determine meaning from context. The term “redundancy of text” is based on Freebody’s and Anderson’s (1983) study that investigated how many unknown words a learner could encounter before comprehension was affected. They found that comprehension did not significantly decrease when one in six words was replaced with a more difficult, synonymous word. Thus, Nagy describes this vocabulary technique as a failure to provide instruction on words that actually need direct instruction.

Summary

Vocabulary knowledge’s positive correlational relationship with reading comprehension suggests the importance of effective vocabulary instruction. The high prevalence of technical terms in content classroom textbooks also suggests the need for vocabulary instruction. It is important for educators to understand how word learning processes, levels of word knowledge and various vocabularies can affect vocabulary acquisition, words/concept selection for instruction, and understanding of the characteristics effective vocabulary instruction. Furthermore, an understanding of how direct, indirect, brief, and rich instruction influences vocabulary acquisition is important to informing a conscious choice of effective instruction. Effective vocabulary instruction has many characteristics. It involves multiple exposures to words, develops independent word learners, promotes incidental learning and word consciousness, teaches context, structural analysis, and problem solving, actively engages
learners, encourages wide reading, and connects new learning with background knowledge. Ineffective vocabulary instruction is often associated with the definitional approach, instruction that fails to increase word knowledge above the acquainted level, and instruction that does not allow for wide reading and incidental learning. Finally, there is a tremendous need for additional observational research to determine what, or if, vocabulary instruction is occurring in the content area classrooms.
CHAPTER III. METHODS AND PROCEDURES

This thesis was designed to describe the vocabulary instruction observed over the course of a week in four content area classrooms. In this chapter, the methods and procedures that were used throughout the study are described and explained. Along with the methods used in this case study, the research design and participants are also discussed. A description of the investigation is included in the procedures section of the chapter.

Methods

Research Design

This study was a descriptive, qualitative, case study, the purpose of which was to describe and interpret the vocabulary instruction that took place in one science, one math, one social studies, and one language arts classroom over an observational period of five days. The focus was the vocabulary instruction observed. Thus, this case study fulfilled one of the three possible purposes for case studies as described by Mertler and Charles (2005), which is to provide descriptions.

Participants

The teachers observed were members of a seventh grade middle school team, located in a Northwestern Ohio suburb. For the 2004-2005 academic year, this middle school received the designation of ‘effective’ out of the five possible designations (‘excellent,’ ‘effective,’ continuous improvement,’ academic watch,’ or ‘academic emergency’), as defined by the state of Ohio. Also, this middle school met eight of the nine possible state indicators and met the 2004-2005 adequate yearly progress goals. An area in which this school had lower ratings, however, was in the area of comprehension of informational texts. There are a total of 701 students who attend this middle school and, specifically, 220 in the seventh grade. A total of 57
teachers are employed at this middle school, which makes the teacher-to-student ratio about 1 teacher per every 12 students.

As for the individual participants in this study, the language arts teacher had taught only at the middle school described in this study, teaching for a total of five years. He attended a small college in Midwestern Ohio for an undergraduate degree in elementary education and a small college in Michigan for a masters degree. This language arts teacher was certified to teach grades one through eight and was considered highly qualified in language arts and reading. When asked if he had ever had any professional training in vocabulary instruction, he responded that he had been to a few professional development workshops that discussed vocabulary instruction and had also taken some content area classes that covered a few aspects of vocabulary instruction.

The math teacher taught at two different schools in his career, one of them being the school described in this study. He taught seventh grade math at this school and taught eighth grade math at his previous school of employment. At the time of this study, the math teacher coached the school’s football team and Mathcounts team. He had taught a total of 15 years and of those, five years were at his current school. The math teacher had a bachelor of science in secondary math from a large Northwestern Ohio university. He was certified in math, grades seven through twelve. When asked whether he had received any special educational training, he responded that he had attended several state and National Middle School conventions. When asked if he had acquired any professional training in vocabulary instruction, he responded that aspects of vocabulary instruction had been covered in one of his undergraduate content reading courses at a local university.

The social studies teacher had taught only at the school described in this study for a total of 13 years. Besides social studies, he had also taught talented and gifted social studies. He
graduated from a small university in Northwestern Ohio with a bachelor of education in comprehensive social studies and from a large university in Northwestern Ohio with a master of education in special education with a focus in gifted and talented. His teaching certification area was comprehensive social studies, grades seven through twelve and in teaching the gifted in grades kindergarten through twelve. When asked if he had ever received any professional training in vocabulary instruction, this social studies teacher replied that he had never received professional training in this area.

The science teacher had taught only at the school described in this study and had taught for a total of 15 years. Besides seventh grade science, he had also taught sixth and eighth grade science. The science teacher had a bachelor’s degree in elementary education as well as a master’s degree in elementary education. This teacher was certified to teach grades one through eight. When specifically asked if he had received any professional training in vocabulary instruction, he replied that he had received training in aspects of vocabulary instruction throughout various teacher in-service programs over the years.

Instrumentation

No instrumentation was used throughout this case study. This descriptive study involved the researcher taking observational field notes and also interviewing each of the teachers using nine prepared questions that the researcher asked to determine the participants’ education, experience levels, certification areas, and professional training experiences in vocabulary instruction (See Appendices C-G.).

Procedures

First, five days of observation occurred at one Northwestern Ohio suburban middle school. A class of seventh grade students was followed throughout the day, for five days, to four
content area classrooms including language arts, math, social studies, and science. The method for obtaining the participants of this study was simply asking the four seventh grade teachers, whom the researcher had already met while doing other work in this particular middle school, if they would allow the researcher to be an observer of their content classes for a period of one-week. The middle school’s principal, as well as the four participating teachers, signed a form allowing the researcher to observe each of the four content classes for a period of five consecutive days, or one academic week (See Appendices A-B.). The teachers were told that the researcher’s purpose was to observe the literacy practices that occur in classrooms. Specific types of literacy practices, such as vocabulary instruction, were not mentioned.

When observing in the classroom, observational notes were recorded based on the vocabulary instruction the researcher observed taking place in the classroom. The observational field notes consisted of what Bogdan and Biklen (2003) describe as “the written account of what the researcher hears, sees, experiences, and thinks in the course of collecting and reflecting on the data in a qualitative study” (pp. 110-111). Thus, the field notes were both descriptive and reflective of the vocabulary instruction observed in each of the content area classrooms (See Appendix C.).

Vocabulary instruction was recognized as anything as brief or simple as looking words up in the dictionary. It was also recognized in the classroom as any planned, intentional, purposeful, or even spontaneous instructional event, moment, or activity that placed a focus on or gave attention to the vocabulary under study. Therefore, not only were formal, noticeable forms of vocabulary instruction such as using graphic organizers to teach vocabulary recognized; rather, the more subtle, informal forms of vocabulary instruction including purposefully mentioning words, discussing content vocabulary, spelling vocabulary, and explaining
vocabulary, were also recognized as vocabulary instruction. The reason for recognizing the examples just described as vocabulary instruction, such as the spelling of vocabulary words, is that any such emphasis put on vocabulary learning helps students become more acquainted with the word than they were already. These types of instruction also have the potential of helping children reach a level of familiarity with the word that might better prepare them for future encounters with the word and more in-depth instruction. The vocabulary instruction observed was described and recorded, and then was revisited, transcribed, and coded during data analysis.

During observation, all vocabulary instruction observed was recorded on sheets of lined paper, along with the time they occurred. The researcher attempted to note the time every few minutes so that a time line of the instruction that occurred could be documented. In addition to the observational descriptions and time of instruction recorded by the observer, the observer’s reflections and comments were also recorded on this sheet and labeled as “OC,” short for “observer’s comment.” The label of “OC” was reserved for the researcher to record ideas, elaborations, or thoughts regarding vocabulary instruction observed in each classroom as well as the interaction observed between the students, teachers, and instruction found in each classroom. The label of “OC,” or observer’s comment, was thus a way for the researcher to remember at a later date, when analyzing the transcriptions, that the descriptions marked as “OC” were descriptions containing the observer’s perceptions and thoughts about what was occurring in the classroom, rather than thoughts or words verbalized by a teacher or one of the students. Verbalizations by the teacher were preceded with a “T” for “teacher.” Words spoken by a student or students were preceded by an “S,” for “student” or “students.”

On the last day of the observational period, each of the content area teachers were interviewed with nine preplanned questions that simply asked for background information
concerning education, experience, certification, and professional training in vocabulary instruction. The interview served the purpose of gaining information about the teachers’ teaching backgrounds in order to describe them appropriately as participants.

The data collected during each interview and the observational data collected during the five-day period were immediately transcribed following the conclusion of this one-week period of observation. Any information unrelated to vocabulary instruction, such as the morning announcements, was not included in the transcriptions. An analysis of the transcriptions was conducted and each instance of vocabulary instruction was coded to interpret the type of vocabulary instruction involved.

The analysis and coding process suggested by Bogdan and Biklin (2003) was used for this case study. As Bogdan and Biklin (2003) suggested, the transcriptions were thoroughly read and after multiple analyses, clear coding categories emerged. A list of major, more general codes were created to describe a wide range of instruction. Subcodes were then created to break these general codes into smaller, more descriptive categories. Bogdan’s and Biklin’s (2003) recommendation of limiting codes to a number between 30-50 codes was also followed (See Appendix H.).

Each instance of vocabulary instruction, or unit of instruction, was then labeled according to the criteria implied in each code. An instance of instruction was understood by the researcher to be any form of instruction that involved a planned vocabulary activity, distinct explanation of a word, or any planned or unplanned discussion involving content vocabulary, for example. Throughout a class period, the change of topic or of instruction marked the beginning or end of an instance of vocabulary instruction. An instance of instruction in which more than one type of
instruction was used simultaneously was counted as one instance and was labeled accordingly, using the appropriate combination subcodes already described.

Following completion of the coding process, a frequency count was performed on the codes, or types of vocabulary instruction, observed per day and per week by each content area teacher. A frequency count chart was developed for each content area to convey this information. In addition, a time count was also conducted to calculate the approximate minutes spent each day and throughout the week on vocabulary instruction by each content teacher. This information was also charted in a table for each content area (See Appendices I-P.).

Data Collection

First, observational field notes containing observations of vocabulary instruction were recorded during each classroom, each day, through the five-day observation period. The researcher observed each content area teacher for one class period each day. Each class period consisted of a total of 41 minutes. Therefore, the researcher observed each participating content teacher for 41 minutes each day for five consecutive days.

Again, as already mentioned, vocabulary instruction was recognized as any kind of planned, purposeful, unplanned, or intentional kind of instruction that somehow placed a focus on vocabulary. Even types of instruction that were brief or did not help students gain a rich, in-depth meaning of a word, such as looking words up in the dictionary, was included in the observational field notes and identified as instruction, since it involved instructional time that was used to focus on vocabulary words. Having already performed the literature review and reading over the review of literature regarding the possible forms of vocabulary instruction enabled the researcher to be aware of the types of vocabulary instruction, both direct and indirect, that might be observed. All vocabulary instruction observed throughout the
observational period, as well as the observer’s reflections and comments, was recorded on white lined paper. These observations were immediately transcribed following the conclusion of the one-week observational period.

The second form of data that was collected was the individual interviews of the four participating seventh grade content teachers. This involved the researcher sitting down with the four content teachers and asking each of them nine questions concerning their backgrounds in education, experience, certification, and professional training in vocabulary instruction. The researcher recorded, in writing, each of the teachers’ responses. These interviews were transcribed that day, as the interviews were conducted on the final day of the one-week observation period.

Data Analysis

The analysis and coding process suggested by Bogdan and Biklin (2003) was used for this case study. As Bogdan and Biklin (2003) suggested, the transcriptions were thoroughly read and after multiple analyses, clear coding categories emerged. A list of major, more general codes were created to describe a wide range of instruction. Subcodes were then created to break these general codes into smaller, more descriptive categories. Combination codes, or subcodes made up of various subcodes, were used to describe one instance of instruction that involved two kinds of instruction occurring simultaneously. Bogdan’s and Biklin’s (2003) recommendation of limiting codes to a number between 30-50 codes was also followed.

Following completion of the coding process, a frequency count was performed on the codes, or types of vocabulary instruction, observed per day and per week by each content area teacher. A frequency count chart was developed for each content area to convey this information. Along with the frequency count, a time count was also conducted to calculate the approximate
minutes spent each day and throughout the week on vocabulary instruction by each content
teacher. The researcher went back through the transcripts and calculated the number of minutes
the teacher spent on each type of vocabulary instruction, or code. The minutes for each code
were then compiled over the course of a week. The minutes spent on vocabulary instruction were
also compiled for each day. Then, each of the minutes spent on instruction for each code were
compiled. The resulting number then was put into a category of minutes, which were arranged in
increments of five minutes. For example, the minutes spent on a strategy each week may have
included less than one minute, between 1-5 minutes, between 5-10 minutes, between 10-15
minutes, and so on.

To describe the vocabulary instruction that occurred on a daily basis, the minutes used for
each different type of instruction used that day were added, and then, as with the strategy time
count, the total number of daily minutes were placed into a category of minutes, which consisted
of categories of minutes containing increments of either 5 or 10 minutes. The increments in
which the daily minutes of vocabulary instruction fell included between 1-5 minutes, 5-15
minutes, 15-25 minutes, 25-35 minutes, and 35-40 minutes.

Establishing categories, or time increments in which to describe the time spent for each
type of instruction observed and minutes devoted to vocabulary instruction each day enabled the
researcher to fairly and accurately report correct estimations of minutes spent on vocabulary
instruction. The researcher was not able to report a precise number of minutes spent on each type
of vocabulary instruction since the depth of this study did not allow the researcher to do so. All
information regarding minutes spent on vocabulary instruction was also charted in a table for
each content area classroom.
Summary

This descriptive case study involved a language arts, math, social studies, and science teacher in one Northwestern Ohio, suburban middle school. This study focused on describing and interpreting the vocabulary instruction that took place in four content area classrooms. This case study involved observational transcriptions as well as a short interview involving each participating teacher, during which the researcher inquired about each teacher’s background related to education, teaching experience, certification, and professional training in vocabulary instruction. The observational field notes and the four interviews were each collected during a five-day observational period. After the transcripts were reviewed multiple times, a coding system emerged, vocabulary instruction revealed in the transcripts was coded, and the data were analyzed and compiled into a frequency count chart and time count chart. Finally, vocabulary instruction in each content classroom was described by frequency of instruction and time spent on each type of instruction.
CHAPTER IV. RESULTS AND DISCUSSION OF RESULTS

The purpose of this study was to describe and interpret the vocabulary instruction observed in one language arts, one math, one science, and one social studies classroom over the course of one week. The four seventh grade content teachers selected for this study were selected based on the researcher’s established relationship with the assistant principal at the middle school in which the study occurred. The researcher was also already acquainted with this particular group of seventh grade teachers, who were approached by the researcher during a team meeting and asked to participate in this observational case study. The study was carried out during a five-day period. The four participating seventh grade content teachers were observed by the researcher for the entirety of one class period for five consecutive days. This period of observation fell on the first week of the third nine weeks of this middle school’s academic year.

The four participating content teachers were each individually interviewed by the researcher on the fifth day of observation so the researcher could obtain background information about each teacher’s education, certification, teaching experience, and training in the area of vocabulary instruction (See Appendices D-G.). The data collected during each interview and the observational data collected during the five-day period were immediately transcribed following the conclusion of this one-week period of observation (See Appendix C.). Any information unrelated to vocabulary instruction, such as the morning announcements, was not included in the transcriptions. Throughout the transcriptions, each teacher was referred to and labeled as “T” or “Teacher.” The intervention specialist, when teaching a lesson in the language arts classroom, was referred to as “T2” to differentiate between the intervention specialist’s instruction and the classroom teacher’s instruction. Both teachers’ instruction was transcribed. The students were either referred to as “S” or “Students.” The observer’s (researcher’s) comments were labeled
“OC.” Comments the researcher made on various occasions throughout the transcriptions generally described the observer’s perceptions and descriptions of how a teacher carried out a particular form of vocabulary instruction or the observer’s perceptions of the students’ reactions to the type of instruction that the teacher implemented. The label of “OC,” or observer’s comment, was thus a way for the researcher to remember at a later date, when analyzing the transcriptions, that the descriptions marked as “OC” were descriptions containing the observer’s perceptions and thoughts about what was occurring in the classroom, rather than thoughts or words verbalized by a teacher or one of the students. The label of “OC” also allowed the researcher room to record thoughts, observations, or descriptions related to what was being observed that the researcher wanted to remember at a later date. An analysis of the transcriptions was conducted and each instance of vocabulary instruction was coded to interpret the type of vocabulary instruction involved. Before further discussing how the data from this study was charted, the coding process used in this case study will be explained.

The analysis and coding process suggested by Bogdan and Biklin (2003) was used for this case study. As Bogdan and Biklin (2003) suggested, the transcriptions were thoroughly scrutinized and, after multiple analyses, clear coding categories emerged. A list of major, more general codes was created to describe a wide range of instruction. Subcodes were then created to break these general codes into smaller, more descriptive categories (See Appendix H.). Bogdan and Biklin’s (2003) recommendation of limiting codes to a number between 30-50 codes was also followed.

This case study therefore accounted for 3 general codes, 19 subcodes, and 13 “simultaneous instruction,” or combination subcodes, resulting in a total of 35 codes and falling within Bogdan’s and Biklen’s (2003) recommended range. The three general codes included
“Conceptual Development,” “Graphic Organizer,” and “Other.” A total of 19 subcodes were then created from these general categories. Seventeen of the subcodes fell under the category of “Other” and included the following: 1. Pronunciation (P), 2. Morphemic Analysis (MA), 3. Definition (DEF), 4. Dictionary Use (DU), 5. Context Analysis (CA), 6. Illustration (I), 7. Sustained Silent Reading (SSR), 8. Discussion (DIS), 9. Structural Analysis (SA), 10. Analogy (AN), 11. Mnemonic (MN), 12. Writing (W), 13. Mentioning (M), 14. Explanation (E), 15. Game-Matching (GM), 16. Game-Multiple Choice (GMC), 17. Spelling (SP). The eighteenth subcode was included under the category of “Conceptual Development” and was coded “Concept Map (CM).” The nineteenth subcode fell under the category of “Graphic Organizer” and was named “Graphic Organizer Plus (GO+).” The reason for this subcode was that the graphic organizer used by the teacher was not exactly like any graphic organizer researched during the literature review, but was instead a graphic organizer the teacher had created.

Each descriptor of vocabulary instruction, or code, pertained to the characteristics of vocabulary instruction that the label, or code, described. While most of the codes were self-explanatory, there were a few that require explanation or elaboration. The subcode “DEF” referred to any time a teacher told the students the formal definition or summarized a definition of a particular content word. The subcode “I” stood for illustration and included any time the teacher conveyed the meaning of content vocabulary and/or initiated discussion about meanings of content vocabulary through use of pictures, objects, models, actions, or pantomime. The subcode “W” referred to instances when the teacher had students copy, or write, vocabulary words onto paper. The subcode “M” was used for each occasion in which it seemed the teacher deliberately mentioned a vocabulary word or content vocabulary word with the intention of having students hear the word used in context, gain multiple exposures to the word, and develop deeper awareness of the word. The subcode “E” was designated for instruction that involved the teacher directly explaining, interpreting, or expanding on the meaning of a content vocabulary word. In some instances, the teacher’s explanation led to discussion based on the teacher’s explanation. Each instance involving the teacher’s explanation and discussion resulting from the explanation was coded as “E.” The subcode “DIS” was used to describe instances of instruction in which the teacher asked the class about the meaning of a content vocabulary word, the students asked the teacher about the meaning of a content vocabulary word, or either the teacher or students inquired or expanded upon the meaning of content vocabulary in a way that seemed intended to involve others in discussion of the meaning of the content area vocabulary word. The subcode “SSR” was assigned to a type of indirect vocabulary instruction in which the teacher used class time to have the students engage in Sustained Silent Reading. SSR was included as vocabulary instruction because as the research in the literature review shows, this type of indirect
instruction allows children to practice vocabulary strategies they have been taught in class and thus, helps students learn words independently and incidentally. The subcode “SP” was assigned to instruction in which the teacher had the students verbally spell out words. Having students verbally spell out words was counted as vocabulary instruction since it could be considered a planned activity that developed or heightened students’ awareness and familiarity with vocabulary words of study. Although verbally spelling out vocabulary words and hearing the teacher’s feedback may be considered a kind of brief instruction that does not teach students the meanings of words, spelling words out loud can enable students to better recognize the vocabulary words, increase their familiarity with the vocabulary words, and help make students ready for future instruction that may involve learning the meanings of the words. The subcode “GM” represents instruction that involved playing a game involving content vocabulary in which students were asked to match a vocabulary word with either an example or explanation of the vocabulary word.

The subcodes that involve combinations of subcodes must also be explained. Under the subcode “Games-Multiple Choice (GMC)” are five additional combinations. “GMC: DIS” indicates that the teacher was engaging students in a multiple choice vocabulary game while simultaneously instituting discussion. “GMC: E” indicates that while the multiple choice game was happening, explanation occurred. “GMC: DER” reflects that during the multiple-choice game, the derivation of the vocabulary word was explained or mentioned. “GMC: P” indicates that during the multiple-choice game, instruction was given by the teacher about the pronunciation of the vocabulary word. “GMC: I” reflects that during the multiple-choice game, the meaning of the word was conveyed by the teacher through illustration (whether through pictures, pantomime, action, etc.).
The subcode combination “E: SYN” describes instruction in which the teacher conveyed meaning of a vocabulary word through explanation and at some point during the explanation, conveyed meaning of the word by suggesting synonyms for the word. The subcode combination “SP: DER” was used to describe instructional instances in which the teacher had students spell out vocabulary words and in the middle of this type of instruction, expanded on a particular word by explaining the derivation of the word.

The subcode combinations “CM: DIS,” “CM: E,” and “CM: I” involve the same idea as explained for the combination subcodes involving the multiple-choice game subcodes. This first subcode reflects instruction involving a concept map in which discussion was also occurring. The second subcode involves instruction in which a concept map was being used and explanation of a vocabulary word was also occurring. This same logic was also applied for the “CM: I” subcode, as well as for the “GO+: DIS,” “GO+: E,” “GO+: I” subcodes.

All vocabulary instruction found in the transcriptions was coded, and codes were developed accordingly. Each instance of vocabulary instruction, or unit of instruction, was then labeled according to the criteria implied in each code. A unit of instruction, or an instance of instruction, was understood by the researcher to be any form of instruction that involved a planned vocabulary activity, distinct explanation of a word, or any planned or unplanned discussion involving content vocabulary, for example. Throughout a class period, the change of topic or of instruction signaled the beginning or end of an instance of vocabulary instruction. An instance of instruction in which more than one type of instruction was used simultaneously was counted as one instance and was labeled accordingly, using the appropriate combination subcodes already described (See Appendix H.).
Following completion of the coding process, a frequency count was performed on the codes, or types of vocabulary instruction, observed per day and per week by each content area teacher. A frequency count chart was developed for each content area to convey this information. Along with the frequency count, a time count was also conducted to calculate the approximate minutes spent each day and throughout the week on vocabulary instruction by each content teacher. This information was also charted in a table for each content area (See Appendices I-P.).

The four seventh grade content area teachers who participated in this study are referred to as the teacher of “Language arts,” “Math,” “Social Studies,” and “Science.” What follows is a case study of the vocabulary instruction found in a seventh grade language arts, math, social studies, and science classroom.

Results

Language Arts

Throughout the course of a week in the language arts classroom, a total of 36 instances of vocabulary instruction occurred. All of these instances fell under the general category of “Other.” Of these total number of instances of vocabulary instruction, 22 occurred on Monday, two on Tuesday, seven on Wednesday, five on Thursday, and none on Friday. The intervention specialist was responsible for teaching 8 of the 36 instructional instances. The language arts teacher was responsible for the other 28 instances of vocabulary instruction.

A total of 18 codes were used to describe the vocabulary instruction that occurred in this language arts classroom. Five instructional instances took the form of discussion of word meaning while a multiple-choice game (GMC: DIS) was played. This was the form of vocabulary instruction that ranked first in the frequency count. The multiple-choice game being played was “Who wants to be a Millionaire?”
Vocabulary instruction in which the teacher wrote vocabulary words and their definitions on the board or required students to verbally match vocabulary words to corresponding definitions stated by the teacher (DEF), occurred four times each. Two of these instances of vocabulary instruction focusing on definitions were carried out by the intervention specialist. Instruction involving explanation (E) of vocabulary during the class period or explanation of vocabulary during the middle of playing the multiple-choice “Who wants to be a Millionaire?” vocabulary game (GMC: E) occurred, over the course of a week, four times each as well.

The third most frequent kind of vocabulary instruction conducted over the course of a week was the pronunciation of words (P), which occurred three times. Each of these instances occurred within one class period, on Monday. Instruction that involved the students spelling the words out loud and then the teacher providing feedback on these spellings (SP) also occurred three times. Two of these three instances were conducted by the intervention specialist.

The fourth most frequent form of vocabulary instruction found in this language arts classroom took the form of discussion of vocabulary words (DIS). Discussion occurred twice throughout the observation period and on different days.

The 11 remaining instances of vocabulary instruction found over the course of this week included one instance of each of the following: dictionary use (DU) conducted with the students by the intervention specialist, illustration (I), structural analysis (SA) conducted by the intervention specialist; analogy (AN) made by the intervention specialist; a matching game (MG) carried out by the intervention specialist; writing (W) or copying vocabulary words onto paper; a game involving multiple choice questions (GMC); explanation of the derivation of a word during a multiple-choice game (GMC: DER); explanation of the correct pronunciation of a vocabulary word during a multiple-choice game (GMC: P); illustration of a vocabulary word during a
multiple choice game (GMC: I); and explanation by the intervention specialist of the derivation of a word during a spelling activity (SP: DER) (See Appendix I.).

In this language arts classroom, a total of between 66-to-100 minutes were spent focusing on vocabulary or vocabulary instruction. The time spent on vocabulary instruction involved 25-35 minutes on Monday, between 1-5 minutes on Tuesday, 15-25 minutes on Wednesday, 25-35 minutes on Thursday, and no minutes on Friday.

Between 20-25 minutes of this time spent on vocabulary instruction involved playing a multiple choice vocabulary game (GMC) called “Who Wants to be a Millionaire?” This piece of vocabulary instruction accounted for the most minutes of instructional time spent on vocabulary. When this game is broken down even further, between one-to-five of these minutes involved discussion of vocabulary (GMC: DIS); one-to-five minutes involved explanation of vocabulary (GMC: E); one-to-five minutes involved illustration of vocabulary (GMC: I); less than one minute involved explanation of the derivation of a vocabulary word (GMC: DER); and less than one minute involved focus on the pronunciation of a vocabulary word (P). This multiple choice vocabulary game occurred on Monday.

The kind of vocabulary instructional instance that accounted for the second greatest amount of time was a matching game (GM) conducted by the intervention specialist. This matching game was called Vocabulary Bingo, occurred all on one day, and 15-20 minutes were spent on this activity.

There were four instructional categories in which 5-10 minutes of total weekly instruction was spent. These categories included definition (DEF), discussion (DIS), explanation (E), and spelling (SP). The intervention specialist was responsible for half of the time spent on instruction involving vocabulary word definitions.
Five kinds of vocabulary instruction contributed anywhere from one-to-five minutes each of vocabulary instruction throughout the week. These included pronunciation (P), dictionary use (DU), illustration (I), analogy (AN), and writing (W). The intervention specialist was responsible for conducting the vocabulary instruction involving dictionary use and analogies. Less than one minute throughout the week was spent on structural analysis (SA) and on covering derivational information during spelling activities (SP: DER). The intervention specialist was responsible for the latter type of spelling instruction (See Appendix J.).

Math

Throughout the course of a week in the seventh grade math classroom, four instances of vocabulary instruction were observed. All of these instances fell under the general category of “Other.” Each of these instances occurred on Monday. The four instances of vocabulary instruction each involved different kinds of vocabulary instruction. The teacher exercised contextual analysis (CA) once to have a student discover what the meaning of “mixed unit” was, based on the context of a passage the student read in a textbook. Illustration (I) was counted as a second instance when the teacher drew a picture on the white board to illustrate, with arrows, multiplication signs, division signs, and the rules involved when multiplying or dividing in conversion problems. This was considered vocabulary instruction because the teacher was drawing the terminologies and associated concepts that he previously attempted to verbalize to the students, regarding what it means to divide fractions. Through his illustration of two fractions, arrows, and multiplication and division signs, he was teaching “division” and “multiplication” as they apply to fractions. Discussion (DIS) and explanation (E) accounted for the final two instances of vocabulary instruction observed in the math classroom. Both cases
involved the topic of multiplication and division when converting mixed units to one unit (See Appendix K.).

The total time spent on vocabulary instruction during the one-week period during which the researcher observed was between one-and-five minutes. The instances of vocabulary instruction described as contextual analysis (CA), illustration (I), and discussion (DIS) each accounted for between one-and-five minutes of instructional time. The instance of explanation (E) accounted for less than one minute of instructional time (See Appendix L.).

Social Studies

Throughout the course of a week in the social studies classroom, a total of 16 instances of vocabulary instruction were observed. When broken down by day, seven instances of instruction occurred on Monday, none on Tuesday, two on Wednesday, four on Thursday, and three on Friday. All of these instances fell under the category of “Other.”

The kind of vocabulary instruction with the highest frequency was explanation (E), occurring a total of five times. These five instances were spread across two days. Instruction described as Sustained Silent Reading (SSR) and mentioning (M) of a content vocabulary word each occurred four times. The four instances of Sustained Silent Reading occurred over four days and the four instances of mentioning were spread over two days. Explanation that involved explaining the content vocabulary word using synonyms of the word (E: SYN) occurred twice, each instance taking place on a different day. Last, instruction involving morphemic analysis occurred once (See Appendix M.).

The time spent on vocabulary instruction over the period of one week in this seventh grade social studies classroom totaled between 20-60 minutes. When this weekly total is broken down into minutes spent on vocabulary instruction per day, every day except Tuesday contained
a total of 5-15 minutes spent on vocabulary instruction. No minutes were spent on vocabulary instruction on Tuesday.

Sustained Silent Reading (SSR) received about 10 minutes of attention on four days of the week, totaling about 35-40 minutes of the weekly minutes spent on instruction. Mentioning (M), explanation (E), and explanation that involved explaining meaning through synonyms (E: SYN) each accounted for between one-and-five minutes for the total weekly minutes spent on vocabulary instruction. Morphemic analysis (MA) accounted for less than one minute of the total minutes of vocabulary instruction that occurred during the one-week period of observation (See Appendix N.).

Science

Throughout the course of a week in the seventh grade science classroom, a total of 36 instances of vocabulary instruction were observed. Twenty-four of these instances fell in the “Other” category, seven were classified under the “Conceptual Development” category, and five were placed within the “Graphic Organizer” category. Of the 36 instances of vocabulary instruction observed, 8 instances occurred on Monday, 10 on Tuesday, 7 on Wednesday, 7 on Thursday, and 4 on Friday. A variety of 14 different codes were used to describe the kinds of vocabulary instruction observed in this classroom.

Under the “Other” category, explanation (E) accounted for eight of the weekly instances of vocabulary instruction and was the most used kind of instruction. These eight instances of explanation were evenly spread throughout the week, with two instances occurring three days of the week and one instance occurring on two days of the week. Mentioning (M) of content vocabulary words occurred four times throughout the week with one instance occurring per day for four days. Illustration (I) and discussion (D) each accounted for five instances of vocabulary
instruction, with illustration occurring two of the five days and discussion occurring three of the five days. The teacher used mnemonics (MN) once throughout the week and contextual analysis (CA) once as well. An example of when the science teacher used mnemonics was when he light-heartedly told his class (after reviewing with his students that one-fourth of a pound equals the weight of one-Newton), “Remember, I call McDonald’s ‘quarter-pounder’ the ‘Newton pounder.’”

Under the general category of “Conceptual Development,” the researcher noted two instances of using a concept map (CM). Each instance occurred on a different day. Between these two instances, discussion during the time of using the concept map (CM: DIS) occurred three times. The concept map (CM) was the primary focus, and is noted first in this combination subcode, rather than discussion, because the concept mapping was already taking place when the discussing began. The same is true for the next four combination subcodes. Explanation (CM: E) and illustration (CM: I) each occurred once throughout the course of a week, with explanation during instruction that involved use of a concept map (CM: E) occurring on Monday and illustration during the use of a concept map (CM: I) occurring on Tuesday.

Under the category of “Graphic Organizer,” one instance of using a type of graphic organizer (GO+) was observed throughout the course of a week. While using this graphic organizer to teach various content vocabulary terms, two instances of using illustration (GO+: I) to teach content vocabulary were used. Also, while using the graphic organizer, one instance of discussion (GO+: DIS) and one instance of explanation (GO+: E) were also recorded (See Appendix O.).

After conducting a daily and weekly time count, it was found that somewhere between 55-105 minutes were spent on vocabulary instruction throughout the one-week period of
observation in this science classroom. When this amount of time was divided between the five instructional days, between 15-25 minutes was spent on vocabulary instruction on Monday through Wednesday and between 5-15 minutes was spent on vocabulary instruction on both Thursday and Friday.

The kind of instruction on which the most instructional time was spent was explanation (E) of content vocabulary, which totaled 15-20 minutes throughout the course of a week. These minutes were evenly spread throughout each of the five days. Vocabulary instruction through discussion (D) and graphic organizer (GO+) both accounted for 10-15 minutes of vocabulary instruction during this one-week period. Of the 10-15 minutes in which a graphic organizer (GO+) was used for vocabulary instruction, about 11 of those minutes involved illustration (GO+: I) of content vocabulary. About one minute during the use of the graphic organizer involved explanation (GO+: E) and less than one minute involved discussion (GO+: DIS).

Vocabulary instruction via illustration (I) and concept mapping (CM) each accounted for approximately 5-10 minutes of the total weekly vocabulary instruction that occurred. The 5-10 minutes that focused on concept mapping involved two days of instruction. During those two days, between 5-10 of those minutes involved discussion (CM: DIS) and less than one minute involved both explanation (CM: E) and illustration (CM: I).

Between one-and-five minutes was spent teaching content vocabulary by using contextual analysis (CA). Between one-and-five minutes was also invested in mentioning (M) content vocabulary terms. Finally, less than one minute of instructional time was used to teach vocabulary through mnemonics (MN) (See Appendix P.).
Discussion of Results

After observing four seventh-grade content classes at one Northwestern Ohio middle school over the course of a week, what vocabulary instruction was found within each content classroom? Considering the results of this study, it is evident that the instruction significantly varied from content area to content area.

Language Arts

In the language arts classroom, all the time allocated for vocabulary instruction involved instructional types in the “Other” category. A significant amount of time was designated by the teacher to teach vocabulary words through playing games. One game involved matching words to definitions and one involved multiple-choice questions. Playing these vocabulary games resulted in a combined total of 35-45 minutes out of 66-100 minutes that were allocated to vocabulary instruction throughout the week.

Teaching vocabulary through discussion, explanation, and directly stating definitions to students were also the more emphasized kinds of instruction observed in this classroom, with 5-10 minutes given to each kind of instruction throughout the week. The kinds of instruction that were used the least included structural analysis and writing vocabulary words, and these were each carried out for less than a minute throughout the entirety of a week. Areas of vocabulary instruction that were allotted between one-and-five minutes of attention included dictionary use, illustration, analogy, mnemonics, derivation, and pronunciation.

While the amount of time spent on vocabulary instruction throughout the course of a week in this language arts classroom was between 66-100 minutes, games accounted for more than three fourths of this time. It might also be important to discuss the variance in time spent on vocabulary instruction on a daily basis. The days on which vocabulary games were played
(Monday and Thursday) averaged between 25-35 minutes of vocabulary instruction. Fifteen-to-twenty minutes of instruction occurred on Wednesday, between one-and-five minutes on Tuesday, and no instruction occurred on Friday.

These were the types of vocabulary instruction observed in the language arts classroom. While there were two teachers, the language arts teacher and the intervention specialist, who carried out the vocabulary instruction, the purpose of this study was to report the kinds of vocabulary instruction observed in the language arts classroom, not to compare the instructional choices or philosophies of the teachers. Therefore, only the instruction found in this language arts content classroom was discussed.

**Math**

Vocabulary instruction in the seventh grade math classroom was almost non-existent. Throughout the course of a week, only four instances were observed. These four instances amounted to approximately four minutes of instruction and, these four instances of observed instruction also occurred on the same day. The kinds of instruction observed involved explicit instruction, with explanation and illustration being most direct in conveying the meanings of the content terminologies and concepts being taught that particular day, which included “mixed unit,” “conversion,” “multiplication of fractions,” and “division of fractions.” Having students use contextual analysis and confirming students’ analysis and interpretation of content concepts during discussion were both subtler in the instances that were observed. Neither conceptual development nor graphic organizer vocabulary strategies were used in this class.

**Social Studies**

Over the period of a week in the Social Studies classroom, 16 instances of vocabulary instruction were accounted for, for a total of between 20-60 minutes of vocabulary instruction
over the course of a week. Of the 20-60 total minutes spent on vocabulary instruction, 35-40 of those minutes were allotted to Sustained Silent Reading, an implicit, indirect form of vocabulary instruction that allows students to practice the independent vocabulary acquisition skills they may have been taught. Thus, this accounted for at least three-fourths of the total weekly instruction.

When the total weekly instructional minutes are further broken down, Tuesday did not have any minutes designated for vocabulary instruction, whereas the other days of the week each contained between 5-15 minutes of vocabulary instruction. Also, the 16 occurrences that were observed each fell into the general category of “Other” and were examples of only five of the total number of possible variances of vocabulary instruction that could have been observed.

The second most frequent types of vocabulary instruction observed included mentioning (occurring four times over two days) and explanation (occurring five times over two days). An example of when the social studies teacher used “mentioning” during class was when he asked the student if he had mentioned the word “council” in his writing. The student responded that he had not. The teacher, wanting the students to use the specific content words they were studying at that time in their writing, continued to remind the class of the words the students might include. He went on to say, “Here are some words you should be using in your paragraphs at some point: Senate, tribunes, assembly, plebian, and government.”

The most infrequent kinds of instruction included explanation of a word through use of synonyms, which occurred twice, and using morphemic analysis, which occurred once. After analyzing these results from this social studies classroom, it can be said that the only form of vocabulary instruction observed that was not direct vocabulary instruction was Sustained Silent Reading.
Science

In the science classroom, there were 36 instances of vocabulary instruction observed over the course of the week, and a total of between 55-105 minutes of vocabulary instruction took place. Each of these instances that occurred occupied one of the three general groups, including “Other,” “Conceptual Development,” and “Graphic Organizers.” The science teacher seemed to be the teacher who most consistently (each day, same amount of time) incorporated a variety of vocabulary instruction into his classroom. A variety of 14 types of instruction were used over the course of a week.

The kinds of instruction that were incorporated each day of the week included explanation and intentionally mentioning vocabulary words. Examples of the content words that were under study in the science classroom included “work,” “climate,” “temperature,” “precipitation,” “altitude,” “latitude,” “ocean currents,” “prevailing winds,” “Newton,” “motion,” “Joule,” and a few others. Explanation accounted for the kind of instruction on which the most time was spent, as well as the kind of instruction that occurred most often over the course of a week. Discussion and illustration each occurred three days of the week and each accounted for approximately ten-to-fifteen minutes of the weekly instructional time spent on vocabulary instruction.

Time spent on concept maps accounted for about 5-10 minutes out of the week and occurred on two different occasions. Vocabulary instruction involving graphic organizers occurred once and accounted for between 10-15 minutes of vocabulary instruction observed that week. Other kinds of vocabulary instruction that were touched upon included contextual analysis and mnemonics. An example of when the science teacher used contextual analysis was when he specifically asked the class to read a specific page in the textbook with the purpose of trying to
determine the meaning of the word “power,” based on the context in which it is used in the book. After giving the class a few minutes to read, he brought the class back together to discuss what the word “power” meant and how the students were able to arrive at their conclusions based on the text. Additional conclusions relating to the research question can be found in the following chapter.

Summary

The language arts, math, social studies, and science teachers observed at this middle school each displayed very different kinds and amounts of vocabulary instruction in their classrooms. The math teacher exhibited the least amount of vocabulary instruction. The researcher observed only four instances of instruction in the math classroom, which amounted to about four minutes of total weekly instruction. Contextual analysis, illustration, discussion, and explanation were the forms of vocabulary instruction observed, all forms of direct vocabulary instruction.

The researcher found that the language arts and science teachers had the same number of instances (36) of vocabulary instruction within the instructional time period of a week. However, the kind of instruction observed differed between teachers, with the language arts teacher spending more time on vocabulary instruction that involved multiple-choice and matching games, which required feedback from the teacher. The science teacher spent more time on vocabulary instruction that involved graphic organizers, conceptual development activities, explanation, and discussion. A variety of 17 kinds of instruction were used in the language arts classroom, and 14 kinds of vocabulary instruction were found in the science classroom.

While the researcher found the same number of instances of vocabulary instruction among the language arts teacher and the science teacher, the frame of minutes spent on
vocabulary instruction slightly differed between the two. Approximately 60-100 minutes were spent on vocabulary instruction in the language arts classroom and between 55-105 minutes were spent on vocabulary instruction in the science classroom.

Finally, a total of 16 instances of vocabulary instruction were found in the social studies classroom and approximately 20-60 minutes of vocabulary instruction were found to occur over the course of a week. The social studies teacher displayed five different kinds of vocabulary instruction, but the most predominant form of instruction was indirect and took the form of Sustained Silent Reading (SSR).

This chapter provided a case study that described the vocabulary instruction that occurred over the course of a week in the four seventh grade content classrooms of one suburban, Northwestern Ohio middle school. The analysis is based upon the observations, transcriptions, and codes constructed by the researcher. More explanation is provided in the following chapter.
CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this case study was to describe and interpret the vocabulary instruction observed in content area classrooms. Specifically it answered the following question: What vocabulary instruction is occurring in four seventh grade content classrooms in one Northwestern Ohio suburban middle school? The researcher observed one language arts, one math, one social studies, and one science classroom of the seventh grade in this middle school for a period of one week in order to document the vocabulary instruction taking place.

Summary

The method for obtaining the participants of this study was simply asking the four seventh grade teachers, whom the researcher had already met as acquaintances while doing other work in the school, if they would allow the researcher to be an observer of their content classes for a period of one week. The middle school’s principal, as well as the four participating teachers, signed a form agreeing to allow the researcher to observe each of the four content classes for a period of five consecutive days, or one academic week. The researcher recorded all forms of vocabulary instruction, which were identified as anything that gave any attention to or seemed to have the intention of teaching content vocabulary and/or concepts. All possible forms of vocabulary instruction identified in the literature review, including both direct and indirect vocabulary instruction, were recorded. On the final day of the one-week period in which the observations occurred, the researcher asked each participating content teacher nine questions regarding his or her educational background, including, experience, certification areas, and training in vocabulary instruction.

Once the observations and interviews were completed and transcribed, the transcriptions were coded and analyzed. General codes, subcodes, and combination subcodes were created and
used to describe the vocabulary instruction observed. A frequency count and time count were performed, reflecting the vocabulary instruction observed over the course of a week for each content area class.

The findings of the frequency count and time count revealed that the language arts and science classrooms had the most observed vocabulary instruction. Thirty-six instances of vocabulary instruction were observed in both classrooms, although the kinds of instruction varied. Much direct vocabulary instruction occurred in both classrooms, but little indirect vocabulary instruction was observed. Between 66-100 minutes of vocabulary instruction were found to occur in the language arts classroom over the course of a week and between 55-105 minutes of vocabulary instruction were observed in the science classroom throughout the week.

Vocabulary instruction in the social studies classroom occurred between 20-60 minutes over the course of a week and primarily took the form of indirect instruction described as Sustained Silent Reading. Only four instances of vocabulary instruction, all direct and totaling four minutes over the course of a week, took place in the math classroom. Further information regarding the vocabulary instruction observed in the four content area classrooms under investigation can be found in the next portion of this chapter.

Conclusions

The results of this study confirm that, overall, the types and frequency of vocabulary instruction observed in this study’s four content classrooms varied greatly. Vocabulary instruction was found in every classroom. However, certain aspects of quality instruction were noticeably absent. In both the language arts and math classrooms, direct instruction involving conceptual development, graphic organizers, brainstorming, and morphemic analysis, were never observed. Surprisingly, contextual analysis was not observed in the language arts classroom.
Independent reading or Sustained Silent Reading, both forms of indirect vocabulary instruction, were absent in three of the four classrooms: language arts, math, and science. This kind of indirect instruction is important and should be incorporated into content classrooms so that students can practice and internalize the independent word learning skills they learn through direct instruction.

Not all content classrooms provide students with rich verbal environments. Such environments would be ones in which “Students would be given a variety of information, including examples, contexts, pictures, and relationships and students would be required to create words, compare words, and explain and discuss the meanings and uses of words” (Baumann & Kameenui, 2004, p. 21). Results of this study show that vocabulary instruction involving the use of textbooks, graphic organizers, and independent reading materials differed greatly from the math to the science classrooms. In math, the vocabulary instruction and materials used were not nearly enough for the researcher to describe this classroom as a rich verbal environment. Only four total instances of vocabulary instruction occurred in a week’s time; each of these occurrences was brief and could not be described as “in-depth” instruction. On the other hand, the science classroom represented a rich verbal environment. The science teacher’s various instances of vocabulary instruction provided students with multiple exposures to words in a variety of contexts, something Beck and McKeown (1983) and Graves and Prenn (1986) call an important component of effective instruction. These multiple and differing exposures would increase the likelihood that students would be able to increase their vocabulary knowledge from the “unknown” level to the “acquainted” level. While the social studies classroom was the only classroom that was print rich in that it incorporated independent reading
into instructional time each day, the environment as a whole did not seem to be as verbally rich as the science classroom.

Despite the fact that math is the most conceptually dense content area (Blachowicz & Fisher, 2002), vocabulary instruction in this classroom was minimal. While the four instances of instruction that did occur (explanation, discussion, illustration, contextual analysis) were useful forms of instruction, much more vocabulary instruction should be taking place in a content area where so many technical terminologies and concepts are required for students to form a solid knowledge base. It might be speculated that this may also be the case in other math classrooms. If, in fact, this classroom was representative (and it may or may not be) of other math classrooms, this lack of vocabulary instruction may explain, at least in part, the difficulties many students experience with math.

Quality and quantity of vocabulary instruction, however, are not necessarily equivalent. For example, of all the content classes observed, the language arts teacher devoted the most time and attention to vocabulary. The majority of time was spent playing games that involved multiple-choice questions (20-25 minutes) and matching definitions to words (15-20 minutes). The value of spending large amounts of instructional time playing vocabulary games might be debated by some scholars and may not be deemed “quality” vocabulary instruction. This is because playing vocabulary games such as the ones observed in this classroom only required students to associate a word’s definition with the vocabulary word. The teacher then provided feedback regarding the correct answer. This type of activity did not require students to derive the correct information from context, involve some form of analysis of the words, or require the students to use the words in context. Rather, these games reflected a definitional approach to
teaching vocabulary, which research shows usually fails to provide rich, in-depth, contextual understanding (Nagy & Herman, 1987).

Finally, while the teachers involved in this study were operating in a “team” structure that provided time for collaboration, the teachers reflected differing, inconsistent support to students regarding vocabulary development. It was clear that not all content teachers appeared to be aware of what constituted a rich, verbal environment or how to implement effective vocabulary instruction. Why might this be? When considering the responses each teacher gave in his interview regarding content reading strategy training and other educational background information, it appeared that training in content reading strategies either enhanced vocabulary instruction or, at the least, stressed the importance of devoting time to vocabulary instruction. In the interview with the teachers, the language arts and science teachers revealed that they had, in the past, had training in content reading strategies. Although the type and quality of vocabulary instruction differed between these two teachers, the researcher’s observations reported that these two teachers exhibited a greater variety and frequency of vocabulary instruction than the social studies and math teacher, who reported not having specific training in content reading strategy instruction. Another difference in the educational backgrounds in the participants of the study was that the language arts and science teachers both had masters degrees; however, the math teacher did not. Interestingly, the lowest frequency of vocabulary instruction was observed in the math classroom.

Recommendations

For Teachers

On the issue of vocabulary instruction, Baumann & Kameenui (2004) and others have determined that effective vocabulary instruction should provide for multiple exposures to words,
support background knowledge, help learners get beyond the acquainted level of word knowledge, promote and teach independent word learning, allow for incidental learning, teach context and structural analysis, involve direct and indirect instruction, foster word consciousness, and offer a rich verbal environment. As it pertains to the findings of this study, recommendations for language arts classrooms such as the one in this study would be to incorporate more direct instruction involving contextual analysis, morphemic analysis, and structural analysis into classroom instruction. At least some instructional time might be devoted to independent reading to allow students opportunities to practice independent word learning skills and promote incidental word learning. Finally, teachers might be cautioned to reevaluate the kinds of vocabulary instruction to which they devote large amounts of time. While multiple choice and matching vocabulary games can serve a purpose, some may consider these games “activities” rather effective “instruction.”

For math classrooms such as the one in this case study in which little time and attention was given to vocabulary instruction, the importance of content vocabulary instruction must first be realized. Gunning (2003) suggests, “One of the chief barriers to learning in the content areas is that posed by the technical vocabulary that each employs…The key to understanding the discipline is to grasp the discipline’s vocabulary” (p. 56). Secondly, while the math instructor did use illustration, discussion, explanation and contextual analysis (one instance each) to teach content vocabulary and concepts, it is important that math teachers implement vocabulary instruction that involves conceptual development, graphic organizers, and other kinds of instruction. This will better allow students to gain a more in-depth knowledge of the math content terms they are learning. In other words, students in math classrooms such as this one might benefit greatly from an increase in both direct and indirect vocabulary instruction.
It might be recommended to social studies teachers such as the one involved in this study to increase the kinds of direct vocabulary instruction used so that students can develop a richer, deeper sense of the social studies content words they are studying, as well as develop independent word learning skills. In this classroom, Sustained Silent Reading accounted for at least three-fourths of the total vocabulary instruction observed. Therefore, it is important that direct instruction involving conceptual development, graphic organizers, brainstorming, contextual analysis, and in-depth explanations, discussions, and illustrations occur in order for students to develop the independent word learning skills needed to better acquire content vocabulary as well as other vocabulary through incidental learning.

As the science teacher in this case study performed above and beyond expectation in providing direct instruction in content concepts and terms, it might be recommended that this teacher continue to use the various strategies already employed, but to also consider allowing more instructional time for independent word learning and practice. Other colleagues might benefit from observing this science teacher demonstrate lessons incorporating effective vocabulary instruction.

For all the teachers, it might be recommended that when planning for instruction, they place careful consideration to aligning the objectives they have for teaching vocabulary to the vocabulary instruction techniques they choose to use. For example, if the teacher’s goal is to help students develop more extensive knowledge of a content concept, the teacher should plan for more in-depth instruction than simply explaining and mentioning the words and concepts.

For Professional Development

Another recommendation that might be made concerns the area of professional development. The language arts and science teachers in this case study, the teachers with the
higher frequencies and the most time spent on vocabulary instruction, both said they had had some training in vocabulary instruction through professional development in-services or workshops. The social studies teacher and math teacher, who had the lower frequencies and less time designated to vocabulary instruction, did not mention having any prior professional development experiences that focused on vocabulary instruction. Therefore, since vocabulary instruction is important to students’ acquisition of content concepts and knowledge, perhaps teachers would benefit from more professional development in the area of vocabulary instruction. During professional development, focus should be placed on helping educate teachers about the kinds of instruction which take learners from the “unknown” level to the “acquainted” level of word knowledge, the direct instruction strategies key to building independent word learning skills, the importance of devoting instructional time to independent reading, and the various possible benefits and uses for different vocabulary techniques. Learning about the possibilities for vocabulary instruction might help teachers understand the importance of vocabulary instruction and enhance their repertoire of teaching strategies. Professional development focusing on vocabulary instruction would also help teachers realize that they should strive to achieve a balance between direct and indirect vocabulary instruction. It should also help teachers understand that quantity and quality of vocabulary instruction are not necessarily equivalent. Also, professional development sessions that include demonstration lessons and follow up observations of teachers’ use of the vocabulary instructional techniques introduced might also be beneficial for the content area teachers observed.

For Teacher-Preparation Courses

A final recommendation might be directed toward the content literacy courses in teacher education programs. Hopefully, every content reading education course prepares its preservice
and in-service teachers to use a variety of strategies to teach content vocabulary in the classroom. However, if teacher preparatory programs are not explicitly preparing future teachers in the area of content area vocabulary instruction, it would be highly recommended that some change be made to teacher preparatory curricula to place more of a focus on vocabulary instruction.

**For Further Study**

This investigation suggests that vocabulary instruction differs in kind, in depth, and in total amount of instructional time designated to vocabulary instruction in each of the content areas observed. Since no known studies similar to this have been conducted, it is recommended that further descriptive observations of longer duration examining vocabulary instruction in middle school content classrooms be performed. Future research might also address the quality or effectiveness of vocabulary instruction observed in content classrooms. It might also examine how teachers assess students’ vocabulary learning, as well as their own vocabulary instruction.

Additional studies might be conducted in schools where the socio-economic status may be higher or lower than that of the school in this study. Schools in areas other than Northeastern Ohio might be observed. Observations that involve content teachers of similar and different educational and certification/licensure backgrounds should be conducted.

Furthermore, observational case studies involving different middle school grade levels might be conducted. It could be possible that teachers of different grade levels use more, less, or different kinds of vocabulary instruction than the seventh grade teachers who participated in this study.
Summary

This chapter presented a summary of this investigation of vocabulary instruction observed over the course of a week in four seventh grade classrooms at one suburban middle school in Northwestern Ohio. Conclusions from the data were presented pertaining to the frequency and kind of vocabulary instruction observed in these content classrooms. This case study may or may not be representative of vocabulary instruction in content classrooms in other middle school settings.

While vocabulary instruction was most prevalent in the science and language arts classrooms, not as frequent in the social studies classroom, and almost non-existent in the math classroom, certain aspects of quality instruction were absent in all classrooms. It was concluded that not all content classrooms embody rich verbal environments, nor do content teachers consistently provide students with direct instruction in independent word learning skills, or indirect instruction that offers students opportunities to exercise independent word learning skills. Additionally, it was concluded that quality and quantity of vocabulary instruction are not necessarily equal. Finally, it appears that teacher training in content reading strategies enhances, or at least places emphasis on, the importance of vocabulary instruction.

Recommendations for teachers, for professional development, for teacher preparatory classes, and for further studies were also offered. As the content vocabulary terms students learn about and are expected to have knowledge of increase in the middle school years, vocabulary instruction should be an important component of middle school teaching. Since various vocabulary authorities including Blachowicz (1987), Graves (1987), and Scott et al. (2003) have stressed the need for observational research describing the vocabulary instruction occurring in content classrooms, this study has addressed that need by studying four seventh grade content
area classrooms. This observational case study is about the vocabulary instruction found in four seventh grade content classrooms in one Northwestern Ohio middle school; therefore, this study is only one contribution to the area of vocabulary instruction in the content areas, but should augment the current knowledge base.
REFERENCES


*Elementary School Journal, 83*, 177-81.


APPENDIX A

PRINCIPAL CONSENT FORM
Principal Informed Consent Form

As you might already know, I, Kelly Huck, am a graduate student at Bowling Green State University and am pursuing my Master of Education in Reading. I am also currently working as a graduate assistant for BGSU on behalf of your school’s literacy grant.

As a part of my Master degree, I am required to write a thesis. Since I am already involved with the literacy grant, I have decided to have ‘literacy practices’ be the topic of my thesis as well. The purpose of my thesis will be to examine the literacy practices observed throughout the week in four content area classrooms. I wish to observe the seventh grade Language Arts, Math, Social Studies, and Science classrooms over for one week. The results of this study will simply describe the literacy practices observed in these classrooms. Based on my research, there are currently few existing observational studies that describe literacy practices found in the classroom. Therefore, my study will be beneficial because it will add to this area of educational research that is currently very limited.

For my study, I would be observing the seventh grade Math, Science, Social Studies, and Language Arts classrooms for one week. I will not be audiotaping or video recording these classes. I will only be taking hand-written notes during my observation and interview. As there are no risks associated with this study, the risks are no greater than those encountered in daily life.

The teachers’ and school’s identities will remain confidential. These identities will not be revealed in any published results.

If you have any questions or comments about this study, you can contact me at 419-376-1927, huckk@bgnet.bgsu.edu or my advisor Dr. Nancy Fordham at 419-372-9819, nfordha@bgnet.bgsu.edu.

If you have questions about the conduct of this study, you may contact the Chair of Bowling Green State University’s Human Subjects Review Board at 419-372-7716 (hsrb@bgnet.bgsu.edu).

Your participation in this project is voluntary. By signing this consent form, you are indicating you have read this document, had your questions answered, and consent to allow me to observe in ___________ Middle School on January _____, 2006 through January _____, 2006.

__________________________________   ______________________
Signature        Date
APPENDIX B

TEACHER CONSENT FORM
Teacher Informed Consent Form

As you might already know, I, Kelly Huck, am a graduate student at Bowling Green State University and am pursuing my Master of Education in Reading. I am also currently working as a graduate assistant for BGSU on behalf of your school’s literacy grant.

As a part of my Master degree, I am required to write a thesis. Since I am already involved with the literacy grant, I have decided to have ‘literacy practices’ be the topic of my thesis as well. The purpose of my thesis will be to examine the literacy practices observed throughout the week in four content area classrooms. I will observe four content area classrooms over the course of one week. The results of this study will simply describe the literacy practices observed in these classrooms. Based on my research, there are currently few existing observational studies that describe literacy practices found in the classroom. Therefore, my study will be beneficial because it will add to this area of educational research that is currently very limited.

By participating in my thesis study, you are agreeing to let me observe your classroom for five consecutive days and participate in an interview that will take approximately ten minutes. I would not be audiotaping or video recording you or your classroom. I would only be taking hand-written notes during my observation and interview. As there are no risks associated with this study, the risks are no greater than those encountered in daily life.

As a participant in my study, your identity and your school’s name will remain confidential. You will be referred to as your content area (ex: Social Studies teacher) and as Teacher A, B, C, or D throughout the study. You will be described as such in my observational and interview notes as well as in my final thesis paper. Your school, both in my notes and final report, will be referred to as suburban Northwestern Ohio middle school. Only I will have access to the data/information you provide, as I will keep my observational data in a binder that I will keep with me at all times during my period of observation. Your identity will not be revealed in any published results unless you specifically request identification. While your identity and the school’s identity will not be revealed in presentations or publications of research, the principal will know who participated. You may withdraw from this study at any time or refuse to take part in any activity in which you feel uncomfortable.

If you have any questions or comments about this study, you can contact me at 419-376-1927, huckk@bgnet.bgsu.edu or my advisor Dr. Nancy Fordham at 419-372-9819, nfordha@bgnet.bgsu.edu.

If you have questions about the conduct of this study or your rights as a research participant, you may contact the Chair of Bowling Green State University’s Human Subjects Review Board at 419-372-7716 (hsrb@bgnet.bgsu.edu).

Your participation in this project is voluntary. By signing this consent form, you are indicating you have read this document, had your questions answered, and consent to participate in this thesis project.

________________________________________  ______________________
Signature                        Date
APPENDIX C

CODED OBSERVATIONAL TRANSCRIPTS
8:10-8:20 Before class started, the following was already written on the board: “Lesson 17:

1. artic
2. endeavor
3. jealousy
4. meteorite
5. sergeant
6. calendar
7. essential
8. league
9. nasal
10. synonym
11. collapse
12. fragile
13. maneuver
14. neutral
15. valise
16. debtor
17. gauge
18. matinee
19. phenomenon
20. mayonnaise

8:33 Teacher: Please get out a piece of paper. There are only 37 lessons, and we’re on lesson 17, so we’re about halfway through. Also, from yesterday, I have the paragraphs graded. That was a practice writing for the achievement test. I’ll hand those back so we can go over them.

8:34 Teacher: Go ahead and begin copying the words that are listed on the board, as usual.

OC: The students take out a piece of paper and begin copying the vocabulary words listed on the white board. (W-1) 1 min.

8:35 Teacher: Lets say these words together.

OC: The teacher and students start with the first word and read through the entire list of twenty words, one by one. (P-1) 1 min.
Teacher: Lets look back at the word jealousy. If you take the jea- off of the word, you would have the word lousy. (SA-1) >1 min.

Teacher: Sergeant is pronounced “sargent,” not “sergeant.” (P-1) >1 min.
Calendar is spelled “calendar,” not “calender.” (SP-1) >1 min.
Debtor is pronounced “debtor,” with a silent “b.” (P-1) >1 min.

Teacher: Some words don’t sound the way they are spelled. (E-1) >1 min.

Teacher: Ok. Lets get back to the millionaire game we were playing.

(The teacher then divides the class into teams by splitting the room in half. On side is team one and the other side is team two. The students seem to be acquainted with this game and follow the teacher’s lead.)

Teacher: Student, the first word is “mayonnaise.” Is mayonnaise:
a.) Something you put on your chest when you are cold.
Or
b.) Is it a spread?
Student: B, it is a spread.
Teacher: Good job. (GMC-1) 23 mins.

Teacher: Student, the word is phenomenon. Is this:
a.) A rare occurrence
Or
b.) When the sun is blocked out by the moon?
Student: I choose to phone a friend.
Friend: I think it’s the first answer.
Teacher: Correct answer. (The teacher then elaborates.) An eclipse, however, would be an example of a phenomenon. What else is a phenomenon?
Student: an Aura borealis
Teacher: Correct. (GMC: DIS-1) 1 min.

Teacher: Student, is a “matinee”:
a.) an afternoon event
or
b.) something that happens in the morning?
Student: B
Teacher: wrong. Has anyone ever seen a matinee movie?
(No answer from the students).
Teacher: Well, a matinee movie is a movie that plays in the afternoon. That is why it is cheaper than the movies at night, because not many people go to movies in the afternoon. (GMC: E-1) 1 min.

Teacher: Student, the word is “gauge.” Does gauge mean:
a.) to measure
Teacher. Correct. My wife is driving to Florida, so she is going to have to measure the distance and the gas it takes to get there. You could also gauge how high you are flying. (GMC: E-1) 1 min.

8:47 Teacher: Student, the word is debtor.
a.) somebody who is a borrower of money or 
b.) somebody who has saved a lot of money.
Student: I'd like to ask the audience.
Audience: A
Teacher: Correct. When you think of a debtor, think about someone who gets into debt. It happens sometimes when you get credit cards. Does anyone in here have a credit card? (The students respond that they do not.) Well, trust me, it's a good thing to not go into debt when you do get a credit card. (GMC: DIS-1) 1 min.

8:49 Teacher: Student, the word is valise. Is a valise:
a.) blinds or 
b.) suitcase?
Student: I'd like to ask the audience.
Audience: A
Teacher: The correct answer is B, suitcase. Valise is a French word. (GMC: DER-1) >1 min.

8:50 Teacher: Student, the word is neutral. Does this mean:
a.) when you choose sides or 
b.) when you are in the middle, or not taking sides?
Student: I’d like to phone a friend
Friend: B
Teacher: Correct. Now, if your car is in neutral, it means that it is not going anywhere. How does that mean to be “in the middle?”
Student: Because it is in between gears. It is not moving.
Teacher: Good. (GMC: DIS-1) 1 min.

8:53 Teacher: Student, the word is maneuver. Does this mean:
a.) the thing that needs to be shoveled or 
b.) to move
Student: B
Teacher: Correct. If you are maneuvering around something, you are moving around it. You can maneuver chess pieces. (GMC: E-1) >1 min.

8:55 Teacher: Student, the word is fragile. Does this mean:
a.) tough and sturdy  
or  
b.) breakable  
Student: B  

Teacher: Correct. Has anyone seen “The Christmas Story?” In that movie, one of the characters says, “Its not ‘frag-ille,’ its ‘fragile.’”  
(GMC: P-1) >1 min.  

8:57 Teacher (to students): Make sure as we are going over these definitions, that you are writing the words and definitions down.  

Teacher: Student, the next word is collapse. Does this mean:  
a.) to applaud people  
or  
b.) to break down?  
Student: B  

Teacher: Correct. What’s the difference between breaking something and breaking down? Will someone show me how they can collapse?  

Student: ‘I can show you. (The student then gets out of his seat, walks to the front of the classroom, and then falls on the floor.  

Teacher: Very good. My mom’s lung collapsed. A bridge can also collapse. Most of the time, the word collapse means falling down. (GMC: I-1) 1 min.  

8:59 Teacher: Student, the word is “synonym.” Does this mean:  
a.) opposite meaning  
or  
b.) similar meaning?  
Student: B  
Teacher: Good. What is an antonym? (This word is not on the list).  
Students: A word that has the opposite meaning.  
Teacher: Nice job. (GMC: DIS-1) >1 min.  

9:00 Teacher: The word is “nasal.” Does this mean:  
a.) have to do with sight  
b.) have to do with nose  
Teacher: And here is a hint: People from Cleveland talk through their ‘what’?  
Student: B, have to do with nose  
Teacher: Correct. Yeah, and some people from the South think it sounds whiney, speaking out of the nose. Ok, just a few minutes are left.  
(GMC: DIS-1) >1 min.  

9:01 Teacher: The word is “league.” Does this mean:  
a.) a group of teams  
or  

b.) another planet
Student: A

Teacher: Correct. A league, however, could also be a distance as well. ‘We live three leagues from school, or one mile. That would be a distance of measurement. The right answer to this question was a “group or team.” But it could also be a distance.

(GMC: E-1) 1 min.

9:04 Teacher: The word is “essential.” Does this mean:
   a.) something you can go without
   or
   b.) something that is necessary
Student: B
Teacher: Correct. Good job. Ok, now the two teams are tied.

9:05 Teacher: (talking to students) Lets talk about some of the remaining words before we run out of time. (The teacher then writes on the board and reads what he writes, simultaneously.) He writes and reads:
   Calendar—a schedule of days
   Sergeant—military or police officer
   Meteorite—a rock that falls from the sky (DEF-1) >1 min.

Teacher: What is the difference between a meteor and a meteorite?
   Students: (no answer)
Teacher: There is something different between when it passes through the atmosphere.
Teacher: Ok, since no one knows, lets just think about it for a while and come back to it.

9:06 Teacher: (continues to write on board and discuss the words)
   jealousy—envy
   endeavor—an attempt
   artic—a northern region (DEF-1) >1 min.

Teacher: Ok, let look up meteorite to see which one it is. (Bell rings.) Ok, who will look this word up for extra credit and come back and tell us tomorrow? (A student raises his hand.) Ok, student will bring the definition of meteorite with him tomorrow and we can learn what this word means.

Class dismissed.

Math
Monday, 01.23.06
10:37 am—11:18 am

10:40 Teacher: Gives an overview of the content the class will be covering that week. We will mainly be covering equations involving multiplying and dividing throughout the week.

Teacher: Open your textbooks to page 218.
10:41 Teacher: By looking at this page, what are we going to talk about today?
Student: Measurements
Teacher: What are some guesses you might have?
Student: Length, Capacity

Teacher: Well, in the United States, we use something called the metric system. We have to connect to the customary system, however.

10:42 Teacher: Let's look at the 'Think and Discuss' section. Will someone read?
Student: (Raises hand to volunteer, then reads) “When a measure involves mixed units, it may be helpful to change a mixed number involving just one unit.”
Teacher: What does a ‘mixed unit’ mean?
Student: It means ‘different forms.’ (CA-1) 1 min.

10:43 Teacher: (expands on the student’s explanation)
Student: Yeah, and an example would be 125.3 inches
Teacher: Let's make this into one unit.
Student, what unit might you make this into?
Student: Feet (DIS-1) 1 min.

10:45

10:52 Teacher: Student, would you read “#1: Try it out,” for us?
Student: (Reads the word problem.) “Suppose Sarah cut 8 ft. 5 in. from a 10 ft. board. What would be the length of the remaining piece?”
Teacher: Ok, what are they asking us to do?
(Writes the problem on the board.)

10:55 Teacher: So it just depends on if we want it in feet or inches.

10:56 Teacher: Reads text to students. “To change from a smaller unit to a larger unit, you would divide.” What does this mean? ‘To change from smaller to larger, you divide? Doesn’t this sound backwards?’ (E-1) >1 min.

Students (No response)

10:57 Teacher: Since feet are bigger than inches, we divide. (Writes a conversion picture of this on the board, with arrows pointing from inches to feet, followed by the division symbol. From ‘feet’ to ‘inches,’ he draws an arrow followed by the multiplication symbol.) Teacher then continues on with number two and three. (I-1) 1 min.

11:11 Teacher: Go ahead and take out your papers and get started. (The teacher points to the board, where the assignment is written. “SW (show work), p. 220 #1-27.”

11:14 Teacher: Passes back papers.
OC: During this time, the students are quietly working on their homework assignment. The teacher handed me a copy of the textbook. I looked at the directions and contents of the students’ current homework assignment. This is what the assignment involved:

“1-4: Tell whether you would multiply or divide to change from one unit of measure to the other.
5-9: Mental math—Complete
10-25: Use a calculator, paper, and pencil, or mental math to change one unit of measure to the other.
27 and 28: Word problems”

This was the end of the students’ assignment. However, #29, which was not assigned as homework, read as the following:

“29: Writing: Explain why you multiply and change from a larger unit to a smaller unit and divide to change from a smaller unit to a larger unit. Include two examples.”

11:18 Class dismissed

Social Studies
Monday, 01.23.06
11:21 am—11:49 am—class
11:49 am—12:19 pm—lunch
12:21 pm—12:47 pm—class

11:21 Teacher: Mentioning of the ‘Rome project.’
Today, we will be working on pop-up books.
(Passes out handout titled “Ancient Civilization visual journals”)

11:24 Teacher: This isn’t just about Social Studies. This is about reading and writing. (Holding up a former student’s pop-up book to serve as an example) This is an example of a pop-up book made last year. (Then holds up two ‘published’ pop-up books, one about New York, one about architecture) I encourage you to think about making pockets and raised pictures, like the ones in these books. I will help you make them.

11:25 Teacher: Now back to the page I handed to you. This is a syllabus. A syllabus is something that is used in college that tells you what you have to do and when it is due. (E-1) >1 min.

Teacher: This entire project is due on _____. Write this date at the bottom. (The teacher then begins reading the syllabus.)

11:28 Teacher: In this project, you’ll be discussing the two parts of Rome: The republic and the empire. When discussing each of these, make sure you talk about the ‘who, what, where, when, why.’

11:30 Teacher: Integrate the five W’s. This means don’t make them all into separate paragraphs.
Teacher: (Pulls out an old textbook.) Look at this old book. This might be a model you could look at. You could use it as a guide or outline. Don’t plagiarize. Do you know how I can tell if you plagiarize?

Student: Because it will look exactly the same?

Teacher: Because you guys write how you talk.

11:32 Teacher: Lets look at how this text could help us. (Reads the ‘historical overview’ section and questions listed after the ‘historical overview.’) The overview and questions could help direct you to the important points you will not want to miss.

11:35 **Teacher: What words would you use in your paper? What type of words?**

Students: No response

Teacher: Ok, well what type of words do you use with Mr. Dick (the science teacher)? Maybe cumulous, lava, stratus clouds. So, in your papers, you might want to use some of the words currently on your vocabulary ring. Words like democracy, republic, dictator, mercenary, pope, and bishop.

(M-1)  >1 min.

11:40

11:41 Teacher: So, remember that you will need to include two special interest topics in your paper. Tomorrow, we will chunk the requirements.

Teacher: On the timeline you will include in your project, you must have at least nine dates. What two kinds of dates might you include?

Students: No response

Teacher: Well, you might include B.C. dates, which run from big numbers to small numbers. The other kind of date is an A.D. date, which goes from small numbers to big numbers. You must identify these two kinds of dates on your timelines. (E-1) 1 min.

11:43 Teacher: Tomorrow, we will make a pop-up book. We will also make a Roman arch.

11:45 Teacher: On the topic of the timeline, remember that Caser added June and July.

(The teacher then uses the word ‘lunar’ in his discussion with the students about the addition of June and July to the calendar year.)

Student: What does lunar mean?

Teacher: (Either doesn’t hear or ignores student. No response.)

Teacher: So originally, there were only ten months. In Latin, sept means seven, octo means eight, novem means nine, and decum means ten. So even though two months were inserted in the middle of the ten-month calendar year, the names of the months following June and July were kept the same. (MA-1) >1 min.

11:46 **Teacher: What contributions did the Romans have?**
Students: No response.
Teacher: How about arches, the coliseum, Latin, root words
Teacher: Even today, I’m guessing you would recognize ¾ of the Latin letters and words if you saw them. An example is that librarius means library. Lets think about Roman contributions to architecture. Have any of you seen the dome in Washington D. C., called the Jefferson memorial? This looks like it was modeled off of Roman architecture. Also, think about the roman numerals that we still use today. (E-1) 2 min.

11:48

11:49 Bell rings for lunch
Teacher: Ok. We will meet back here after lunch.

12:20: Class resumes
Teacher: Take out your independent reading books.
OC: All students have books out and are supposedly reading. Fourteen students are reading novels they have brought with them (independent reading materials). Three students are reading textbooks and have not brought independent reading materials. I can tell this is standard procedure. Most of the students have brought their independent reading materials and everyone has started reading, silently, right away.

12:22 OC: Mr. Smaltz called on the three students who did not have independent reading materials and reminded them to bring it with them tomorrow. He also wrote down the names of these people in one of his notebooks.
(SSR-1) 10 min.

12:30 Teacher: Please take out your reading logs. Those who do not have required independent reading tomorrow will have detentions.
OC: All students are participating. Reading logs seem great. The log (which the teacher gave me a copy of) makes suggestions for what to write about in case students don’t know. Such examples include examples of summarization and life connections.

12:33 Teacher: Ok, lets go back to the syllabus
Student: What’s a syllabus again?
Teacher: No response

12:37 Teacher: For the bibliography, we'll be using APA style.
Student: What is APA?
Teacher: It doesn’t really matter, but it’s a way to document sources. You can use the same formatting again and again. (E-1) >1 min.

12:47 Class dismissed.
Teacher: (Opens class by assigning students new seats.)

Teacher: Pull out your homework. (Teacher walks around to each student and checks homework. Students know procedure and have their homework pulled out right away.)

Teacher: We have been talking about “Climate.” What is climate? (Teacher has a transparency placed over an overhead projector and is ready to write on it.). Consider Northwest Ohio. What have we learned to expect over long periods of time in January?

Students: Its cold and snowy
Teacher (writes students’ responses on overhead transparency) How about April?
Students: Rain, warm, kind of chilly sometimes
Teacher: (writes students’ responses on overhead transparency) June?
Students: Hot and dry
Teacher: October?
Students: Chilly, warm, and wet
Teacher: So class, what is Climate?
Students: Temperature and Precipitation

Teacher: Correct. (The teacher then begins to draw a concept map on the transparency, writing Climate at the top, and ‘temperature’ and ‘precipitation’ branching off from ‘Climate.’ As the teacher draws this concept map, he asks the class what three things affect temperature.

Student: Latitude and Altitude
Teacher: (Writing this student’s response on the concept map) Ok. And there is one more. What’s the third factor?
Student: Ocean Currents.
Teacher: Good. You remembered. (writes on concept map)
Teacher: Ok, what is latitude?
Student: How close you are to the equator.

Teacher: What is Altitude?
Students: (No response)
Teacher: It’s how high or how low you are. It is synonymous with elevation. Elevation reminds us of the word elevator.

Teacher: Lets look at the other factor, Precipitation. What is a factor that effects precipitation?
Student: Prevailing winds.
Teacher: Correct. Actually, Mountain ranges are bad for the air. What happens when air rises?
Students: (No answer.)
Teacher: Ok, well, we’ll talk more about that. Mountain ranges also have different kinds of sides, the wayward and leeward sides. (writes on concept map) And this makes a difference. (CM: DIS-1) 1 min.

1:01 Teacher: Take out your worksheet and let’s review.
Students: (quickly pull out worksheets).
Teacher: Flip your worksheet to the back. Ok, in number one, in describing climate, you must have discussed temperature and precipitation.
Teacher: Number two, the leeward side of a mountain is the dry side of the mountain. It can be found near the equator and has a dry, moderate temperature.
Teacher: Number three, the coast sea breeze would occur when you have a cold-water current that flows along the coast. There would be a cool climate with lots of precipitation.

1:04 Teacher: Number four, if you were at the top of a mountain and were receiving land breeze, it would be cold and dry.
1:05 Teacher: Wow, you guys are like climate detectives. You’re doing a good job. Number seven, what would the temperature be like if you were on the wayward side of a mountain located near a cold water current. It would be wet and extremely cold. (E-1) 4 min.

1:06 Teacher: Ok, I’m coming around to pick up your homework (Begins walking around and collecting the homework that was just reviewed.) Now, Pick up the worksheet of a picture of a continent on your desk. (The teacher then passes out new papers to each student and explains that there will be group work involved in this new project.)

1:08 Teacher: As you can see, this new worksheet is titled, “Factors that influence climate.” (The teacher puts this new worksheet on an overhead, starts reading the worksheet, underlining particular words, and instructing the students to underline the words on their papers as well.)

OC: The teacher underlines the following key phrases:
“measures the centers of large landmasses,” “measures bodies of water,” “location relative to large mountain ranges,” “elevation,” “ocean currents.”

1:10 Teacher: (The teacher uses the word ‘obtuse’ in a sentence, when speaking about the topic of climate.)
Student: What does that mean?
Teacher: (Does not hear the student. The student is ignored.)

1:11 Teacher: Go ahead and work with your partner. We’ll all come back together in a few minutes. Be prepared, I’m calling on individual students today instead of group shout.
1:14 Teacher: I need to hear some more chatter. (The teacher walks around to each of the student groups to see how they are doing. He encourages his students to talk about their work and work collaboratively.)
1:16 Teacher continues to walk around the room and answer questions of students who have their hands in the air.

1:18 T: Approaches two students who have hands raised. S. want T. to look at what they have written. T. reads and complements S. for using the word ‘wayward’ in their writing.

1:20 **T: Approaches another S. group. S. asks T. about the term ‘wayward.’ T. explains term to S.** (E-1) >1 min.

OC: There are six student groups, including five groups of two people and one group of three people. Three of the groups are collaborating well, discussing the meanings of the terminologies dealing with climate in order to determine the climate of the different regions of the ‘imaginary continent.’

1:24 T: continues to circulate.

OC: At this point, only one student group is still discussing the worksheet.

1:25 **T: Begins to go over worksheet. Reads the climate clues and then asks class for the answer, or climate, that was guessed. (Some questions give a description of the type of climate and require students to name the defining climate terminologies.)**

“Number one.” (Reads description.)

S: Elevation

T: Correct. (T. continues to go over the worksheet, reading description, having students answer, discussing answers as a class, and answering student questions regarding topic.) (DIS-1) 5 min.

1:30 T: Now I’d be happy to bestow upon you tonight’s homework. This is about ‘global climate.’ (passes out homework to students) It involves tropical temperatures and polar zones. Read the directions.

1:31

Language Arts
Tuesday, 01.24.06
9:09 am—9:50 am

9:14 T: Please get out workbooks. (Walks around and checks)

T2: (takes over) Lets go over the spelling review on p. 69 in your workbooks.

9:15 OC: In the workbook, the section the intervention specialist and the students are reviewing is titled ‘vocabulary development.’ The directions in the book read: “Write the List word that matches each synonym or definition.”

**T2: (Teacher begins reading the definitions, one by one, and calls on a student to answer each definition with the correct ‘list word.’)**
OC: The sixteen word definitions include the following:
Borrower       Afternoon Event
Envy           Not taking sides
Necessary      Rare occurrence
Breakable      A spread
Suitcase       Group of teams
Attempt        Schedule
Breakdown      Of the nose
Measure        Movie plot

The list words include the twenty list words reviewed in class on the previous day. Four words would thus not be used. The list word options include the following:
Artic
Endeavor
Jealousy
Meteorite
Sergeant
Calendar
(And the rest of the list words from the previous day.)

OC: The students seem to be checking their questions as responses are read. *(DEF-1) 2 min.*

9:17 T2: (Reading Directions: Part II: “Dictionary Skills: Write the list word that comes between each pair of dictionary guide words.”)

OC: The following list of word pairs was listed on page 69 of the textbook being used. The teacher didn’t read the pairs, but had the students go up and down the rows, taking turns calling the answer to each list word. On page 69, these were the dictionary pairs listed:

1. senior/settle
2. matrimony/maze
3. game/get
4. empathy/escrow
5. main/market
6. endive/estate
7. swim/system
8. merge/metric
9. arbor/argue *(DU) 3 min.*

9:20 OC: At the top of the page, a tip was NOT covered. The tip read: “Some words are hard to spell because they have a silent letter or unusual vowel spelling or double consonant.

* performed by T2, the intervention specialist
* performed by T2, the intervention specialist
Other challenging words constrain the schema sound /a/ in unstressed syllables. Although it sounds like short e, the schema sound may be spelled without any of the five vowels.”

9:26 T: (The teacher is talking about what to do and not to do doing the students’ upcoming oral presentations.) Have clarity. This means don’t mumble. We need to understand you.

Math
Tuesday, 01.24.06
10:37 am—11:18 am

10:54 S: Why is pounds abbreviated ‘lbs’? And also, why is ounces abbreviated ‘oz’?
T: I don’t know. It’s British maybe?
OC: (The teacher seems to be serious. He does not show any signs of joking when making the comment that maybe the abbreviation was of British origins.)

Social Studies
Tuesday, 01.24.06
11:21 am—11:49 am—class
11:49 am—12:19 pm—lunch
12:21 pm—12:47 pm—class

11:21 T: Lets work on our projects. We will be chunking assignments so we know what is due when. Lets go over what our chunks look like: (Reads what is written on the board to the class.)
Jan. 23: Intro
Jan. 24: Roman Arch Pop-up cover
Jan. 25: Roman Republic-History
Jan. 26: Roman Empire-History
Jan. 27: Special Interest-(Map)
Jan. 28: Contributions
Jan. 29: Time lines-typing, illustrations
Jan. 30: Special Interest (Map)
Jan. 31: Famous Person (Map)
Feb. 01: Project Due
(Yes, he has even mapped out the students’ upcoming weekend. Spends entire period explaining project and letting students work on their own.)
11:26

Science
Tuesday, 01.24.06
12:51 pm—1:32 pm

12:51 T: Begins class by saying class will continue to have a discussion about climate. What have we seen outside today? (No response from students.) We’ve seen low-lying clouds called stratus clouds.

T: (says, while writing on overhead projector) What is climate?
S: Daily weather conditions over a long period of time
T: good job. And what are the two main factors of climate?
S: Temperature and precipitation (DIS-1) >1 min.

12:53 T: good. (Teacher continues to write ‘temperature’ and ‘precipitation’ on the overhead projector. He then branches three lines off of the word temperature and two lines off of the word precipitation. The teacher then writes the words altitude, latitude, and ocean currents on the three lines extended from ‘temperature.’ He extends ‘precipitation’ with a line connected to the word ‘mountain range’ and another line connected to prevailing winds. From prevailing winds, he draws two additional lines and then writes ‘leeward’ and ‘wayward.’ (CM-1) 6 min.

12:55 T: Also, teacher draws pictures of a mountain range beside the word ‘altitude’ and pictures of mountain ranges and wind (with arrows blowing toward the correct side of the mountain) beside the words leeward and wayward. (CM: I-1) >1 min.

12:56 T: While completing concept map, T. verbally expands on and describes what T. is writing on the overhead projector sheet. T. calls out to students to see if they can shout out the answer (correct terminology) as T. writes it on overhead projector. Students see this as a game of who can tell teacher what to write or fill in on the graphic organizer before teacher can beat them to it. Students are engaged.

12:58 T: Mentions the word “phenomenon” in a sentence in the context of speaking about prevailing winds. What other phenomenon can you think of?
S: hurricanes
T: good (CM: DIS-1) 3 min.

12:59

1:05 T: Make sure your names are on paper and hand them in. Now we are going to focus for a few minutes on a three-minute video titled “Climate in the U.S.”

1:06 Video Begins: (Key points mentioned by the video. T. paused video when these key points came on screen)
(Map of US is shown along with labels) Alaska=Polar, Hawaii and Florida=Tropical, Most of rest of United States=Temperate zone (These states are highlighted on the map of the US, accordingly.) (I-1) >1 min.

T. Stops video and elaborates on what video has just explained.
(E-1) >1 min.

1:07 Video continued: Map of US is still being shown on the television. As geographic sections are mentioned and described, the states are highlighted: Mediterranean-CA-wet winter and dry summer; Marine-Western states; Desert and Steppe-western interior states-little rainfall; highlands-mountain areas; moist continental-northern US-cold winters, wet summers.
(I-1) 2 min.
1:09  T: Pauses video, rewinds video, pauses video, and explains the information covered in video to students so students can understand. (Students are taking notes about what the teacher says. Teacher is explaining terminologies such as tropical and Mediterranean. (E-1) 1 min.

1:10  T: Gives students a short quiz on what they just learned. Students take out dividers during the quiz. All students are finished within four or five minutes.

1:15  T: Ok, let’s talk about work again. Turns on overhead project, where the following information has been written. “Forces, Pressure, Weather, Climate….Energy….Work.” So this is what we have talked about up to this point. (M-1) >1 min.

1:17  T: Turn to a partner and I want you to discuss the following questions: (uncovers questions on the overhead that he has already written) 1. What is WORK?, 2. Name two or three things that are ‘work.’ 3. Name two or three things that are NOT ‘work.’

1:18  S: Students begin working.

1:20  T: Walks around and talks with each student group about the meaning of work. T. asks if he/she is ‘working’ right now (as he/she is using a pencil, writing). T. then asks S. if he/she likes to work.

1:23  T: Asks S. if work is only physical? Am I working if I am sitting on a stool? (DIS-1) 6 min.

1:24

Language Arts
Wednesday, 01.25.06
9:09 am—9:50 am

9:14  T2: Leads class in checking spelling homework. Starting with number one, she says ‘number one’ and then calls on a student to tell the answer and spell the word (answer) correctly.
T2: #1
S: Matinee
T2: by the way, that is an example of a word with French origins. Only the original had an accent over the first e in matinee. *(SP: DER-1)* >1 min.
S: spells word correctly

T2: This process of having students tell the correct word and then spell the word continues for the rest of ‘section 1’ of the spelling homework assignment being checked. *(SP-1)* 4 mins.

* performed by T2, the intervention specialist
* performed by T2, the intervention specialist
9:18 T2: Section two. Teacher calls on students to read the sentences they have corrected. (The sentences in section two assign one vocabulary word per sentence. The student’s job is to change the assigned vocabulary word to fit the appropriate tense that the word would require when used in particular sentences. Teacher offered feedback pertaining to the correct spellings on the vocabulary words in each sentence.) *(SP-1) 4 mins.*

9:22 T: This class pronounced the words better than the last class. Nice job. Ok, what is an analogy?
S: They are two words that are the same or different.
T: Yes, it is when we look at two words and analyze them to see how they are related. We are comparing the two words.

9:24 T: Take out the achievement test practice paragraphs that you were assigned on Monday. (S. take out.) This type of paragraph was an analyze paragraph. Can anyone tell me what it means to ‘analyze’? (No s. response.) Think about the word ‘puzzle.’
S: To look at the pieces?
T: What is the first thing you do? We first look at 1. the picture on the box, 2. the pieces, and 3. think about how to put it together. *(DIS-1) 3 min.*

9:25 T: So, for an example related to writing, lets look at the topic “what we do when we are getting ready for school.” These are the things I do when I’m getting ready in the morning. (T. goes through his pieces of his process of getting ready for school in the morning in random order.) So, its not enough to just know the pieces of the puzzle. You have figure out how the pieces of the puzzle fit together. You could also figure out how the pieces of my morning fit together. That’s what it means to analyze. *(E-1) 2 min.*

9:28 T: passes out Achievement test preparatory packet of leveled writing prompts. Reads through first section and tells students what levels the writing prompts are (1, 2, or 3). This round of writing is based on comparison.

9:30 T: When we talk about synonyms, we are talking about things that are similar. (Begins writing on board). ‘synonyms=relate.’ We have to find the similarities and then relate them. *(E-1) >1 min.*

9:31 T: Picks two students and brings them to front of room. We are going to compare these two people. Take a minute to study them. (lets about forty-five seconds pass). T. calls on students, as they raise their hands to tell what similarities exist between the two students at the front of the room.
S. Name similarities including: both have earrings, wearing pink, brown hair, smiles, fully dressed, are humans. *(I-1) 2 min.*

9:33 T: I like how you did this. You didn’t just go for obvious things. You really studied them.

* performed by T2, the intervention specialist
9:34  OC: The students pick the appropriate writing prompts for themselves and begin working. Teacher circulates room.

9:45  T: If you’ve finished with you paragraph, you can begin working on spelling.

Math
Wednesday, 01.25.06
10:37 am—11:18 am

11:06  T: The students are continuing to work on a review sheet that the teacher has given them in preparation for tomorrow’s test. The teacher handed out the sheets and went over the directions with the students, but did review any vocabulary terminologies prevalent in various places on the worksheet and also words listed in the many word problems. This review sheet involves mostly word problems on the first page. There are no word problems on the second page, but rather, multiple-choice problems. Finally, there are two word problems involving choosing the appropriate strategy to use, which involves writing the appropriate strategy as the answer.

Social Studies
Wednesday, 01.25.06
11:21 am—11:49 am—class
11:49 am—12:19 pm—lunch
12:21 pm—12:47 pm—class

11:23  T: Ok, its independent reading time. You shouldn’t be doing anything else. Get your independent novels out. (Most of the students are getting their independent novels out.) T. walks up to a student and tells him he will help him get the rest of the books in the series he is reading if the student wants. (The book the student is reading is called “Sword of the Rightful King.”)

11:25  OC: 18 students have independent novels they are reading; 1 student is reading the fashion section of a Teen People magazine; one student is reading a textbook. Everyone is reading at this point. Silence fills the room. When looking around to see what books students are reading, I see titles including: “The Diary of Anne Frank,” “The Dilbert Future,” “Sparrow Hawk Red,” “Bud, Not Buddy” (two students), “Heaven.” The T. is reading, or skimming, a pop-up “how-to” book. The teacher’s student teacher approaches and begins asking T. questions. They talk for about two minutes at the front of the room. I notice that this distracts some of the students. (SSR-1) 10 min.

11:34  T: Ok. I want you to take out your reading logs and document what you’ve read so far today. (Students take out logs and begin writing.)

11:38  T: (Students are complaining about all of the assignments they have to do for this Roman Pop-Up book project.) Do what you have to do and get started. I know you haven’t had
to do this before, but this is why we are ‘chunking’ (points to the board), so we can get it
done by doing little parts each day.

11:46 S: What’s a synonym for ‘overthrow?’
T: Gives several synonyms. Then asks student what it means to overthrow a
government to make sure student understands what the word means. The student
summarizes the meaning of the word for the teacher.
(E: SYN-1) 1 min.

Science
Wednesday, 01.25.06
12:51 pm—1:32 pm

12:51 T: Uses the word ‘work’ seven times in his intro to class. You have done so much
‘work’ now we’re doing more ‘work’ you like to ‘work,’ we’re going to
‘work.’…and continues…. (M-1) >1 min.

12:53 T: Grab your ‘red pen of science.’ So we’re talking about work. Puts a sheet on the
overhead projector. It is a graphic organizer about ‘work.’
(GO-1) 14 min.

So what have we decided the definition of work is? (asking students)
S: Force acting over a distance (teacher writes S. answer)
S: Something you do to an object (GO: DIS-1) >1 min.

12:55 T: (T. takes out a textbook, puts book on an empty desk, and pushes the book w his
fingers across the desk. Then, T. takes out two textbooks, puts them on an empty
desk, and pushes them both with one finger across the desk.) Now this was an
example of work. So, let’s talk about the key characteristics. First, an object must
move (writes on overhead projector sheet). T. calls on a student to walk to the front
of the room and push hard on the wall. Then, T. asks the class: Is S. doing work?
S: No
T: why?
S: Because the wall isn’t moving.

12:58 T: so number two (writes on overhead projector sheet), “Work (Joules) + Force
(Newton’s) = Distance (meters).” So, let’s have another demonstration. T. calls on
two students. T. piles two books on top of the first student’s hands and tells the
student to just keep holding the books. T. tells the second student to pick up a pencil
and then to set the pencil back down. (GO: I-1) 5 min.

1:00 T: (writing on graphic organizer on overhead projector) Third, the unit for work is
a joule, as in James Prescott Joule. Fourth, the directional angle is important. T.
writes on overhead, “Direction of motion must be the same as direction of force.”
(GO: E-1) 1 min.
T: Ok, open your textbook to page 372. Gaze upon the loveliness of page 372. Look at this picture. Why are the lifeguards being paid? They aren’t ‘working.”
(students laugh) When you lift something up, where is it moving?
S: Up?
T: Yes. When you lift something down, where is it moving?
S: Down.
T: Picks up a textbook, holds it, and then begins walking sideways. Is this work?
S: No
T: Right, because it wasn’t moving up or down.

T: On the graphic organizer being displayed on the overhead projector, T. draws an illustration of work. The picture is of a lady holding a baby, pulling a kid behind her on a wagon, and pushing another kid in front of her on another wagon. The, T. asks the students what work the lady is doing.
S: The holding the baby part is not work. Pulling the baby and pushing the baby are work.
T: good. Now, I want you to draw another example of work on your graphic organizer. (Gives the students a minute to draw a picture of work on their papers.) Ok, make sure your names are on your papers and pass your papers forward. (GO: I-1) 6 min.

T: Pull out your composition books. (This is what S. write their labs in.) T. puts a blank sheet on overhead projector and titles the page, “Work lab.” Students copy. T. writes, “Purpose: to calculate work using this formula: W=F X D.” An inch below what he has just wrote, he writes: “Hypothesis: Most work, Least Work.” (S. are copying everything T. writes. T. also reads what he is writing as he writes it.)
T: Ok, and here is the procedure. (Writes on overhead) “1. Measure distance in meters. How would you write 3 meters and 22 cm?
S: 3.22
T: correct. Ok, number two (writes), “Drag or lift an object with a spring scale for force.” (T. demonstrates as T. explains.) “3. Multiply force times distance to find joules of work.” So, if you had two Newton's of force and two meters of distance, you would have four joules of work. (E-1) 4 min.

OC: (Teacher continues reading aloud and writing out the rest of the lab. The students then start working on the lab. They do so quickly and quietly, obviously aware of lab procedures.)

T: (approaches me and begins talking about his teaching): For labs, T. never gives students a prepared lab sheet. T. always uses the overheads and makes the S. copy down info into their own book. The reason is that S. have to write it, hear it, and then will be able to better understand and ask questions so confusion can be cleared up before the lab begins. No student will be lost and not know what to do. After the lab, T. has S. write a conclusion (which due to time issues today, the s. would finish tomorrow). T. also has S. write out what the purpose was for doing the lab. In general, the T. said that T. tries to
follow a similar schedule each day. The first ten minutes of class is usually review and introduction to class; the next ten minutes is usually discussion of procedure and teaching; the last twenty minutes of class is carrying out lab and shortly finishing class. T. said T. tries to be consistent with this schedule.

1:30

Language Arts
Thursday, 01.26.06
9:09 am—9:50 am

9:14  T2: Get out spelling and turn to page 71. (This homework assignment involves analogies and vocabulary words. Students give answers and teacher usually expands.) “Number one.” (calls on student)
S: answers
T2. And how are they related?
S: red and yellow are both colors.
T2: continues this process of calling on students to answer the question and explain the analogy.
S: For number three, ‘visual’ means to see, and you see through your eyes.
S: For number four, artic areas are cold, while tropical areas are hot.
*(AN-1) 4 min.

9:18  T2: Begins checking over section two with the students. Section two involves the students telling the definitions of the selected vocabulary words. *(DEF-1) 2 min.

9:20  T: Passes back essays and discusses these analysis essays the students wrote. In the process of doing so, T. reads two good student examples of ‘analysis.’ T. reviews what it means to analyze something. *(E-1) 4 min.

9:24  T2: Pull out your Bingo boards. We’re going to play vocabulary bingo. T1 passes out Bingo chips while students are writing their self-selected vocabulary words on their Bingo game boards.

9:28  T2: (begins reading vocabulary definitions; students must recognize the definition and look for the vocabulary word on their game card, in order to put their chips down on the board.)
1. a spread
2. a rock that hits the earth
3. an officer in the army
4. breakdown
5. of the nose
6. a suitcase S: Bingo (Reads words for teacher)
7. to measure
8. necessary S: Bingo (Reads words for teacher) T2: clear boards again

* performed by T2, the intervention specialist
* performed by T2, the intervention specialist
9. not taking sides
10. word with a similar meaning
11. schedule
12. an afternoon event
13. an attempt
14. borrower
15. a plot
16. envy
(This continues until 9:45) *(GM-1) 17 mins.*

9:46 T: Get out your practice-writing packet for the achievement test. Let's talk about contrast. What did we say 'compare' meant?
S: Similarities
T: So, what do we think contrast might mean?
S: Differences
T: Yes. The essay for tomorrow is going to involve contrasting either two seasons, four seasons, or people in general. We will start after our spelling test tomorrow. So, will be saying what these things have in common?
S: No, that’s compare. *(DIS-1) 3 mins.*

9:49

9:50 T: Have a nice day and remember to study spelling.

Math
Thursday, 01.26.06
10:37 am—11:18 am

OC: No vocabulary instruction was found during this class. In today’s class, the teacher and students reviewed the math review sheet given the previous day to prepare students for tomorrow’s test.

Social Studies
Thursday, 01.26.06
11:21 am—11:49 am—class
11:49 am—12:19 pm—lunch
12:21 pm—12:47 pm—class

11:36 T: (a student has approached T. to make sure S. is going about writing the piece S. is working on, correctly.) T. tells student that S. work is excellent, and then comments to class, “This is a perfect example of using vocabulary words. You have used words including aristocracy, rules of order, plebian, and patrician. I can also tell you’ve used your chapter notes and class notes to talk about the empire.” *(M-1) >1 min.*

* performed by T2, the intervention specialist
11:41 T: At the front of the room with two students standing in line to see T. (Reminder to class) Remember, you need fifteen vocabulary words from the vocabulary ring in your paragraphs. Do not forget this. You should be using vocabulary words such as aristocracy, plebian, and patrician. (M-1) >1 min.

11:43 T: Refers a student standing in line to see T. to the ARC (academic resource center) so that someone may help S. with grammar, and specifically, subject-verb agreement.

11:44 T: (to class) Also, make sure your vocabulary words are being used appropriately.

12:21 ST: (The students have come back from lunch and the teacher has not yet entered the room. The student teacher gets class started.) Ok everyone, lets begin SSR time. (Students take out books. Everyone except for two S. is cooperating.)

12:23 OC: 15 S. have novels; 5 S. are doing homework instead of SSR. The ST only addresses one of the students who are not participating in SSR; the other student continues to work on homework. (SSR-1) 9 mins.

12:29 T: Enters room
12:30 T: Take out your reading logs and jot down the information you read for today. No talking. (Some students are writing in logs; others are not.)

12:34 OC: S. are starting to work on their paragraphs again.

12:39 T: Lets go over some of your vocabulary words. What are these words?
S: Are looking in their vocabulary rings. No one responds.
T: Do you have the word “council” in there? (no response) (writes on board) Here are some words you should be using in your paragraphs at some point: Senate, tribunes, assembly, plebian, and government.
(M-1) >1 min.

12:41 OC: The students still do not respond. They act less confused, but seem like they just aren’t motivated and don’t want to do any work.

Science
Thursday, 01.26.06
12:51 pm—1:32 pm

12:53 T: Intro to class: So we’re talking about work, so you guys can have more work. Pull out last night’s homework (M-1) >1 min.

12:54 T: A Newton is how many lbs, class?
S: ¼ lb.
T: Very good. Remember, I call McDonalds quarter pounder the Newton pounder. (T. and S. laugh)
OC: Good mnemonic device. (MN-1) >1 min.
12:57 T: Which is doing more work? (Referring to the homework problem, which is projected onto the screen in front of classroom, showing a picture of a turtle pulling a feather tied to its tail and a picture of an elephant with four tigers sitting on its back)
S: the turtle
T: good
12:58 T: turn paper to the back. Tell me the pictures you guys drew of work and non-work. (The teacher continues to call on students to tell him the pictures they drew on the back of the page, for homework. Pictures students drew featuring ‘work’ include a person throwing a ball, picking up groceries, dragging weights, picking up a weight, and shoveling snow. Pictures students drew of people not doing work include a pushing on a wall, holding a bag, holding a baby, holding a television, carrying a basketball, and holding a book.) (I-1) 5 mins.

1:02

1:03 T: Ok, lets have a recap of the lab we were working on. So what did we use to measure things?
S: no response
T: Stretches out hands in a long stretching motion’
S: a spring scale
T: yes (I-1) >1 min.

1:04 T: Now you have to write the conclusion. (Turns on overhead projector where a sheet and the following questions have been written. Students immediately pull out their composition lab books and begin copying.) The teacher reads the following while the students copy: “Conclusion: Answer these questions in paragraph form. 1. What was the purpose of this lab?, 2. What is work? How did you find it? 3. Which of those activities was the MOST work? How much work was it? Why is it the most work? 4. Which of those activities was the LEAST work? How little was it? Why is it the least?

1:05 S: Begin writing the conclusions to their lab.
1:10 OC: Students are still finishing lab conclusions. T. is circulating classroom.

1:11 OC: T. invites me to circulate room and read students conclusions. T. says T. is very proud of students. T. says the students are writing in complete sentences and have labeled their measurements with appropriate units. Also says is very proud of the ways students write their labs—the language arts teachers are working hard to develop students’ paragraph writing skills. T. says T. understands that writing paragraphs in science is definitely an important part of communication. Writing is an important part of science. T. says is very interested and invested in having students use correct science terminology, including labels and units, in their verbal and written discussion and responses.

1:14 T: pulls class back together.

1:16 T: Does anyone notice anything weird about this question? (Referring to one of the lab problems or questions, which are in form of pictures.) How much work might what is in this illustration involve?
S: The student is carrying the agenda book down the hall, so we didn’t measure it.
T: Good job. So it was zero joules. I tried to trick you. (I-1) 1 min.

1:18 T: Ok, now I’m going to give you work lab II. (turns on overhead projector to introduce lab.) The purpose is “to see how slanting a ramp affects work!” (S. copy this down.) Does anyone know what a ramp is?
S: it’s slanted
T: good. Teacher uncovers the ‘materials’ section on the overhead and reads what is written. The materials you will need include “5 N. wt., ramps, meter stick, a 0-5 spring scale, and a pegboard.” The procedure includes: “1. Measure length of ramp in meters, 2. Lay ramp flat. Drag weight up ramp. Calculate work. 3. Change slant of ramp.”
T: (Still reading what T. has written on overhead, while S. copy information) We’ll record our data in this chart. (The chart is a table with the following columns: Ramp, Force-Newton, Distance-Meters, Work-Joules.) Make sure you know the units for each measurement. The unit defines the measurement. Explains/reviews the units of measurement in the chart.
(E-1) 5 mins.

1:23

1:25 S: (Begin gathering materials and beginning to complete the lab.)

1:28 S: T., what does distance mean again?
T: How long something is (E-1) >1 min.

Language Arts
Friday, 01.27.06
9:09 am—9:50 am

9:15 T: Ok, clean your desks for the spelling test. Those of you who go with T2 can go right now. (Teacher later explained to me that the students who have to have words read to them and those that need extra help or attention go with T2 to take all tests.)

9:17

9:20 T: When you’ve finished the test, begin writing. On the test, make sure you correctly spell the words, fill in the blank in sentences, and find the words that are being used as verbs.

9:22 OC: Spelling test has begun.

9:26 OC: S. seem to be doing really well in working on the test. Eight students stayed in the classroom. Seven were pulled out, or volunteered to be pulled out to go with T2 if they needed special help.

9:35 OC: Most students have finished with the spelling test and are now working on writing prompts.
9:41 OC: T2 is now back in the room, as well as T2’s students, and T and T2 are now circulating and helping S. with writing prompts.

Math
Friday, 01.27.06
10:37 am—11:18 am

10:38 T: Passes out tests. (Gives me a copy.) Make sure you read directions thoroughly and don’t just put what you think it says.

10:40 OC: All students have begun taking the test.

10:41 T2: Students who take tests with T2, as in the previous class, leave with T2 to receive extra help in administering the test.

11:18 T: If you aren’t going to be able to finish your test, put your Academic Assist teacher’s name (last period teacher) at the top of the page and I will make sure he/she gets it.

Social Studies
Friday, 01.27.06
11:21 am—11:49 am—class
11:49 am—12:19 pm—lunch
12:21 pm—12:47 pm—class

11:23 T: Take out your SSR books
OC: 18 students take out SSR novels; 3 students are reading a textbook, one of which is not reading the textbook, but laying head on it.

11:25 OC: Some of the books I have seen the same students have the whole week. I recognize a few new books, however. One is titled “Twitches.”

11:26 OC: Teacher is organizing classroom. The students are silent. Most students are reading.

11:28 T: Picks up a book titled “The Roman World” and starts reading. (SSR-1) 10 mins.

11:33 T: Ok. Please write in your reading logs and jot down your Academic Assist teacher’s name at the top. I will make sure your reading logs get to the correct person.

11:35 T: Pass your logs to the front with you’re finished.

11:36 OC: Students pass reading logs to front. Most students are already pulling out the work they are working on for the project and begin working. Some students are beginning to bring their work to the teacher, forming a line.

11:38 S: What are contributions?
T: Things the person inspired, like sewers, streets, paved roads, stone bowls, thinks we still use today. (E-1) >1 min.

12:35 T: (helping a student who has come to T.) Can you think of any word to use that means the same thing as ‘got,’ instead of using ‘got’?
S: (no response)
T: What about ‘received’ or ‘granted’ (E: SYN-1) >1 min.

Science
Friday, 01.27.06
12:51 pm—1:32 pm

12:57 T: (A surprise review from the day before. Turns on overhead projector and has students take out a blank sheet of paper.) Write on your sheet of paper, “Calculating work: Applying the Main Ideas.” Underneath that, write “W=F X D. We are calculating the Joules of work. Also copy the numbers listed and start solving the problem. (Students ask a few questions and teacher answers. Students follow directions.)

12:59
1:01 T: Here is the answer: 20,000 X 25 = 500,000 Joules. Teacher explains answer to class. (E-1) 3 mins.

1:02 T: Count the number of points you get, write your name on the front, and pass these forward. You can then go ahead and take your lab books off the shelf and get started.

1:04 T: Please spend your time “working” on this “work” lab. We have a little more “work” left to do in this lab. Laughs. (M-1) >1 min.

1:17 T: brings class together to go over conclusion.

1:20 T: Ok class, open your textbook to page 374. Your assignment is to read this section and read for these things (Turns on overhead projector. Students begin copying assignment onto their paper. Teacher reads what is written as students copy.) “1. What is power? 2. How is it measured? 3. What unit is it measured in?” Take a few minutes to read and answer these questions.

1:21 OC: Students are all reading at this point for the answers. (CA-1) 5 mins.

1:25 T: Brings students back together as a class. What is power? I think of speed and fastness when I think of power.
S: It is the rate at which you work.
T: Good. So power has to do with speed. How is measured?
S: Power equals work divided by time.
T: What unit is it measured in?
S: Watts. (DIS-1) 1 min.
T: Puts a different sheet on the overhead that contains two questions regarding work and power. T. gives students three minutes to work with a partner and calculate the answers to these two questions (using the given formula).
APPENDIX D

INTERVIEW WITH LANGUAGE ARTS TEACHER
Language Arts: Teacher Interview Questions
January 27, 2006

1. In what schools have you taught?
   In this one only

2. In what grades and content areas have you taught?
   Seventh grade language arts/reading

3. What college/university did you attend?
   Defiance College (undergraduate); Marygrove College (masters)

4. What was your major and/or minor?
   Major: Elementary Education, grades one through eight
   The Art of Teaching (masters)

5. Have you had any special educational training?
   Just one class in college

6. What is your teaching degree and grade level qualification?
   Elementary Education, 1-8
   Highly Qualified for language arts/reading

7. How long have you been a teacher?
   This is my fifth year.

8. How long have you taught at this school?
   This is my fifth year.

9. Have you ever had any professional training in vocabulary instruction?
   I have been to a few workshops and I have taken some content area classes that dealt with vocabulary.
APPENDIX E

INTERVIEW WITH MATH TEACHER
Math: Teacher Interview Questions  
January 27, 2006

1. In what schools have you taught?
   Two different Northwestern Ohio schools

2. In what grades and content areas have you taught?
   Seventh and Eighth grade math

3. What college/university did you attend?
   Bowling Green State University (Bachelor in Science in Education)

4. What was your major and/or minor?
   Major: Secondary Math

5. Have you had any special educational training?
   He had attended several state and National Middle School conventions.

6. What is your teaching degree and grade level qualification?
   Math, grades seven through twelve

7. How long have you been a teacher?
   Fifteen years

8. How long have you taught at this school?
   Five years

9. Have you ever had any professional training in vocabulary instruction?
   One content reading course at BGSU
APPENDIX F

INTERVIEW WITH SOCIAL STUDIES TEACHER
Social Studies: Teacher Interview Questions
January 27, 2006

1. In what schools have you taught?
   In this one only

2. In what grades and content areas have you taught?
   Seventh grade social studies and Bridge (gifted and talented) social studies

3. What college/university did you attend?
   University of Toledo (undergraduate); Bowling Green State University (masters)

4. What was your major and/or minor?
   Major: Comprehensive Social Studies (Bachelor of Education)
   Special Education: Gifted and Talented (Masters of Education)

5. Have you had any special educational training?
   Very little.

6. What is your teaching degree and grade level qualification?
   Comprehensive Social Studies, grades seven through twelve
   Gifted Social Studies, Kindergarten through grade twelve

7. How long have you been a teacher?
   Thirteen years

8. How long have you taught at this school?
   Thirteen years

9. Have you ever had any professional training in vocabulary instruction?
   No
APPENDIX G

INTERVIEW WITH SCIENCE TEACHER
Science: Teacher Interview Questions
January 27, 2006

1. In what schools have you taught?
   In this one only

2. In what grades and content areas have you taught?
   Sixth, seventh, and eighth grade science

3. What college/university did you attend?
   Bowling Green State University (Bachelors and Masters degrees)

4. What was your major and/or minor?
   Major: Elementary Education, 1-8

5. Have you had any special educational training?
   Just one class as an undergraduate

6. What is your teaching degree and grade level qualification?
   Elementary Education, Bachelors, grades one through eight
   Elementary Education, Masters

7. How long have you been a teacher?
   Fifteen years

8. How long have you taught at this school?
   Fifteen years

9. Have you ever had any professional training in vocabulary instruction?
   A few inservices here and there over the years
APPENDIX H

CODE, SUBCODE, AND COMBINATION SUBCODE CHART
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APPENDIX I

LANGUAGE ARTS FREQUENCY COUNT CHART
Frequency Count of Vocabulary Instruction: Language Arts

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Note. * Indicates instruction was performed by T2, intervention specialist
APPENDIX J

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APPENDIX K

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APPENDIX M

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SCIENCE TIME COUNT CHART
Time Count of Vocabulary Instruction: Science

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