ABSTRACT

Effects of Foldables® on Teacher Instruction

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Teachers are continuously seeking effective methods for presenting, processing and practicing concepts that they are responsible for teaching. Note taking and graphic organizers, in many forms, are common instructional tools used in the classroom for the delivery of new information. Research suggests that presenting information in a more structured or pictorial form helps students focus on key ideas, easily access information, and stimulate learning. The majority of research on the effects of note taking and graphic organizers has involved the use of traditional outline notes and two-dimensional graphic organizer formats. The specific instructional strategy studied in this research is called a Foldable®, which is a three-dimensional tool that combines note taking and graphic organizer strategies with a kinesthetic integration. An instrumental case study design was used to examine the effects of Foldables® on teachers' depth of knowledge, planning, and instructional practices. In an effort to closely examine variables, the researcher observed three teacher participants in their classrooms, conducted interviews, reviewed lesson planning data, and collected Foldable® reflections. Using Gagné's (1985) *Conditions of Learning* and Bruner's (1960, 1961) *Concept Learning*, along with Gagné

and Driskoll's (1988) *Learning Outcomes* as frameworks, the researcher analyzed the individual teachers' cases and then conducted a cross-case analysis to identify the effects of Foldables® at the teacher level. Overall, the findings suggest that Foldables® are beneficial to teachers by increasing their depth of knowledge about the standards they are required to teach. Teachers also reported an increased awareness and attention to content-specific vocabulary during their planning process as a result of integrating necessary vocabulary, definitions, and examples into the Foldables® they created. Additionally, Teachers reported feeling more organized during instruction when using Foldables® due to the high level of structure and the breaking down, or task analysis, of standards required when creating Foldables®.

Effects of Foldables® on Teacher Instruction

by

Kimberly A. Hardin, B.S., M.Ed.

A Dissertation

Approved by the Department of Educational Psychology

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Terrill F. Saxon, Ph.D., Chairperson

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## TERMS AND DEFINITIONS

*Authentic* - The method or knowledge is one that a professional would use in the discipline

*Challenging* – Activities that are demanding or require substantial effort to complete

*Content Knowledge* – Knowledge and thorough understanding of specific subject matter

*Curriculum* – Content, courses, experiences, and assessments necessary to prepare Pre-K – grade 12 students for mastery of standards for a specific age level, subject area, and/or readiness level; based on state or national standards

*Differentiate* – To change activities and instructional models or delivery so that student differences are addressed—what is learned, how the content is organized, how it is learned, how quickly it is learned, how the new learning is shared

*Examples* – A thing that demonstrates accurate characteristics of a concept, illustrates a general rule

*Foldable®* - A three-dimensional graphic organizer constructed by folding, and sometimes cutting, paper into a manipulateable graphic organizer

*Instructional Practices* – Ways and/or methods that a teacher uses to address deliver new concepts or content

*Instructional Tools* – Activities that a teacher uses to introduce and have students practice with new concepts or content (e.g., note taking, graphic organizers, Foldables®, worksheets)

*Meaningful* – Activities that have a direct application or connection to a person's life or experiences

*Nonexample* – A thing that does not accurately demonstrate the characteristics of a concepts, breaks rules established by the examples

*Pedagogical Knowledge* – General concepts, theories, and research about effective teaching, regardless of content areas

*Relevant* – Closely connected or appropriate to the concepts or content being taught

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The adventure of learning is never a journey taken independently and it is not one that follows a straight and narrow path. Instead, there are ebbs and flows, stops and goes, and heartbreak and successes you could never imagine at the beginning of your journey. This is true for a kindergartener entering a school building for the first time but it is also true for the adult learner as they pass from the role of novice into that of an expert. This adventure is not one I've tackled on my own and there are many in my life that I would like to thank for their contributions.

First, I'd like to thank Dr. Susan Johnsen my mentor and dissertation chair who has never given up on me through this process. Her steady encouragement and challenging conversations were not always easy, but they were always well intentioned and have led me to grow as a researcher, writer, and instructor. Her passion and knowledge of the field of gifted education are undeniable and I am a better advocate for children as a result of having learned from her!

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overwhelming amount of data and yet you encouraged me to stay the course if it meant finding answers to my burning questions.

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# DEDICATION

"Vocation is the place where our deep gladness meets the world's deep need."
-- Frederick Buechner –

To my family who allowed me to pursue my vocation no matter the cost and made me believe that anything is possible.

To my husband, Bradley, who I couldn't have accomplished this without.- thank you for loving me well and supporting me through this process - you've allowed me to stand on your shoulders and as a result I've reached the stars!

# CHAPTER ONE

## Introduction

Teachers are continuously seeking effective methods for presenting, processing, and practicing with the concepts that they are responsible for teaching. Researchers have established various theories that influence teachers' understanding of instructional practices (Ausubel, 1969; Bruner, 1960; Gagné, 1985; Gagné & Dick, 1983) as well as effective methods for the delivery of information (Marzano, Pickering, & Pollock, 2001; Sousa, 1995; Stronge, 2001). Note taking and graphic organizers, in many forms, are common instructional tools used in the classroom for the delivery of new information. By presenting information in a more structured or pictorial form, research suggests that students can focus more on key ideas, easily access information, and stimulate learning (Armbruster & Brown, 1984; Bos & Anders, 1992; Mayer, 1989; Ritchie & Volkl, 2000).

This study was an attempt to better understand the effects of note taking in the form of a specific type of graphic organizer, called a Foldable®, on classroom instructors. This chapter presents the context and theories that serve as the study's framework, research related to the use of organizers in teacher planning and instruction, and gaps in the literature that provide justification for the current study.

### *The Current Learning Context: An Emphasis on Standards*

Learning in American classrooms currently takes place within a context that places a heavy emphasis on standards. The standards movement in American education began with the publication of *A Nation at Risk* (Gardner, 1983), which brought to light

many of the shortcomings of American education and called for heavy reform in instruction and assessment practices. The standards movement has evolved over the past three decades to include federal mandates such as the Elementary and Secondary Education Act, later renamed No Child Left Behind (NCLB), which calls for higher levels of accountability for the success of all children. Included in these and other movements in education is an emphasis on empirically researched teaching methods that address explicitly defined learning standards.

To address the need for clear and measureable learning standards, organizations at the state and national levels have begun establishing specific standards for teaching and assessment. Content-specific learning standards have been published by national organizations such as the National Council for Teachers of Mathematics (NCTM, 2000), National Council of Teachers of English (NCTE, 1996), National Academy of Sciences (NAS; National Research Council, 1996), and National Council for the Social Studies (NCSS, 2010). In addition, national standards such as the Common Core State Standards (CCSS, 2010) and state-level standards such as the Texas Essential Knowledge and Skills (TEKS; TEA, 2009) establish for stakeholders specific concepts and processes that should be mastered at each grade level.

Standards are written with the intent of explicitly describing learning at multiple levels. In fact, many standards now include both content and performance components. The *content* portion of standards describe specific concepts that should be mastered by students, while the *performance* portion of the standard defines the level of performance required for mastery. Thorough knowledge and understanding of both the content and performance standards is required for effective teaching to take place. Teachers must be

familiar with specifics about the concepts (e.g., facts, information) that they are responsible for teaching as well as how and at what level that learning will be measured. Thorough knowledge of standards can be demonstrated through the use of numerous examples and nonexamples of concepts, the thoughtful organization and categorization of ideas, as well as the explicit connection of what is being learned to prior knowledge and experiences. For the purposes of this study, *depth* in the knowledge of standards will be defined as the understanding of learning progressions (across grade levels) as well as connections across subjects or across domains within the same subject in addition to an understanding of the organization of knowledge progressing from examples to topics to themes to generalizations to principles to theory. Instruction must be guided by both *what* is being taught and *how* it can be most effectively presented.

### *Theoretical Framework: Knowledge and Instruction*

The acts of teaching and learning are complex processes that involve many factors. The theoretical framework developed for this study is a mixture of theories defining effective teaching methods, which provide the context for learning, and conceptions of how specific information and standards are organized and demonstrated once learned (See Figure 1.1).

Bruner (1960) suggests that in order for students to learn most effectively they should be active learners in the classroom who construct their own knowledge. Knowledge is constructed through the organizing and categorizing of information based on experience and teacher-presented examples and non-examples of the concepts being learned. The educator's role in *Concept Learning* is to facilitate students' thinking and

problem solving so that their knowledge can be more easily transferred to new situations (Bruner, 1961).

Gagné (1985) suggests that in order for learning to occur, two types of conditions must interact–- the internal and the external. Internal conditions include the individual's capabilities and knowledge base. External conditions include environmental stimuli such as the teacher and the learning situation. In order to ensure that the interactions between the internal and external conditions in the environment lead to learning, Gagné defined the following nine learning events as important to the learning process:

1. Gaining students' attention
2. Informing learners of the objectives
3. Stimulating recall of background knowledge
4. Presenting a stimulus
5. Providing learning guidance
6. Eliciting performance
7. Providing feedback
8. Assessing performance
9. Enhancing retention and transfer (Gagné, 1985)

An understanding of the different types of knowledge as well as how those types of knowledge are organized can enhance effective instructional methods. Mumford, Blair, and Marcy (2006) suggest that knowledge can be divided into three categories: *schematic* or concrete knowledge used for solving well-defined problems, *associational* or knowledge that comes from making observations and judgments, and *case-based*, which is knowledge that is more complex and specialized. Similarly, Feldhusen (2006)

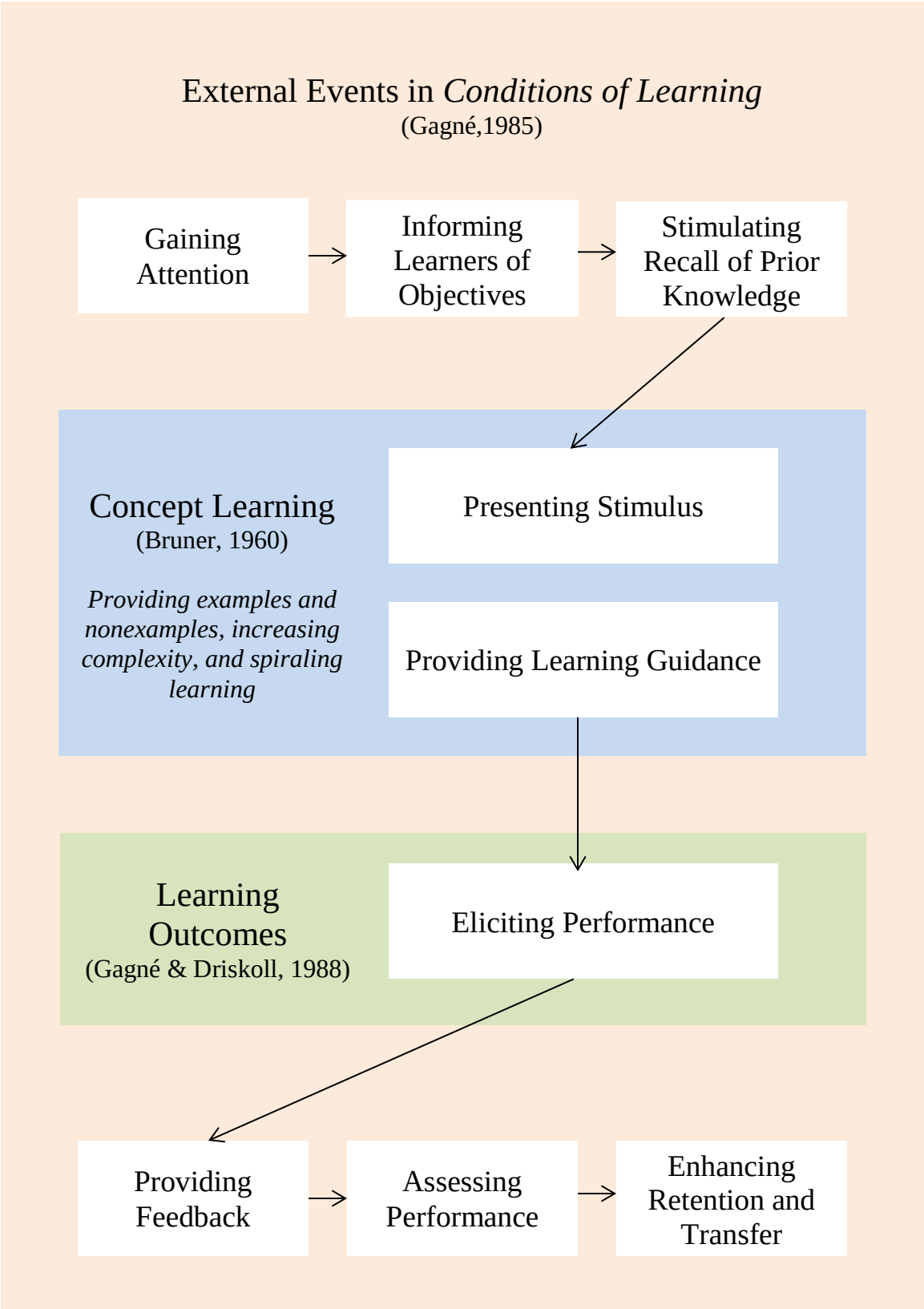



*Figure 1.1.* Knowledge and Instruction Framework

divided the knowledge base into four levels: *general* including simple building block concepts (e.g., recognition of letters and numbers), *declarative* where ideas, concepts, and relationships are formed from general knowledge, *procedural* knowledge of how to manipulate general and declarative information, and *domain-specific* knowledge, which is often unique to a particular field. Mayer (2006) went on to include *strategic* knowledge of when to apply concepts as well as *metacognitive* knowledge, which is the ability to reflect on the thinking and learning processes that occur when assimilating new knowledge. In all three models, as knowledge and processes for learning and demonstrating knowledge become more complex, they require a greater number of examples and experiences with the information being learned.

Learning can be demonstrated in various ways. Gagné and Driscoll (1988) divided knowledge into five different categories based on the learning outcomes desired. These categories are: *intellectual skills*, *verbal information*, *cognitive strategies*, *motor skills*, and *attitudes*. The various types of knowledge discussed by Mumford, Blair, and Marcy (2006), Feldhusen (2006), and Mayer (2006) map onto Gagné and Driscoll's (1988) *Outcomes of Learning* as demonstrated in Figure 1.2.

In this study, data was collected and analyzed using instruments and rubrics developed with Bruner's (1960, 1961) *Concept Learning* and Gagné's (1985) *Conditions of Learning* as instructional lenses. Learning outcomes established by Gagné and Driscoll (1988) served as the framework for analyzing observable student outcomes during the learning process.

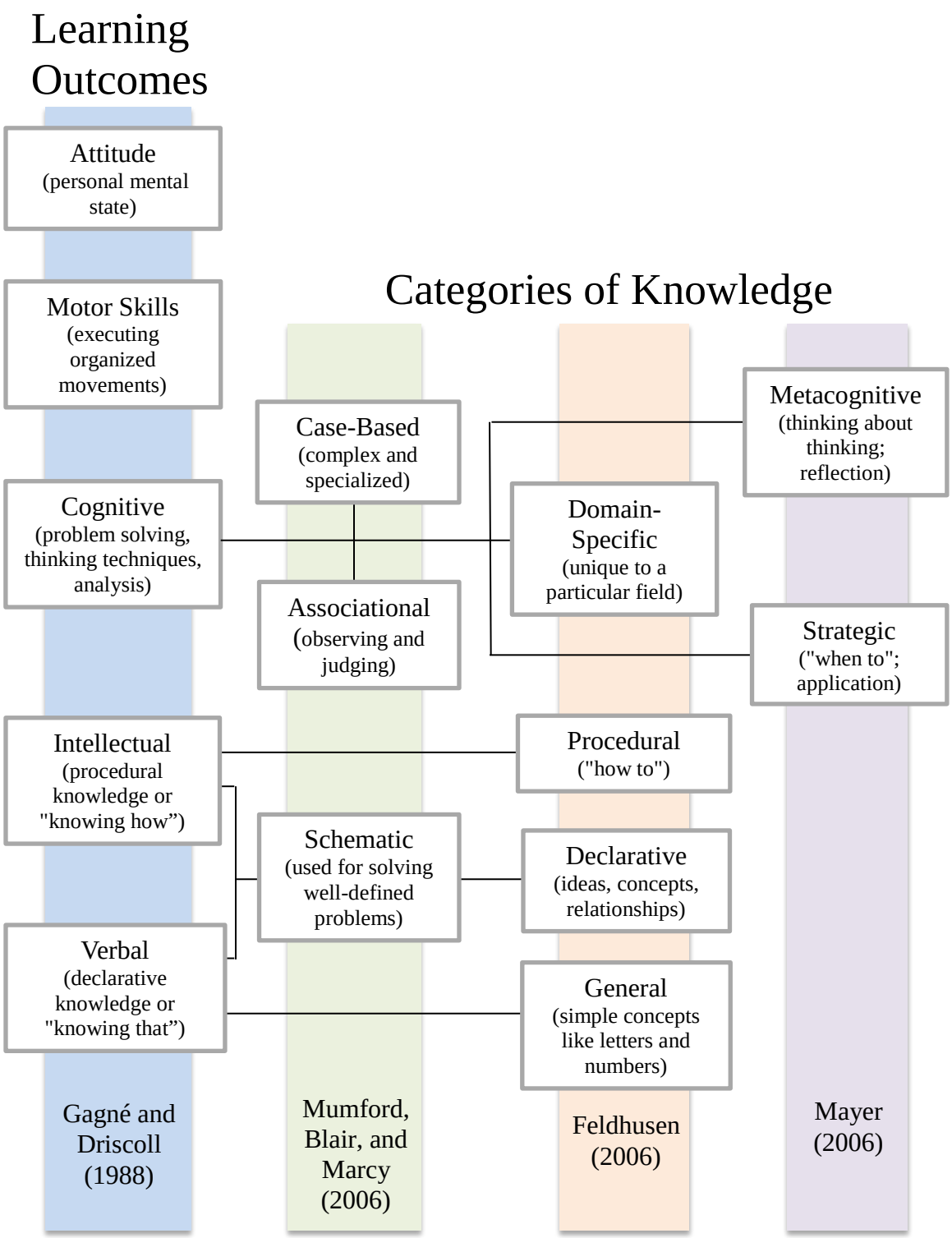



*Figure 1.2.* Connections between Learning Outcomes and Categories of Knowledge

*Teacher Planning and Instruction*

Martin-Kniep and Uhrmacher (1992) metaphorically compare the process of lesson planning to that of playwriting while teaching is compared to the acting-out of that plan. Powerful acting requires deep knowledge of the script but also calls for flexibility in voice, movement, and emotion as well as adjustments based on interactions with other characters. In the same way, effective teaching requires a thorough knowledge of standards and the conditions necessary for learning while also remaining responsive to the environment. John (2000, 2006) suggests that teachers become more flexible and responsive to student needs during lesson delivery with increased experience in planning, instruction, and interactions with students.

Lesson planning is generally communicated through defining specific content standards and describing learning activities (John, 2006; Yinger, 1979). It requires the instructor to systematically think about the lesson process as a whole as well as all of its individual parts (Cherryholmes, 1988). Novice teachers generally are very sequential about their planning (Yinger, 1980) – moving from one piece of the learning context to another. John (2006) suggests that as teachers become more experienced in planning and teaching they consider factors affecting the teaching-learning process more concurrently. In this way planning becomes more complex and less formulaic, making it more flexible and practical to the learning situation (Calderhead & Shorrock, 1997; John, 2000). John (2006) suggests that lesson planning is less preparation for practice and more practice itself. In addition, Uhrmacher, Conrad, and Moroye (2013) suggest that effective lesson planning can lead to increases in creativity, meaning making, and expressive outcomes.

Many of the effects of planning are not readily observable during instruction, yet teacher evaluation tools include planning as a component that contributes to effective teaching (Danielson, 2011). The *Framework for Teaching* created by the Danielson Group (2013) includes *Planning and Preparation* as its first domain. This domain is broken into six individual components –

- 1a: Demonstrating knowledge of content and pedagogy
- 1b: Demonstrating knowledge of students
- 1c: Setting instructional outcomes
- 1d: Demonstrating knowledge of resources
- 1e: designing coherent instruction
- 1f: Designing student assessments (Danielson, 2013)

These components contribute to the full picture of teacher effectiveness demonstrated through the *Framework for Teaching*. Studies using the Framework for Teaching suggest that teachers who score higher across the four domains defined in the framework have students who demonstrate higher levels of growth than those in classrooms where teachers score lower in the domains (Kane & Staiger, 2012; Sartain, Stoelinga, & Brown, 2011).

Lesson planning involves the linking of specific standards to classroom activities and assessments ultimately leading to the mastery of content through performance. Note taking and traditional two-dimensional graphic organizers are instructional tools that teachers include in their lesson planning as structured activities to aid students in the encoding, processing, and retention of information. Research suggests that the creation

and use of graphic organizers and note taking has effects on both the teachers and students in the learning environment.

### *Effects of Note Taking and Graphic Organizers on Teachers*

Research on the effectiveness of notetaking and graphic organizers has historically focused on student outcomes. Research on the use of note taking strategies and graphic organizers involving teachers as participants suggests that note taking and graphic organizers have some effect on teachers. For example, Hawk (1986) found that the creation of graphic organizers assists teachers in understanding the big ideas that are most important for the student to learn as well as highlighting the relationships that exist between the concepts being taught. In addition, graphic organizers provide structures for planning instruction (Hawk, 1986). Studies suggest that this deeper understanding of standards and content as a result of teaching with graphic organizers result in increased confidence and perceived competence as an instructor (Casteel & Narkawicz, 2007; Moore & Readence, 1984). Moore and Readence (1984) also found that teachers using graphic organizers felt more in control of the learning activity and more sensitive to the learning tasks.

### *Effects of Note Taking and Graphic Organizers on Students*

Research on the effects of note taking as an instructional tool have yielded many positive results for students. Studies have found that students who use note taking in the classroom are better able to recall important pieces of information (Einstein, Morris, & Smith, 1985) as well as discovering underlying themes and making connections with prior knowledge (Eskritt & McLeod, 2008; Peper & Mayer, 1986; William & Eggert,

2008). Furthermore, note taking has resulted in increased student attention (Peper & Mayer, 1978; Piolat, Olive, & Kellogg, 2005), increased connections between presented concepts (Eskritt & Lee, 2002; Kiewra, 1989; Peper & Mayer, 1986; William & Eggert, 2002), and increased organizational skills (Barnett, DiVesta, & Rogozinski, 1981; Castello & Monero, 2005; Eskritt & Lee, 2002; Hidi & Klaiman, 1983; Spires, 1993). In addition, students who are explicitly taught note-taking strategies demonstrate increased abilities in both the encoding and storage of information (Austin et al., 2002; Austin, Lee, & Carr, 2004; Neef, McCord, & Ferreri, 2006).

Graphic organizers were developed by Ausubel in 1960 in an attempt to stabilize, clarify, and organize the learner's prior knowledge in such a way as to make the new information more easily assimilated (Moore & Readence, 1984). Research on the effects of traditional two-dimensional graphic organizers suggests that students who use this instructional tool in the classroom are more able to deconstruct topics and demonstrate relationships between concepts (DiCecco & Gleason, 2002; Eagan, 1999; Galavan & Kottler, 2007; Mayer, 1989; Robinson & Schraw, 1994; Rock, 2004). Graphic organizers also appear to increase students' ability to transfer learning (Griffin, Malone, & Kameenui, 1995; Ives, 2007), improve performance on assessments (Bean, Singer, Sorter, and Frazee, 1986; Hawk, 1986; Robinson & Kiewra, 1995), and increase students' efficacy and attitudes toward learning (Casteel & Narkawicz, 2007; Hawk, 1986). Similar to note taking, research in the area of graphic organizers suggests that explicitly teaching strategies for constructing graphic organizers increases student retention and ability to generalize the skill to novel situations (Anderson, 1980; Eskritt & McLeod, 2008; Griffin, Malone, & Kameenui, 1995; Stull, & Mayer, 2007).

### *Foldables®*

Foldables® are a specific type of graphic organizer that served as the focus of the current study. Foldables® are three-dimensional graphic organizers developed by Dinah Zike (Dinah-Might Adventures, LP, 2015). They are instructional tools created through the purposeful folding and cutting of paper to fit the structure of the content being taught. The folding of paper results in a graphic organizer that has multiple planes on which to write information. Big ideas are often written on the outside tabs while definitions, examples, and visuals are recorded inside or underneath. The multi-dimensionality of Foldables® as graphic organizers allows for kinesthetic manipulation and active processing and practice with content. See Appendix A for Foldable® examples.

There is limited research on the effects of Foldables® in the classroom. A single study was found in the review of literature that involved the use of Foldables®. Casteel and Narkawicz (2007) found that students who were instructed using Foldables® in a social studies classroom retained more information and had higher affect toward the learning process than those who were instructed using traditional textbook methods. While these findings are encouraging in examining the effects of Foldables® on students, studies are needed to determine the effects of Foldables® on teachers.

### *Problem Statement*

The literature on note taking and graphic organizers suggests increased content knowledge and retention results from teaching using these instructional tools (Austin et al., 2002; Austin, Lee, & Carr, 2004; Bean, Singer, Sorter, and Frazee, 1986; Hawk, 1986; Neef, McCord, & Ferreri, 2006; Robinson & Kiewra, 1995). The majority of research, however, has involved the use of traditional outline notes and two-dimensional

graphic organizer formats. While the use of Foldables® has been described as beneficial for students, no empirical research has been conducted on the effects of Foldables® on teachers' organization of knowledge and instruction. The current study was an attempt to begin to fill the gap in the literature concerning how three-dimensional graphic organizers influence teachers.

### *Purpose of the Study*

The purpose of this study was to identify teacher perceptions of the effects of using three-dimensional graphic organizers, called Foldables® on instruction. The primary research questions for this study included:

1. How does the creation of Foldables® affect the depth of teachers' understanding of standards?
2. How does the use of Foldables® affect the way a teacher plans instruction?
3. How does the use of Foldables® affect the way a teacher instructs?

# CHAPTER TWO

## Literature Review

Changes in education standards and accountability at state and national levels require teachers to be knowledgeable of content as well as effective instructional and assessment methods. Ideally, teaching practices would be based on current research in learning, the organization of knowledge, and instructional methods that have been empirically studied and established as effective with students.

The purpose of this study was to examine the perceived effectiveness of one instructional method -- a three-dimensional graphic organizer called a Foldable® -- on teachers' planning processes and instructional delivery. The following literature review includes theoretical foundations and research related to learning, the organization of knowledge, and instructional methods, such as written and graphic organizers, for helping students learn knowledge and skills.

### *Learning Theories*

Several theories within the field provide the framework needed to justify the use of note taking and graphic organizers in an instructional setting such as the classroom. Researchers such as Piaget (1929, 1952), Bartlett (1932), Bruner (1960, 1961, 1966), and Gagné(1985) have developed theories that have incorporated principles related to schema, learning hierarchies, and concept learning.

These theories will be defined and discussed beginning with a more global view of learning, that students learn information in broad conceptual units. Learning in the

classroom setting will then be discussed using Gagné's (1985) *Conditions of Learning*, and lastly we'll consider how individual units of knowledge, *schema* (Bartlett, 1932; Piaget, 1929, 1952) are assimilated and organized into the knowledge base.

*Concept Learning*

Concept learning theory is based largely on the work of Jerome Bruner. Bruner suggests that students are active learners that construct their own knowledge (Bruner, 1960). It is the role of the educator to facilitate students' thinking and problem solving so that they can be transferred to new situations (Bruner, 1961). Bruner suggested that curriculum be spiraled, meaning that complex concepts can be learned first at a simplified level and then, as they increase in difficulty, can be learned at more complex levels (Bruner, 1960). Bruner (1961) also suggested that learners construct their own knowledge through organizing and categorizing information based on experience and teacher-presented examples.

Bruner and colleagues presented the idea of *Concept Attainment* in *A Study of Thinking* (Bruner, Goodnow, & Austin, 1956). In their discussion of concept attainment, Bruner and colleagues suggested that knowledge can be acquired most effectively through inductive or discovery learning where teachers provide the information that students need (often in the form of examples and nonexamples) but it is the student's responsibility to organize, categorize, and structure their knowledge (Bruner, Goodnow, & Austin, 1956). Five general factors were identified in the process of concept attainment, these are:

1. Definition of the task – students choose or are assigned a specific task or problem to solve

2. Nature of examples encountered – students collect data about their task or problem in the form of known examples
3. Nature of validation procedures – students use categorization of the examples found to create a definition, rules, or solution to their task
4. Consequences of specific categorizations – students either confirm their solution or are faced with a nonexample that breaks the rules established by the previous solution
5. Nature of imposed restrictions – students revisit their original examples with the understanding gained from the presentation of a nonexample to redefine their rules, definition, or solution (Bruner, Goodnow, & Austin, 1956)

Concept attainment is a form of structured inquiry that requires students to actively engage with content to construct their own understanding of situations and concepts using examples and nonexamples. Teachers using concept attainment strategies must be not only familiar with the specific characteristics of concepts in a content area but also the steps necessary for effective learning to take place. Gagné's (1985) work defining the conditions of learning provide a framework for concept attainment in the classroom.

*Conditions of Learning*

Gagné's (1985) *Conditions of Learning* theory not only describes the interactions taking place during the learning process, but also the importance of associative learning, categories of learning outcomes, and events that should be included in effective instruction. Gagné focuses on intentional or purposeful learning in the classroom. For learning to occur, two types of conditions must interact–-internal and external (Gagné,

1985). Internal conditions of learning include an individual's capabilities and knowledge base, which are transformed during the learning process. External conditions include different stimuli that exist in the environment including the teacher and the learning situation. Associative learning in the form of classical conditioning, operant conditioning, verbal association, and chaining serve as the foundation for human learning in Gagné's (1985) conditions of learning.

After defining the conditions necessary for learning, Gagné (1985) defined nine external events that facilitate learning. The learning events include the following:

1. *Gaining attention* – focusing the learners' attention, priming for processing and perception; often using an abrupt change in stimulus by providing auditory or visual stimuli related to the subject matter
2. *Informing learners of objectives* – establishing what can be expected during the learning process; informing learners what they should be able to do after learning
3. *Stimulating recall of prior learning* – initiating retrieval of established knowledge or skills from the working memory
4. *Presenting the stimulus* – displaying the content with distinctive features, often using visual or auditory stimuli that emphasize major themes by using underlining, bold print, highlighting, pointing, or a change in tone of voice
5. *Providing learning guidance* - using concrete examples of abstract terms and concepts, and elaborating ideas by relating them to others already in memory
6. *Eliciting performance* - asking the learner to demonstrate the newly learned content

7. *Providing feedback* - the instructor reinforces the newly acquired learning by providing informative of the degree of correctness or incorrectness of the performance
8. *Assessing performance* – additional performances by the learner verify that learning has occurred
9. *Enhancing retention and transfer* - retaining the learned content over a long period of time and transferring it into new situations outside of the learning environment through additional practice and review

Knowledge of internal and external interactions during the learning process as well as the conditions and events needed for effective learning aid instructors in making effective instructional choices and planning for higher level learning activities.

*Schema Theory*

Schema describes the general knowledge structure in comprehension. It is schema that provides a foundation or context for learning (Bransford, 1979) and serves as the organizing factor to construct knowledge into a meaningful framework. The concept of schema was introduced to the field of psychology by Jean Piaget (1929; 1952; Piaget & Inhelder, 1969). Piaget's developmental theory suggests that learning is the process of knowledge continually being constructed and reconstructed by the learner; this process is achieved through the assimilation and accommodation of new knowledge into existing schema.

Bartlett (1932) elaborated on the idea of schema in his studies of folk tales and storytelling. He found that details of stories tended to get lost when the needed knowledge base for that information was not present; he called this phenomenon leveling

or flattening (Bartlett, 1932). While some details got lost in the retelling of stories, others that were part of the storyteller's existing schema were retained and even exaggerated, Bartlett referred to this as sharpening (Bartlett, 1932). A third pattern in his story telling studies was the idea of rationalization. This was the term that Bartlett (1932) assigned to the compacting of content in stories to more closely align with the readers' expectations and experiences. Besides the phenomena of leveling/flattening, sharpening, and rationalization, Bartlett contributed to our understanding of memory, and the relationships between learning, memory, and remembering. Bartlett suggested that the act of comprehending and attaining new knowledge required what he called "an effort after meaning," this effort can be related to what Piaget called *assimilation*--what is stored in one's memory is not an exact duplicate of what was presented but rather is dependent on existing schema (Bartlett, 1932). In addition, Bartlett suggested that the act of remembering requires an active "process of construction" where existing schema are used to generate or construct a schematic representation of the details involved in the memory.

The work of Piaget and Bartlett suggest that the addition of knowledge and the act of learning are processes that require active monitoring and problem solving by the learner. Knowing that people tend to remember (a) the gist rather than verbatim content, (b) important information better than unimportant information, and (c) information that is consistent with their current knowledge.

Bruner's (1960, 1961) *Concept Learning*, Gagné's (1985) *Conditions of Learning*, and schema theory will influence the current study by serving as the instructional foundation for both the professional development of teachers as well as a model for effective classroom instruction. These learning theories inform the way content should

framed, encourage the recall of prior learning, and provide learners with methods for assimilating new learning into their current schema. After new concepts are assimilated into the learner's knowledge base they must be efficiently and effectively organized if they are to be readily recalled. The next section will discuss the organization of knowledge, which will serve as an additional framework for the current study.

## *Organization of Knowledge*

Schema can be organized and structured in different ways, which have implications for decision making in the teaching and learning process.

### *Types of Knowledge*

In an attempt to describe the organization of knowledge, Mumford, Blair, and Marcy (2006) defined different types of knowledge and suggested that each required different instructional approaches. According to Mumford, Blair, and Marcy (2006), schematic knowledge is useful when problems are well defined. It is this type of knowledge that is necessary for carrying out the processes of categorizing, linking, and finding relationships. Schematic knowledge requires intensive explicit instruction.

Associational knowledge, on the other hand, is useful when observations and judgments must be made (Mumford, Blair, & Marcy, 2006). This type of knowledge is implicit and unconscious; it is the result of repeated stimulus and associated experiences with a concept.

Case-based knowledge is more complex and is needed for solving poorly structured problems. Case-based knowledge is developed through experiences in specific or specialized situations that can be summarized, generalized, and then applied to other

situations, which can lead to a higher rate of innovation (Mumford, Blair, & Marcy, 2006).

*Categories of Knowledge*

Students' schematic, associational, and case-based knowledge can be organized into four broad categories (Feldhusen, 2006):

1. *General* - simple concepts like letters and numbers
2. *Declarative* – information (facts), ideas, concepts, and relationships
3. *Procedural* – skills, strategies, and processes; the ability to think about and manipulate declarative knowledge
4. *Domain-specific* - specialized procedures and vocabulary unique to a domain, like the ability to balance equations in chemistry or knowledge of the circle of fifths in music

These four types of knowledge come together to create the knowledge base, which is used for thinking creatively and solving problems. General and declarative knowledge serve as the foundation of the knowledge base, these are the two types of knowledge required for the more dynamic procedural and domain-specific knowledge to take place (Feldhusen, 2006). In addition to Feldhusen's four categories of knowledge, Mayer also adds the categories of strategic and metacognitive thinking into his discussion of domain knowledge (Mayer, 2006). He stresses the importance of being able to make a plan and follow through with it when solving problems (strategic) and then reflecting on the process and thinking about attitudes, beliefs, and thoughts (metacognitive) after each learning opportunity.

*Categories of Learning Outcomes*

Gagné and Driscoll's categories of learning outcomes serve as a framework in which teachers can organize their instruction as well as be reflective about the skill and knowledge needed for the standards being taught. When Gagné and Driscoll (1988) developed their categories of learning outcomes they attempted to take into consideration *what* is being learned as well as how that learning should be demonstrated or measured. The five categories of learning outcomes (Gagné & Driscoll, 1988) include these:

1. *Intellectual skills* - procedural knowledge or "knowing how"
    a. discriminations (distinguishing one thing from another)
    b. concrete concepts (ability to *identify* classes of features, objects, and events)
    c. defined concepts (ability to *identify* and *define* concepts giving examples and non-examples)
    d. rules (capability to *do something* with the content)
    e. higher-order rules (combining rules into more complex rules used in problem solving)
2. *Verbal information* - declarative knowledge or "knowing that"; can be classified as names, facts, principles, and generalizations, performance or learning outcome achieved through verbal information is the ability of being able to state in a meaningful sentence what was learned
3. *Cognitive strategies* - approaches to problem solving, thinking techniques, and methods for analyzing situations

4. *Motor skills* - executing organized movements, for example: writing, playing a musical instrument, playing sports, and driving a car
5. *Attitudes* - personal mental state; a predisposition that affects an individual's choice of action

*Knowledge and Instruction Framework*

The ideas of spiraling curriculum, building from simple to complex, and the use of examples and nonexamples found in Bruner's (1960;1961) *Concept Learning* as well as Gagné's (1985) descriptions of the learning processes found in *Conditions of Learning* served as the instructional dimension of this study's theoretical framework (see Figure 2.1). Instruction provides a context and environment in which learning can occur. To many outside of the classroom theories like concept learning and conditions of learning may appear to simply reside in the background, when in fact they form the foundation for powerful learning. Knowledge of effective learning strategies can be enhanced when teachers begin with *what* a student is learning (e.g., type of knowledge, intended outcome) and how that information relates to prior knowledge.

There are many connections that can be made across the developed categories and schemes for organizing knowledge (See Figure 2.2). For example, the knowledge that Gagné and Driscoll (1988) labeled as *verbal* is comparable to Mumford, Blair, and Marcy's (2006) *schematic* knowledge as well as Feldhusen's (2006) *general* and *declarative* knowledge categories. All of these types of knowledge involve the simple concepts and small pieces of knowledge that serve as the foundational pieces for more complex learning. Similarly, the *intellectual* category of knowledge proposed by Gagné and Driscoll (1988) is similar to the *schematic* (Mumford, Blair, & Marcy, 2006), and

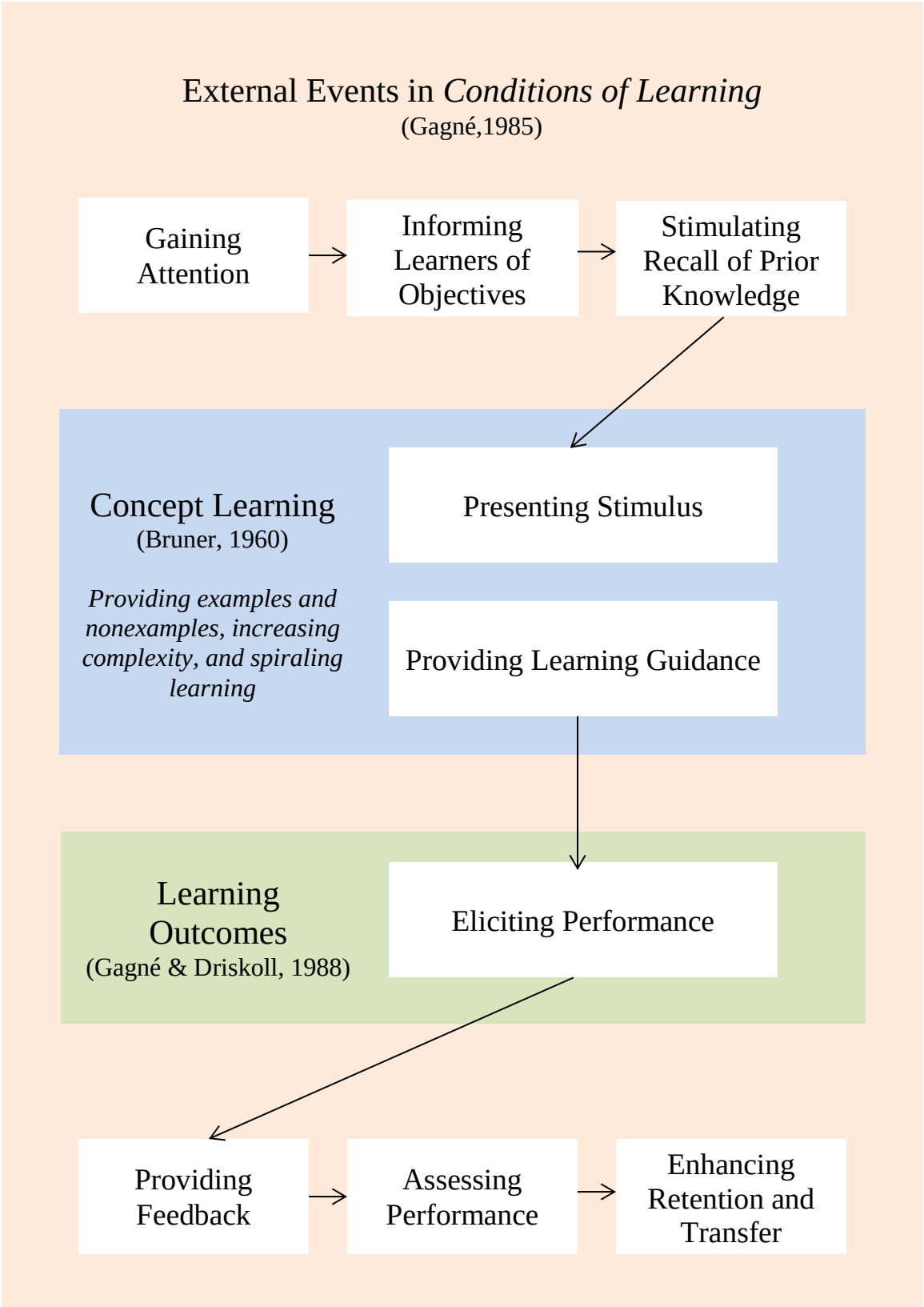



*Figure 2.1.* Knowledge and Instruction Framework

*procedural* (Feldhusen, 2006) types of information. These levels of knowledge often require the manipulation and combination of existing schema.

Gagné and Driscoll's (1988) *cognitive* learning outcomes are related to Mumford, Blair, and Marcy's (2006) *associational* and *case-based* categories of knowledge, as well as Feldhusen's (2006) *domain-specific* and Mayer's (2006) *strategic* and *metacognitive* categories. The learning outcomes and types of information found in these categories are increasingly more complex and, as Bruner (1960, 1961) suggested, require increasingly more experience with a concept.

The final learning outcomes remaining in Gagné and Driscoll's (1988) model are *motor skills* and *attitude*. These categories have interactions with all of the types of knowledge presented by the other theorists and, as such, have no parallel relationships. Teachers make instructional decisions on a daily basis based on their understanding of the concepts and content being taught through their standards. Instruction comes in many forms including lecture, labs, small groups, and hands on experiences; through each of these instructional methods teachers are hoping for students to gain a deeper understanding of the content as well as readily recall and relate that content to existing knowledge.

### *Instructional Tool: Written Organizers*

A commonly used instructional tool for helping students with the organization and recall of information from their knowledge base is the written organizer. Written organizers come in the form of traditional outline notes, lists, summaries, narratives, graphic organizers, as well as drawings and diagrams. These are especially helpful when

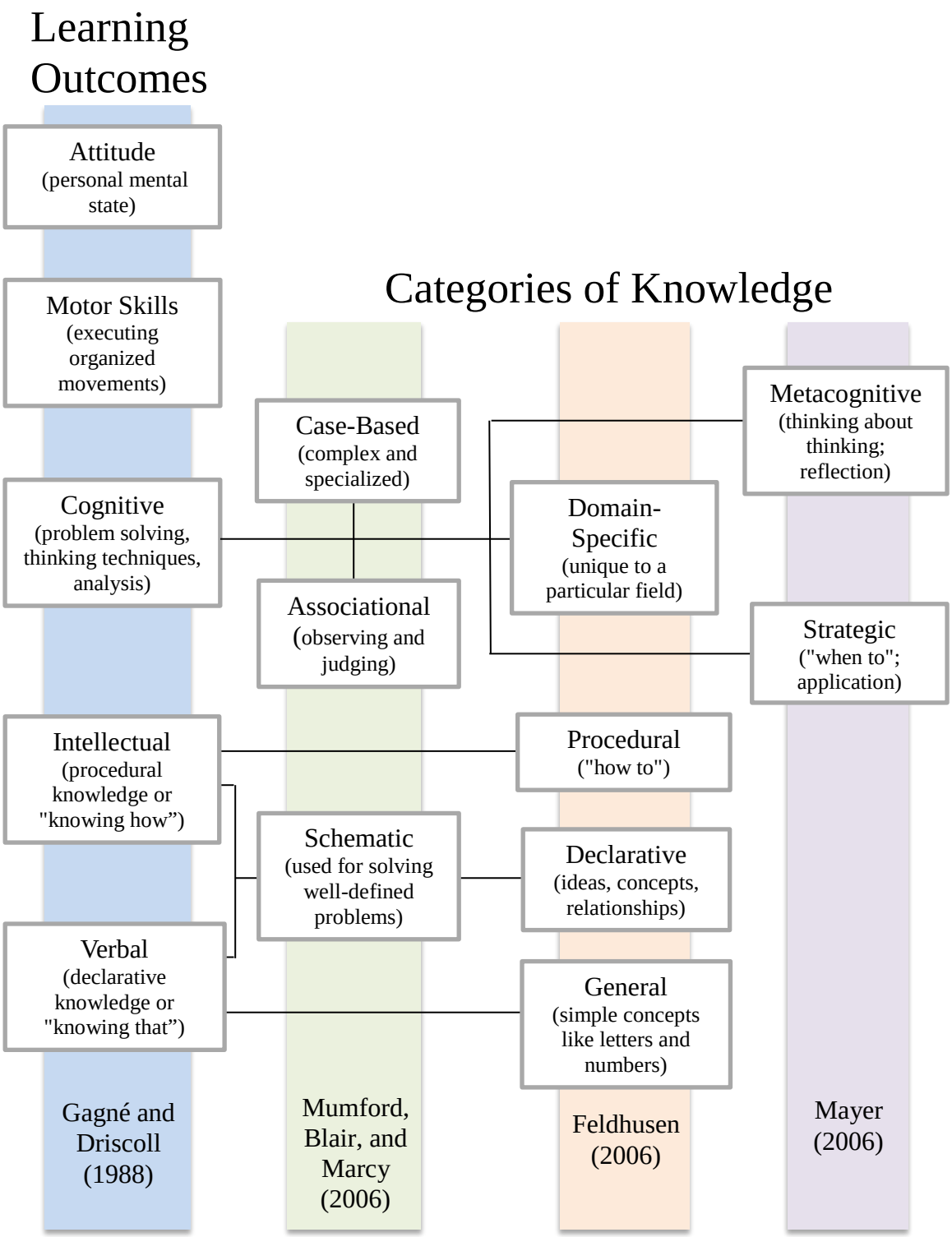



*Figure 2.2.* Connections between Learning Outcomes and Categories of Knowledge

introducing general and declarative knowledge in that students are able to generate a product that records what is presented to them and later refer back to their notes when needed for review (DiVesta & Gray, 1972). Written organizers are an example of what Gagné (1985) would consider a *cognitive strategy*, which is used for thinking and problem solving in unfamiliar situations. Bartlett (1932) suggests that it is the process of *constructing* a written organizer that aids in the learner's retention and recall of information.

Written organizers can also aid students when identifying and describing different types of relationships in their existing knowledge base (Robinson & Kiewra, 1995) and for applying that knowledge to novel situations (Robinson & Kiewra, 1995; Stefanou, Hoffman, and Vielee, 2008). Written organizers in the form of drawings, diagrams, and graphic organizers provide learners with a physical and/or pictorial representation of their learning and can aid in the identification of relationships and connections within and across subjects (Meyer et al., 1996; Robinson & Kiewra, 1995).

Note taking and graphic organizers are two common forms of written organizers used in the classroom as instructional tools for organizing knowledge. The following sections will serve to operationally define both types of organizers as well as to introduce strategies for use and effects of note taking and graphic organizers found in the extant literature.

*Note Taking*

The organization and categorization of new information required during the act of note taking aids in the construction of new schema (Bartlett, 1932; Piaget, 1952) as well as the building of what Bruner (1961) described as conceptual understanding. Note taking

is a skill that many students develop early in their schooling that translates across content areas and into life outside of the school setting (Kiewra, 1989). DiVesta and Gray (1972) suggest that there are two functions of note taking – encoding and storage.

*Functions.* Encoding can be conceptualized as the *process* of note taking (DiVesta & Gray, 1972). Research suggests that the encoding activities that take place during note taking are beneficial to recall and transfer of information (Castello & Monereo, 2005; Einstein, Morris, & Smith, 1985; Kiewra, 1989; Peper & Meyer, 1986; Piolat, 2001; Piolat, Olive, & Kellogg, 2005; Stefanou, Hoffman, & Vielee, 2008). When taking notes, students must comprehend, select important information, and reformulate contents at a rapid pace. To do this, note takers employ many methods including abbreviating procedures, syntactical short-cuts, paraphrasing, and physical formatting that differs from the linear text or lecture from which their notes were presented (Castello & Monereo, 2005; Liben, 1999; Piolat, 2001; Piolat, Olive, & Kellogg, 2005). Piolat et al. (2001) found that the cognitive effort required by effective note taking is greater than learning and comprehending alone, because it demands more of the central executive functioning of the working memory (Baddley, 1996; Piolat, Olive, & Kellogg, 2005). Peper and Mayer (1978) refer to the encoding process as *generative*, meaning that note taking is a creative process where additional cognitive functions are required. When taking notes, students are actively relating material to existing knowledge, processing those relationships, and organizing them into an accessible format (Einstein, Morris, & Smith, 1985; Peper & Mayer, 1986; Stefanou, Hoffman, & Vielee, 2008).

Where encoding referred to the *process* of note taking, storage is the physical *product* that results from the process. DiVesta and Gray (1972) suggest that note taking

facilitates retention of information by providing a form of external storage that can be accessed for review in the future. Research suggests that students who are given access to lecture notes--whether personally produced, borrowed from another student, or given by the instructor--and time to review their notes have higher achievement than those who were assessed without notes (Einstein, Morris, & Smith, 1985; Foos, Mora, & Tkacz, 1994; Kiewra, 1989; Narjaikaew, Emarat, & Cowie, 2009; Peper & Mayer, 1986). Learning strategies, such as rehearsal, mnemonic devices, and clustering, employed in the creation and review of notes have been found to increase students' capacity to hold information in the working memory leading to higher achievement on recall and transfer tasks (Baddley, 1996; Castello & Monereo, 2005; Eskritt & McLeod, 2008; Kiewra, 1988, 1989; Narjaikaew, Emarat, & Cowie, 2009; Torgensen, 1977).

*Note taking strategies*. Note taking is not necessarily a natural skill that all students possess; there are many note taking strategies and formats that students have benefitted from learning (Castello & Monereo, 2005; Kiewra, 1988; Peper & Mayer, 1986; Piolat, Olive, & Kellogg, 2005; Stefanou, Hoffman, & Vielee, 2008; Torgensen, 1977; William & Eggert, 2002). Instructors have found that learning strategies should correspond to the learning task (Barnett, DiVesta, & Rogozinski, 1981; Triona & Klahr, 2007). Kiewra (1988) suggests that different forms of note taking should be employed depending on the task (near- or far-transfer). Note taking strategies promoting internal connections of concepts foster near-transfer performance (fact recall), while the formation of external connections between new information and prior knowledge facilitates far-transfer performance in the form of problem solving and concept application (Kiewra, 1988; Kiewra, et al., 1991). Similarly, Triona and Klahr (2007)

suggest that children's production of notes is required for a variety of tasks and that the quality, amount, and characteristics of children's notes are dependent on the task.

Effective note takers are sensitive to cues from lecturers and texts that point to important information (Hidi & Klaiman, 1983; Piolat, Olive, & Kellogg, 2005; Titsworth & Kiewra, 2004). Cues include typographical characteristics in print as well as signals from the lecturer such as writing on the board, pausing, and changes in voice (Kiewra, 1989; Hidi & Klaiman, 1983; Piolat, Olive, & Kellogg, 2005; Steffanou, Hoffman, &Vielee, 2008; Titsworth & Kiewra, 2004). Students can be made better note takers through teacher modeling (Castello & Monereo, 2005; Eskritt & McLeod, 2008; Kiewra, 1988; Van Merrienboer, Kirschner, & Kester 2003), various note taking methods and procedures (Bannert, 2002; Piolat, Olive, & Kellogg, 2005), knowledge of different note taking formats (Kiewra, 1989; Kiewra et al., 1991; Peper & Mayer, 1986), and learning strategies that increase their capacity for retention (Torgensen, 1977).

*Effects of note taking*. Research studies in the area of note taking have focused on both the generative and encoding functions as well as the effects that note taking can have on academic performance and recall of information. Knowing that students expend a great amount of mental energy in the act of note taking deciding what information is important, Stefanou, Hoffman, and Vielee (2008) conducted a study with college students to examine whether or not there was evidence of generativity in students' class notes and what effect that activity had on their performance on a quiz. They found that students' decisions about what to include in their notes was influenced most by what the teacher presented visually (either through Power Point, overhead, or provided notes) during the lecture. Their findings suggested that students who add more of their own thinking to

notes perform better on application assessments (Steffanou, Hoffman, & Vielee, 2008). These findings are consistent with other studies that suggest that learner engagement in generative activities results in the best learning (Einstein, Morris, & Smith, 1985; Narjaikaew, Emarat, & Cowie, 2009; Peper & Mayer, 1978; Whittrock, 1990)

The encoding and organization required by the process of note taking increases the students' ability to recall study materials (Einstein, Morris, & Smith, 1985; Eskritt & Lee, 2002; Kiewra, 1989; Piolat, 2001; Robinson, Katayama, DuBois, & DeVaney, 1998). In their research involving college students, Einstein, Morris, and Smith (1985) found that note takers were not only able to recall much of what was written in their notes, but they also recalled more important pieces of information than those who did not take notes (Einstein, Morris, & Smith, 1985). Further research into the encoding and storage functions of note taking have demonstrated that students are more successful and produce more complete notes when teacher guidance is given in the form of skeletal or partial notes during lectures (Austin et al., 2002; Austin, Lee, & Carr, 2004; Neef, McCord, & Ferreri, 2006).

Note taking has been shown to increase attention (Peper & Mayer, 1978; Piolat, Olive, & Kellogg, 2005) as well as enhance the degree to which students relate concepts to one another (Eskritt & Lee, 2002; Kiewra, 1989; Peper & Mayer, 1986; William & Eggert, 2002). The note taking process allows students to discover underlying themes and structures as well as actively build external connections between what is presented and their prior knowledge (Eskritt & McLeod, 2008; Peper & Mayer, 1986; William & Eggert, 2008). Students who are successful note takers have more powerful organizational skills for structuring notes as well as better discrimination of important

information to include (Barnett, DiVesta, & Rogozinski, 1981; Castello & Monereo, 2005; Eskritt & Lee, 2002; Hidi & Klaiman, 1983; Spires, 1993).

Recurring effects of note taking as an instructional tool are summarized in Table 2.1.

Table 2.1

*Effects of Notetaking*

| Effect of Notetaking | Reference(s) |
|---|---|
| 1. More important pieces of information recalled by students | Einstein, Morris, & Smith, 1985 |
| 2. Increased student attention | Peper & Mayer, 1978; Piolat, Olive, & Kellogg, 2005 |
| 3. Increased connections between concepts presented | Eskritt & Lee, 2002; Kiewra, 1989; Peper & Mayer, 1986; William & Eggert, 2002 |
| 4. Students discover underlying themes and make connections with prior knowledge | Eskritt & McLeod, 2008; Peper & Mayer, 1986; William & Eggert, 2008 |
| 5. Increased organizational skills for structuring notes | Barnett, DiVesta, & Rogozinski, 1981; Castello & Monereo, 2005; Eskritt & Lee, 2002; Hidi & Klaiman, 1983; Spires, 1993 |
| 6. Increased encoding and storage when explicitly taught strategies | Austin et al., 2002; Austin, Lee, & Carr, 2004; Neef, McCord, & Ferreri, 2006 |

*Graphic Organizers*

What we know today as a graphic organizer was originated by Ausubel in 1960. He called the pictorial form of note taking an “advanced organizer” (Ausubel, 1960, 1968). The advanced organizer was originally a teacher-directed readiness activity intended to stabilize, clarify, and organize the learner’s prior knowledge in such a way that new information could be easily assimilated (Moore & Readence, 1984). The advanced organizer was modified by Barron (1969) into what he termed a “structured

overview" that offered students a scaffold for the learning and organization of unfamiliar content. Through the years, instructional tools resembling the advanced organizer and structured overview have taken on the name of graphic organizer. What sets the graphic organizer apart from other note taking strategies is its use of spatial formatting to convey concept relationships and organize information in such a way as to help learners integrate new knowledge (Meyer et al., 1996; Robinson & Kiewra, 1995). It is this two-dimensional format that differentiates graphic organizers from outlines and other adjunct displays (Alverman, 1986).

Graphic organizers such as those presented Table 2.2 aid in relational learning by making information more apparent, distinct, and articulate for the learner (Eagan, 1999; Robinson & Schraw, 1994). Graphic organizers can be used to provide visual representation and structure to otherwise abstract concepts (Galavan & Kottler, 2007; Mayer, 1989; Rock, 2004). Dye (2000) presented a process for the creation of graphic organizers that included (a) selecting information, (b) identifying key components, (c) creating a graphic representation, and (d) examining the relationships demonstrated.

*Two-Dimensional Graphic Organizers*

*Strategies.* Researchers suggest several strategies for effective construction and use of graphic organizers in the classroom. Graphic organizers can be used in various instructional formats including inductive and deductive situations (Clarke, 1991). Graphic organizers can be used inductively when concepts are considered from a "bottom-up" perspective, meaning that students draw inferences and conclusions from a set of examples and non-examples. Teachers can also use a "top-down" approach to

Table 2.2

*Commonly Used Graphic Organizers*

| Format | Description |
|---|---|
| Matrix | Rows and columns represent concepts, subordinate concepts, and attributes |
| Tree Diagram | Represents multiple levels of subordinate concepts without reference to attribute values |
| Venn Diagram | Composed of two overlapping circles, used to compare and contrast two concepts with commonalities in the center section and unique attributes in the outer sections |
| Concept Map | Begins with a main idea (or concept) and then branches out to show how that main idea can be broken down into specific topics |
| Knowledge Map | Node-link displays used to communicate relationships between concepts |
| Clustering | Ideas are grouped in a nonlinear fashion, using lines and circles to indicate relationships |
| Foldable® | Three dimensional graphic organizers with a kinesthetic integration, created by folding, cutting, and sometimes gluing pieces of paper |

graphic organizers when teaching deductively starting with the whole and working down to its parts (Clarke, 1991).

Explicit instruction on the construction and use of graphic organizers aids in retention and transfer of skills as well as the ability to generalize to novel situations (Anderson, 1980; Eskritt & McLeod, 2008; Griffin, Malone, & Kameenui, 1995; Stull, & Mayer, 2007). Rather than presenting only teacher-created examples of graphic organizers, students should be explicitly instructed on strategies and methods for the creation of different forms of graphic organizers. Students who are given model instruction are more likely to build mental models as well as graphic forms of systems

they are studying making them more prepared to engage in systematic thinking (Castello & Monereo, 2005; Eskritt & McLeod, 2008; Liben, 1999; Mayer, 1989). Instruction in construction and modeling of the use of graphic organizers adds to the generative effects of graphic organizers as note takers (Eskritt & McLeod, 2008; Castello & Monereo, 2005; Narjaikaew, Emarat, & Cowie, 2009; Peper & Mayer, 1978).

*Effects.* Research studies have been conducted on the use of concept maps and graphic organizers, both of which aid in the application of new knowledge by providing a visual representation of concepts and their relationships (Adesope & Nesbit, 2013; Akinsanya & Williams, 2004). Research also suggests that more information is recalled when graphic elements are incorporated into the teaching-learning process (DiCecco & Gleason, 2002; Hawk, McLeod, & Jeane, 1981; Ives, 2007; Winn, 1982). Robinson and Kiewra (1995) conducted research with undergraduate college students to compare the effectiveness of different forms of graphic organizers compared to outline notes and a control group that took no notes. Students were asked to identify hierarchical relationships, coordinate relationships, and to apply knowledge from reading and taking notes from an educational psychology text. Students using graphic organizers learned more coordinate relationships, wrote more contrasting premises, and retained information longer than any of the other experimental groups (Robinson & Kiewra, 1995). These results are consistent with the findings of Bean, Singer, Sorter, and Frazee (1986) who found that students in 10$^{th}$ grade US History classrooms benefitted from graphic organizers more than students who used outline note taking as demonstrated by recall and retention measures.

Graphic organizers have demonstrated beneficial effects in lower grades as well as with students of varying ability (Bos & Anders, 1992; DiCecco & Gleason, 2002; Griffin, Malone, & Kameenui, 1995; Hawk, 1986; Ives, 2007; Ritchie & Volkl, 2000). DiCecco and Gleason (2002) studied the effects of using graphic organizers with middle school students with learning disabilities and found that while no differences existed between groups on factual knowledge assessments, students who were instructed using graphic organizers provided significantly more relational knowledge statements in application-level assessments. In a different study, Strata 1 middle school students, those who scored above the 60$^{th}$ percentile on achievement tests, participated in an experiment where graphic organizers were provided at the beginning of a science unit to use as a study guide (Hawk, 1986). Students using the graphic organizers scored significantly higher on post-test measures than those who were not provided graphic organizers, which suggests that even high achieving students can benefit from the structure of graphic organizers.

Research also suggests that students who received direct instruction on the construction and use of graphic organizers outperform those who receive traditional instruction on transfer measures (Griffin, Malone, & Kameenui, 1995; Ives, 2007). Ives (2007) conducted several studies at a private school in Georgia attended by students in grades 6-12 with learning disabilities and attention disorders. Students were placed in instructional situations where traditional teaching methods were used and where simple graphic organizers were presented to help students structure their understanding of math concepts. Ives (2007) found that students who received instruction with graphic organizers outperformed those who received traditional teaching methods. They also

demonstrated better understanding of concepts as demonstrated by immediate and delayed posttest results (Ives, 2007).

Graphic organizers have also demonstrated effects on the affect of users. Research suggests that students' attitudes and teacher preparedness are positively affected by the use of graphic organizers (Hawk, 1986; Moore & Readence, 1984). Students engaged in learning with graphic organizers reported higher efficacy and better attitudes toward learning (Hawk, 1986). Hawk (1986) found that the creation of graphic organizers assisted teachers in deciding which concepts were most important for students to learn as well as the relationship each concept has with the rest of the material. Graphic organizers then served as the structure and organizational format for instructional delivery. Classroom teachers who engaged students in graphic organizers also tended to feel more confident and competent while leading students through sections of content (Moore & Readence, 1984).

Recurring effects of using graphic organizers as an instructional tool are summarized in Table 2.3.

*Three-Dimensional Graphic Organizers: Foldables®*

Foldables® are an instructional tool used by teachers for content delivery in classrooms. Foldables® are defined by their creator, Dinah Zike, as,

> Three-dimensional graphic organizers that take complicated data and information and make it visual and kinesthetic. The main idea is written on the outside and supporting facts/supplemental details are written under the tabs. By chunking information in this way, students are encouraged to self-question/self-check as the Foldable® is manipulated. Foldables® help students learn how to organize their thoughts. (Dinah-Might Adventures, LP, 2015)

Table 2.3

*Effects of Graphic Organizers*

| Effect of Graphic Organizers | Reference(s) |
|---|---|
| 1. More able to deconstruct topics and demonstrate relationships | DiCecco and Gleason, 2002; Eagan, 1999; Galavan & Kottler, 2007; Mayer, 1989; Robinson & Schraw, 1994; Rock, 2004 |
| 2. Increased efficacy and better attitudes toward learning | Casteel & Narkawicz, 2007; Hawk, 1986 |
| 3. Increased ability to transfer learning | Griffin, Malone, & Kameenui, 1995; Ives, 2007 |
| 4. Increased performance on tests | Bean, Singer, Sorter, and Frazee, 1986; Hawk, 1986; Robinson & Kiewra, 1995 |
| 5. Increased retention and ability to generalize to novel situations when explicitly taught strategies | Anderson, 1980; Eskritt & McLeod, 2008; Griffin, Malone, & Kameenui, 1995; Stull, & Mayer, 2007 |

Since using Foldables® has become popular among educators, more publishers are using them in textbooks. Similar to existing research findings with note taking and two-dimensional graphic organizers, Zike suggests that Foldables® are effective because they allow students to deconstruct topics and demonstrate relationships between parts (Eagan, 1999; Galavan & Kottler, 2007; Mayer, 1989; Robinson & Schraw, 1994; Rock, 2004) and the idea that involving students in the physical creation of the organizer increases their retention (Castello & Monereo, 2005; Eskritt & McLeod, 2008; Liben, 1999; Narjaikaew, Emarat, & Cowie, 2009; Peper & Mayer, 1978).

*Strategies for using Foldables®.* Foldables® are organizational tools that can be teacher or student-created depending upon their purpose. After being exposed to different types of organizers and Foldable® formats, teachers and students develop conditional and

strategic knowledge about their use and construction. There are many formats that can be used for teaching content through Foldables®. The format of Foldable® should be decided upon based on the content being taught. Table 2.4 contains commonly used forms of Foldables® and their ideal uses. See Appendix A for classroom examples of the different Foldable® formats.

Table 2.4

*Foldable® Formats and Their Ideal Uses*

| Foldable® Format | Uses |
|---|---|
| Muti-Tab | Content that is linear in nature (can be divided into any number); vocabulary |
| Shutter Fold | Content that is cyclical in nature (can be divided into even numbers); vocabulary |
| Layered Book | Content that is best shown in a hierarchy or layers |
| Envelope Fold | Content that is cyclical in nature; content easily divided into fourths or eighths |
| Project Folds | Serve as storage for a collection of related concepts or a unit of study |

*Effectiveness of Foldables®.* Empirical research involving Foldables® and their effectiveness in the classroom is limited, in fact only one published experimental study was located in this review of the literature. Casteel and Narkawicz (2007) conducted a study using Foldables® in third grade social studies classrooms. Three existing classes were used in the study, Classrooms A, B, and C. Classroom C was randomly divided into either classroom A or B for the study. Classrooms A and B then served as the treatment and control groups during two separate instructional units--one on timelines, the other on maps. In the first two-week unit on timelines, Classroom A served as the control group

receiving traditional lecture and worksheet instruction while Classroom B served as the treatment group receiving instruction using Foldables®. For the second two-week instructional unit on maps, the groups were reversed; Classroom B became the control group while Classroom A received the treatment (Casteel & Narkawicz, 2007).

Affective and cognitive measures were given as pretest and posttest measures between treatments as well as after the second round of treatments. Independent and paired t-tests were used to analyze the results of the study. Researchers found that students in the Foldables® treatment group reported statistically significant increases in affect (Casteel & Narkawicz, 2007). Results from the cognitive measures showed gains in both treatment and control groups but no statistically significant differences between the two groups (Casteel & Narkawicz, 2007).

### *Summary*

The knowledge base of students in our classrooms are made up of structures that Piaget (1929, 1952) and Bartlett (1932) referred to as schema. During the act of learning students are organizing, structuring, and refining their existing schema to accommodate for new knowledge. Teachers play an important role in this process as they guide students towards the discovery of relationships and connections in their collections of schema (Bruner, 1961). Research has shown that note taking and the use of graphic organizers can aid in the organization and retention of new knowledge, but research also suggests that some formats and delivery methods may be more effective than others. This study focused on the use of a particular graphic organizer, called a Foldable®, on the planning and instructional processes of teachers as well as their understanding of the content standards they are teaching.

# CHAPTER THREE

## Methods

Teachers' perceptions of the effectiveness of an instructional tool and their knowledge of the subject, standards, and methods being used in their teaching drive many of the instructional decisions being made in classrooms. In this study, I was interested in examining how Foldables® change the way a teacher plans and implements instruction. Questions driving this research include:

1. How does the creation of Foldables® affect the depth of teachers' understanding of standards?
2. How does the use of Foldables® affect the way a teacher plans for instruction?
3. How does the use of Foldables® affect the way a teacher instructs?

This chapter includes a description of the research design, participants, procedures for gathering data, as well as methods for analyzing data.

### *Research Design*

A case study methodology was selected for this study due to the nature of the research questions. The purpose of case study research is to understand human interaction within a social unit, a single instance bounded by the case in the process of designing the research (Stake, 1995). *Intrinsic* studies are undertaken when the researcher wants to know more about the specific person or phenomenon. *Instrumental* case studies are conducted in order gain a deeper understanding of issues beyond the specific case being studied. The current research is an example of an instrumental case study because rather

than having questions about specific teachers on a specific campus, I sought to use the case studies as an instrument to better understand the effects of using Foldables® as an instructional tool on teachers' planning and instructional delivery as well as their attitudes and perceptions.

Yin (2003) provides a technical definition of case study by breaking the method into two parts:

> 1. A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.
> 2. The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical positions to guide data collection and analysis. (Yin, 2003, p.13-14)

This definition highlights the importance of taking contextual conditions into consideration when studying certain phenomena, such as instructional strategies being used within a particular classroom on a specific campus. As stated by Yin, case study design also allows for many variables to be observed and analyzed using multiple sources of data. This triangulation of data allows the researcher to understand the circumstances in a more holistic way, which can yield more accurate and complete analyses of the observed events. Yin's (2003) definition also highlights the idea that case study research is a comprehensive strategy that includes the logic of the design, techniques for collecting data, and specific data analysis methods.

Stake (1995) cited three major differences between case study and quantitative research methods:

> 1. While the purpose of inquiry is *explanation* in quantitative research, the purpose of inquiry is *understanding* in case study research.
> 2. Although the role of the researcher is *impersonal* in quantitative research, the

role of the researcher is *personal* in case study research.

3. Knowledge within quantitative research is *discovered.* However, knowledge within a case study is *constructed.* (Stake, 1995, p. 37)

Quantitative research seeks to *measure and see* what is being studied. It assumes that what is seen in the field can be described with instrumentation and measurements that have already been developed (i.e., assessments, questionnaires, surveys). Qualitative methodologies, case studies in particular, require the researcher to *see, and then measure* (Stake, 1995). It is the researcher's goal to try to understand, describe, and accurately interpret what is being observed. The resulting analysis is characterized by detailed description, analysis, and interpretations of the observed environment and events.

## *Participants*

The participants in this study were classroom teachers from a campus that received professional development on the construction and use of Foldables® as an instructional tool. This section contains a description of the context (district and campus), the individual teachers participating, as well as their classroom environments.

### *Context*

*District.* The current study took place in an urban district located in the northwest region of a southern state, referred to as "King ISD." The city in which King ISD is located serves as the medical hub for the region as well as serving as the home of a United States Air Force base and three universities. In the 2013-2014 school year King ISD served 17,184 students ranging from early childhood through 12$^{th}$ grade (TEA, 2014). King ISD is made up of 26 campuses including early childhood ($n$=1), elementary ($n$=15), middle school ($n$=4), high school ($n$=5), and an alternative campus ($n$=1). High

schools in King ISD included a STEM magnet as well as a medical magnet. Students in this district represented varied ethnic groups including African American (11.8%), Hispanic (41.9%), White (40.1%), American Indian (0.4%), Asian (1.9%), Pacific Islander (0.1%), as well as those from two or more races (3.8%). Programs and services offered in King ISD to address the individual needs of students include bilingual/English as a Second Language (ESL, 3.9%) education, Career and Technical Education (CTE, 25.9%), special education (SPED, 10.7%), and gifted and talented education (GT, 5.6%) (TEA, 2014). The majority of the students served by King ISD are considered economically disadvantaged (65.6%), one-third are classified as at-risk (33.9%), and the mobility rate for the district in the 2012-2013 school year was 23.9%.

Academically, King ISD met state accountability standards for the 2013-2014 school year (TEA, 2014). Table 3.1 contains results from the state accountability system for both the 2012-2013 and 2013-2014 school years.

Table 3.1

*State Accountability Test Results for King ISD*

| | 2013 | | 2014 | |
|---|---|---|---|---|
| Area Tested | State Passing % | District Passing % | State Passing % | District Passing % |
| All Subjects | 77 | 77 | 77 | 77 |
| Reading | 80 | 79 | 76 | 76 |
| Mathematics | 79 | 80 | 78 | 80 |
| Writing | 63 | 62 | 72 | 71 |
| Science | 82 | 83 | 78 | 81 |
| Social Studies | 76 | 75 | 76 | 73 |

"Ranger Elementary," the school where this study was conducted, served 495 students in the 2013-2014 school year ranging from kindergarten to fifth grade (TEA,

2014). Students at this campus represented varied ethnic groups including African American (20.8%), Hispanic (41.8%), White (27.1%), Asian (1%), as well as those from two or more races (3%). The student population at this campus was 83.4% economically disadvantaged based on free and reduced lunch numbers, which qualified the campus for Title I funds from the government (TEA, 2014). Programs and services offered at this campus to address the individual needs of students included English Language Learner (ELL, 2.2%) support, Response to Intervention (RtI) in reading, math, and behavior (1.5%), special education (SPED, 6.7%), and gifted and talented education (GT, 4.6%) (TEA, 2014).

*Campus.* Academically, Ranger Elementary met state accountability standards for the 2013-2014 school year (TEA, 2014). Table 3.2 contains results from the state accountability system for both the 2012-2013 and 2013-2014 school years. Ranger Elementary also received distinction designations from the state for their performance in mathematics, science, top 25% student progress, top 25% closing performance gaps, and postsecondary readiness (TEA, 2014).

Ranger Elementary worked closely with two of the local university teacher education programs, which provided tutoring and mentoring programs for students in math and reading. Ranger welcomed their third principal in as many years during the 2015-2016 school year. The new principal, “Mrs. Brown,” transitioned from her position as the campus’ instructional coordinator (IC) in the 2014-2015 school year.

Table 3.2

*State Accountability Test Results for Ranger Elementary*

| Area Tested | 2013 State Passing % | 2013 Ranger Passing % | 2014 State Passing % | 2014 Ranger Passing % |
|---|---|---|---|---|
| All Subjects | 77 | 73 | 77 | 76 |
| Reading | 80 | 76 | 76 | 75 |
| Mathematics | 79 | 75 | 78 | 82 |
| Writing | 63 | 60 | 72 | 62 |
| Science | 82 | 73 | 78 | 77 |

*Classrooms*. Each classroom observed during the study is thoroughly described including student demographics and special services, classroom organization and environment, as well as the culture and climate of the classroom observed during instruction in chapter four. See Appendix D for the Classroom Case Study Instrument.

*Teachers*

A purposive criterion-based typical case sampling procedure was used for identifying a sample from the population (Yin, 2009). The criterion for inclusion in the sample included being a classroom teacher at a school where professional development sessions on the construction and use of Foldables® had been conducted, specifically Ranger Elementary. A total of three teachers were included in this study, all of whom were on the second grade teaching team.

Each teacher who participated in the study is described in chapter four using demographic information, educational background, and teaching experience as well as previous experience using Foldables®, and general attitude toward Foldables® at the beginning of the study.

*Role of the Researcher*

In qualitative research, the researcher is the primary instrument used in data collection; as such it is important to clearly define their perspective as well as the role they will fill in the research process (Yin, 2003; Creswell, 2013). I participated in the campus-level professional development offerings at Ranger Elementary during August of the 2015-2016 school year, providing a training session for the faculty on the construction and use of Foldables® specifically in the area of balanced literacy.

Previously, I taught in the public school system teaching third and fourth grades for nine years and served as a district and regional trainer of Foldables®, which I used regularly as an instructional tool in my classroom. At the time of this study, I had also earned advanced degrees in educational leadership and had an interest in educational psychology, specifically learning and development and differentiation strategies for advanced learners. This prior experience with Foldables® as well as my interests in the teaching and learning processes had the potential to influence my opinions in the observation and analysis phases of the study. To reduce possible bias, I triangulated data to increase internal validity using observations, interviews, and teacher reflections as well as debriefing with colleagues not directly involved with the research process to uncover possible biases (Creswell, 2013).

## *Procedures*

Teachers participating in this study had attended an on-campus training session on the construction and use of Foldables® as an instructional tool. After approval was obtained from the involved Institutional Review Boards (IRB) I approached the second grade team of teachers at Ranger Elementary to see if they would be interested in

participating in the study. After obtaining informed consent from teacher participants, I oriented them to the study as well as the instrumentation being used for observations.

After an introduction to the methods of the study, times were scheduled during the spring 2016 semester for classroom observations. Each participant was observed using Foldables® three times during instruction. Classroom observations were not limited to the balanced literacy block, which served as the focus of the initial Foldable® training. Observations were be made in multiple subject areas, including reading, writing, math, and science in an attempt to gauge generalization of Foldable® uses. In addition to classroom observations, I collected classroom documents in the form of lesson plans and Foldables® developed during the study on a weekly basis.

Finally, every two weeks, teacher participants were asked to reflect on their experience using Foldables® using a Google Form with both open-ended and closed question formats. At the end of the spring 2016 semester, individual interviews were scheduled with each of the teacher participants. Table 3.3 contains the timeline for the study.

### *Gathering Data*

In exploring the attitudes towards and perceived effectiveness of Foldables®, I observed classroom instruction using Foldables® as an instructional tool, facilitated regular reflections by teachers, and conducted semi-structured interviews with each of the participants.

Table 3.3

*Study Timeline*

| | |
|---|---|
| August 2015 | • Foldable® professional development at Ranger Elementary with a concentration on Foldable® usage for Balanced Literacy |
| January 2016 | • Research proposal to IRB<br>• Recruit teacher participants and obtain informed consent |
| February-May 2016 | • Introduce study and instrumentation to participants and conduct initial individual interviews<br>• Foldables® and Lesson Plans will be collected weekly<br>• Classroom observations of Foldables® in instruction (three observations per teacher participant)<br>• Teacher reflections on using Foldables® in their classrooms (completed every two weeks) |
| May 2016 | • Conduct individual interviews with teacher participants |
| June-August 2016 | • Data Analysis and writing of study manuscript |

*Instrumentation*

*Classroom Observation Scales.* A portion of the *Classroom Observation Scales* developed by Johnsen, Sigler, McGregor, Snapp, and Jackson (1999) was used during classroom observations to systematically collect data regarding teacher questioning (see Appendix G). The observation scales were developed to measure the degree of differentiation implementation in Irving ISD classrooms. Scales demonstrated a high degree of reliability across raters with 93% agreement when coding engagement and questioning data in classrooms. In addition, the internal consistency, coefficient alpha, of the scales was measured at .76, indicating the scales consistently measure the same factor. The data collected using the observation scales helped to measure the levels of

thinking used by teachers during instruction, which added depth to the traditional narrative and descriptive observations I made.

The *Questioning* form of the *Classroom Observation Scales* was used for collecting data throughout each lesson related to teacher and student questions. Questioning forms were used to record specific questions raised by both students and teachers through the duration of each lesson. Questions were coded depending on their possible response (single- or multiple-answer questions) as well as connections made (affective or cognitive), evaluation and implications, and processing questions. These data served as evidence of connections within and across content areas as well as the level of questioning present in each classroom.

*Danielson Framework for Teaching.* Rubrics developed for data analysis in this study were modeled after Charlotte Danielson's *Framework for Teaching* (2011). The framework provides teachers and evaluators with a common language to describe the complex process of teaching (Danielson, 2015). First introduced in 1996, the Framework for Teaching was widely accepted by stakeholders in education due to its comprehensive description of good teaching as well as its clearly defined levels of performance (Danielson, 2011). In 2009, the Bill and Melinda Gates Foundation included the Framework for Teaching in their study of "Measures of Effective Teaching (MET)" (Kane & Staiger, 2012). As a result of this study, several changes were made to the framework. First, the language used in rubrics became tighter, providing less detail but making them far easier to use in evaluation. Next, "critical attributes" were identified at each level of performance – unsatisfactory, basic, proficient, and distinguished, to aid in the observation and evaluation processes. Finally, examples at each level of performance

for each component were identified in an attempt to illustrate what specific practices can look like in a range of settings (Danielson, 2011). The enhancements made to the Framework for Teaching as a result of the MET project has resulted in judgments that are more accurate and worthy of confidence.

Danielson's Framework for Teaching (2011) divides teaching into four domains – Planning and Preparation, The Classroom Environment, Instruction, and Professional Responsibilities. Each domain is further broken down into components and elements that more precisely describe each domain (see Appendix B for the full Framework for Teaching). Rubrics for each domain included in the Framework for Teaching have been developed that clearly define the critical attributes present at each level of performance for each component of the teaching process (see Appendix C for example rubrics).

Studies involving the Framework for Teaching have demonstrated its validity and reliability as a tool for assessing the effectiveness of teachers (Kane & Staiger, 2012; Sartain, Stoelinga, & Brown, 2011). The Consortium on Chicago School Research conducted a longitudinal study using a teacher evaluation tool called Excellence in Teaching (EIT) modeled after Danielson's Framework for Teaching. Results of the two-year study suggest that the classroom observation ratings were valid and reliable measures of teaching practice (Sartain, Stoelinga, & Brown, 2011). Validity was demonstrated through student growth – students who showed the most growth in test scores were in classrooms where teachers received the highest rating on the Danielson Framework whereas students who showed the least growth were in classrooms where teachers received the lowest ratings. Reliability of the framework was demonstrated through the consistency of ratings between principals and observers. Similarly, in the

MET study Kane and Staiger (2012) found that results from the Framework for Teaching were positively associated with gains in student achievement and that reliability of the instrument could be strengthened by averaging scores across multiple observations.

Analysis of classroom observations and interview data were completed using the Danielson Framework components *1a: Demonstrating knowledge of content and pedagogy* and *1e: Designing coherent instruction*. For all other data sources, rubrics were developed using Danielson's Framework for Teaching (2011) rubrics as a model, in addition to using the theoretical framework and extant literature as guides. In order to create data collection rubrics, components (e.g., Conditions for Learning, Learning Outcomes, and Organization of Knowledge) were divided into levels of performance ranging from unsatisfactory to distinguished. For each level of performance I developed critical attributes that define what teaching observed at that level would include (see Appendices E and J for data analysis rubrics).

*Classroom Documents*

Teacher lesson plans were collected on a weekly basis during the study. Lesson plans included specific standards being addressed, outlined procedures, and identified activities for instruction. These documents gave insight into the planning process as well as the external influences related to Gagné's (1985) *Conditions of Learning*.

In addition to lesson plans, Foldables® created during the study across subject areas were collected on a weekly basis. The Foldables® developed and used by teachers during the study provided information on the types of Foldables® being created, the frequency of use, as well as the organization and levels of knowledge being covered

while using Foldables®. See Appendix E for the Classroom Document Observation Protocol.

*Observations and Recorded Lessons*

Patton (2002) suggests that observations often lead to a deeper understanding of the phenomenon than can be obtained through individual interviews alone. Observation provides information about the context in which events occur. As a result, researchers are able to understand the context in a more holistic way and may be able to identify events that otherwise would go unnoticed (Patton, 2002). Participants were observed three times throughout the study during instructional delivery in the natural context of their classroom. Observational lessons were recorded in order to verify observations and create a data trail that can be triangulated with other data being gathered. A *Classroom Observation Form* (see Appendix F) was completed during each lesson observation in order to ensure the systematic collection of notes taken by the researcher. In addition to the *Classroom Observation Form*, I also collected questioning data using the *Classroom Observation Scales* (see Appendix G) to more accurately measure student outcomes. Video recordings of each lesson were used for the purpose of verifying the setting, activities, and people involved in the lesson as well as capturing the environment from the participants' perspective.

*Teacher Reflections*

Teacher participants completed brief written reflections over their experiences using Foldables® as instructional tools in their classrooms every two weeks. Personal reflections are a way of documenting, communicating, and evaluating learning, beliefs

and views (Bransford, Derry, Berliner, Hammerness, & Beckett, 2005). Reflections were completed using a Google Form with guiding questions as well as open-ended response options (see Appendix H). These reflections were closely analyzed to understand each participant's attitudes and perceptions in regard to the effects of using Foldables® on their planning and instructional delivery. Information from reflections was used to guide the final interview process when further information or clarification was needed.

*Interviews*

Patton (1990) described three different types of qualitative interviews: (a) conversational or informal interviews, (b) semi-structured interviews, and (c) open-ended or standardized interviews. In this study, semi-structured interviews were conducted individually with each teacher participant at the beginning of the study as well as at the end. An interview protocol (see Appendix I) was developed for both the initial and final interviews with basic questions and additional probes to ensure that the research questions were explicitly covered.

Additional questions were added to each interview based on classroom observations and teacher reflection responses from earlier in the research process. Having a semi-structured list of interview questions allowed for a good use of limited interview time, made interviews more systematic, and helped keep the interaction focused (Lofland & Lofland, 1984).

Data collected in this study in the form of teacher interviews, reflections, classroom documents, and classroom observations offered multiple perspectives on the use of Foldables® as an instructional tool as well as documenting changes in planning, instructional delivery, and perspectives over the course of the study. Table 3.4

summarizes the data that was collected, its relationship to the instruction and knowledge framework, as well as the instruments that were used in the data collection process.

### *Data Analysis*

Bogdan and Biklen (2006) describe analyzing qualitative data as

> Working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what there is to be learned, and deciding what you will tell others. (p. 145)

Creswell (2013) adds that

> Data analysis in qualitative research consists of preparing and organizing the data (i.e., text data was in transcripts, or image data as in photographs) for analysis, then reducing the data into themes through a process of coding and condensing codes, and finally representing the data in figures, tables, or a discussion. (p. 180)

Several methods were used to examine the teacher observations, reflections, classroom documents and interviews. Each of the data sources collected in this study provided a different perspective on the use Foldables® as an instructional tool. The recorded classroom observations provided data regarding the individual teacher's use of Foldables® in instruction through the lenses of concept learning (Bruner, 1960; 1961) and the conditions of learning (Gagné and Driscoll, 1988) as well as providing an important glimpse into the classroom context. Reflections provided the teachers' own perspective on the effects of Foldables® on their planning and teaching processes. Lastly, individual interviews allowed the researcher and teachers an opportunity to discuss the use of Foldables® as an instructional tool and reflect specifically on their effect on teachers' understanding of standards and the purposeful organization of ideas during instruction. All of these data sources were systematically analyzed using rubrics

Table 3.4

*Instruments Used for Gathering Information about Teacher Instruction and Knowledge Related to Foldable® Usage*

| | | Data Source | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Interview Questions | | | | | Observations *(Classroom Observation,, Interaction, Engagement, and Questioning forms)* | Reflection Questions | | | | | | | Lesson Plans | Foldable® Examples |
| | Lesson Part | 1. | 2. | 3. | 4. | 5. | | 1. | 2. | 3. | 4. | 5. | 6. | 7. | | |
| Conditions of Learning | Gaining Attention | | | | | | X | | | | | | | | X | |
| | Stating Objectives | X | | | | | X | | X | | | | | | X | |
| | Stimulate Recall | X | | | | | X | | X | | | | | | X | |
| | Presenting Stimulus | | X | X | | | X | | | X | | X | | | X | |
| | Guided Practice | | X | X | X | | X | | | X | | X | | | X | |
| | Independent Practice | | X | X | X | | X | | | X | | X | | | X | |
| | Provide Feedback | | | | X | X | X | | | X | | X | | | X | |
| | Performance | | X | X | X | X | X | | | X | X | X | X | | X | |
| | Assess Performance | | X | X | X | X | X | | | X | | X | X | | X | |
| | Retention and Transfer | | X | X | | | X | | | | | X | | | X | |
| Learning Outcomes | | | | | X | X | X | | | | X | X | X | | X | X |

developed for the study (see Appendix J) modeled after Danielson's *Framework for Teaching* (2011).

A constant comparison method was used to analyze the data collected during the study. Strauss and Corbin (2007) describe the constant comparison process of data analysis as identifying common patterns and phenomena within the data by developing an open-coding system and distinguishing common themes that emerge within and across the cases. Once themes are identified, the researcher identifies their relation to the research questions in order to reduce or combine them into a smaller number of major themes. Once major themes are identified, the researcher analyzes how the words, phrases, and events within the case of data source built a logical chain of evidence, in addition to examining how the categories relate to each other (Miles & Huberman, 1994).

The use of rich and thick description is a hallmark of effective qualitative data analysis. It is the responsibility of the researcher to tell the full story of the study in order to enable the reader to make a decision regarding validity of the findings (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). In the data analysis process I included detailed narrative and descriptive explanations in an attempt to clearly describe the participants, context, and events observed during the study.

*Trustworthiness and Verification of Interpretation*

Reliability and validity issues in case studies are referred to as *trustworthiness* of the data (Lincoln & Guba, 1985). Because each study frames its own view of the world and specific phenomena and events observed within a context, it will stand or fall on its own merits. Lincoln and Guba (1985) described trustworthiness verification as the process of checking, making sure, and being certain. Criteria to ensure the

trustworthiness of data and analysis include credibility, transferability, dependability, and conformability of the data. Creswell (2013) prefers using the term *validation* when describing the process that occurs throughout the data collection and analysis phases of qualitative studies. There are several methods that were used to ensure *trustworthiness* and *validation* of the data collection and analysis phases of this study.

First, multiple sources of data were collected including teacher reflections, observations, and individual interviews. These varied sources provided multiple perspectives and allowed for data triangulation (Creswell, 2013; Whittemore et al., 2001). Triangulation assumes that the use of multiple data sources, methods, and investigators can neutralize the possible bias found in one particular data source or method.

In addition to triangulating the data collected, I also used debriefing and external audits to validate findings. Debriefing is when an individual not engaged in the study does external checks of the data and research procedures (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). For the purpose of this study, I regularly debriefed with a university colleague familiar with the study and context. Feedback from this colleague provided me with the opportunity to reflect on and refine the data collection and analysis processes. External audits were also conducted by research committee members to examine the process and products of the research (Creswell, 2013; Lincoln & Guba, 1985). These audits ensured that the study was being conducted appropriately and that the data supported the interpretations and conclusions being made.

The final method of validation used in this study was member checking. Member checking is the process of involving participants in judging the accuracy and credibility of the findings (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). At the

conclusion of the study participants were offered the opportunity to review and reflect upon the accuracy of the findings related to their individual case study.

Further discussion of trustworthiness and verification of interpretation of the data collected in this study along with potential limitations specific to the reliability and validity of the data can be found in the limitations section of chapter five.

# CHAPTER FOUR

## Results

### *Study Context*

#### *Facilities*

The buildings housing Ranger Elementary were originally constructed in 1959 with the latest renovations being made in 2008 to upgrade infrastructure and technology accessibility. The campus consisted of five permanent buildings and five portable buildings connected by covered sidewalks. The original campus was open to the neighborhood and neighboring park but has since been fenced for student safety and regulation of visitors.

Four of the campus' buildings (see Figure 4.1) housed different grade levels. Prekindergarten and kindergarten were housed in building one, first grade, second grade, and music were housed in building two, fifth grade was in building three along with the LRC and computer lab, and third and fourth grades were located in building four. Each of the four academic buildings had classroom access from the exterior as well as through an interior hallway that contained restrooms as well as storage closets for each grade level. Every classroom at Ranger Elementary was outfitted with a Promethean Board, projector and at least three computers. Building five contained the cafeteria, stage, and administrative offices. The gymnasium was free standing. There were four portable buildings that served as spaces for in school suspension (ISS) and content area specialists and interventionists. Included on Ranger Elementary's grounds were two playgrounds,

one primary and one intermediate, and a new track used for physical education (not pictured in Figure 4.1).

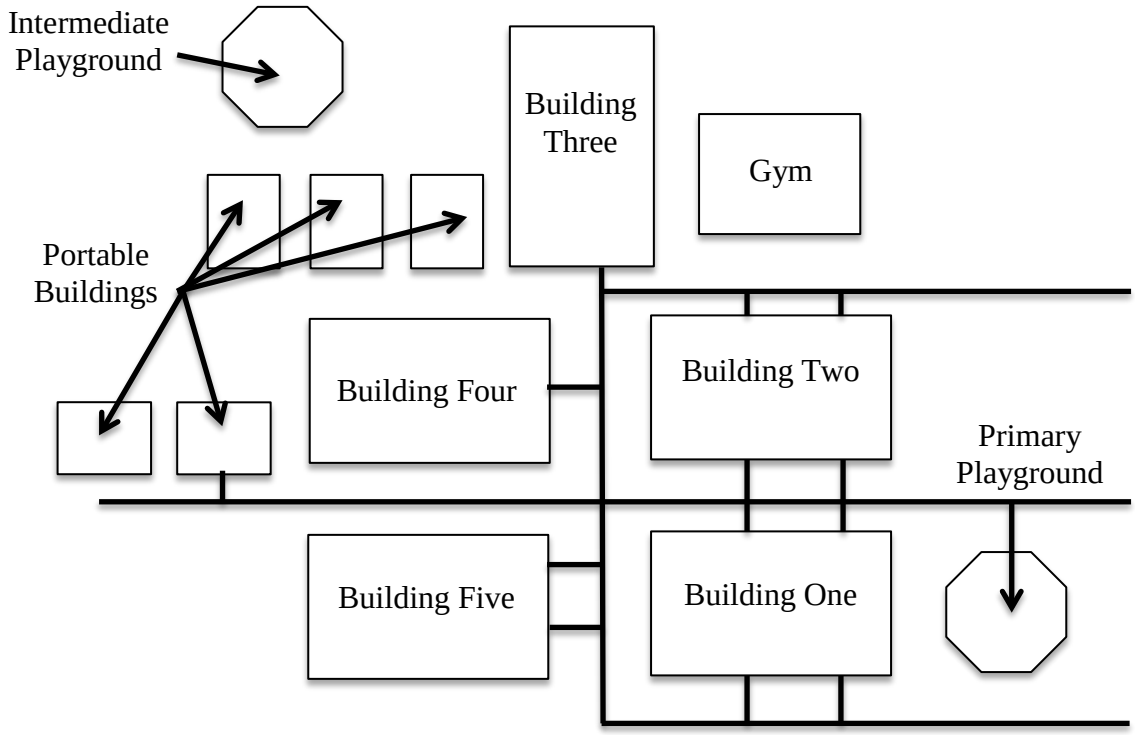



*Figure 4.1.* Map of Ranger Elementary School.

Visitors to Ranger Elementary pressed a buzzer for access at the front gate near the cafeteria and were directed to the office to sign in and receive a badge to wear during their time on campus.

*Faculty and Staff*

Ranger Elementary served students in Pre-K through 5th grades. Its staff included three Pre-K teachers, each with an aide, and four kindergarten teachers, with two aides shared between the teachers on the grade level. There were four teachers in each of the

first, second, third, and fourth grade teams. Fifth grade was divided between three teachers.

Office staff at Ranger Elementary included two secretaries, an instructional coordinator (IC), a counselor, and a building principal. There was a shared diagnostician on campus part-time along with a full-time special education (SPED) teacher and a full-time SPED aide. In addition, Ranger Elementary had a full-time librarian, computer lab instructor, music teacher, and PE teacher with aide.

Community resources available to Ranger elementary included Region 14 Education Service Center (ESC) staff who provided bullying prevention training and university staff who provided after school reading tutoring services in conjunction with education coursework. Ranger Elementary also began a community partnership with Lowe's home improvement stores that established an after school gardening club and a beautification initiative to be pursued over several years.

*Participants*

Teachers from the second through fourth grades who attended a training session over the use and creation of Foldables® during the previous summer met the sampling criteria established for the study. Due to state testing schedules and the time of year during which data was collected, second grade was chosen as participants for the study. Three of the four team members met the sampling criteria due to the fact that the fourth teacher was hired as a long-term substitute when the original fourth member went on maternity leave during the fall semester. The participants included in the current study were each assigned a pseudonym for the purposes of reporting results, they will be referred to as Mrs. Wells, Ms. Moser, and Mrs. Fletcher.

Mrs. Wells was a 29-year-old Hispanic female who earned her Bachelor of Arts in Sociology from McMurry University in 2011. She received her teaching certification through an alternative certification program in 2012 in early childhood through sixth grade. While earning her certification, Mrs. Wells worked as a teacher's aide in a third grade classroom at Ranger Elementary where she was first introduced to Foldables®. Her three years of teaching experience were all in second grade at Ranger Elementary where she was responsible for teaching all subject areas. At the beginning of data collection for this study Mrs. Wells was seven months pregnant, she gave birth the day after giving her final interview.

Ms. Moser was a 40-year-old White female who earned her Bachelor of Science in Elementary Education from McMurry University in 2009. Her certification included early childhood through fourth grades with an additional English as a second language (ESL) certification. Ms. Moser's seven years of teaching experience were in self-contained classrooms in 2$^{nd}$ grade as well as kindergarten at Ranger Elementary and one other campus in the district. Ms. Moser serves as the grade-level chair and serves as the cooperating teacher for a master's level education student from a local university.

Mrs. Fletcher was a 31-year-old White female who earned her Bachelor of Science in Elementary Education and her masters in curriculum and instruction from the University of Missouri–Columbia. Her nine and a half years of teaching experience range from second through fifth grade, with all grades represented, and span across four states including Illinois (one year), Missouri (four years), Colorado (two years), and Texas where she had spent the last two and a half years teaching at Ranger Elementary.

The second grade team, as with all teams at Ranger Elementary, participated in professional learning communities (PLC) in which they met together on a weekly basis to discuss the next topics to be covered in each subject area and to share ideas for effective instruction. For this reason, the second grade team used a team planning model where each teacher took responsibility for the planning of a different subject area. Mrs. Wells was responsible for planning math lessons, Ms. Moser contributed reading lessons, and Mrs. Fletcher wrote writing lessons each week for the entire team's use.

While lessons for specific content areas were planned and presented to the team by each individual teacher, teammates had the freedom to modify lessons to fit their specific students' needs or learning preferences. When asked about whether or not she followed the lesson plans written by her teammates Mrs. Fletcher commented,

> We definitely have flexibility [but] because everyone has taken the time to plan their [lessons] so well that they normally are pretty good activities, so we normally try to use that, but sometimes in the moment, of course, as you're realizing your kids weren't getting something then we can alter and change as we need to. (Fletcher Initial Interview, 3/4/2016)

While teachers on the team had the freedom to modify the lesson plans submitted by their teammates those changes were not noted in lesson planning documents. In addition, any activities used to differentiate instruction for struggling or gifted learners were chosen by the individual classroom teachers and as a result were not reflected in the team's lesson plans. The documents analyzed for the study were the grade level lesson plans submitted to building administration each week, which were identical for their entire second grade team.

## *Case Study: Mrs. Wells*

### *Context*

*Classroom environment.* Mrs. Wells's classroom could be accessed either from the outdoor walkway leading up to building two or through an interior hallway door See Figure 4.2 for a classroom diagram). For observations I would come through the interior hallway because that door led to the back of the classroom and I could enter without being too much of a distraction to the learning activities. The exterior door was surrounded on all sides by windows, which served as the primary light source for Mrs. Wells's classroom. An opaque shower curtain with colorful stripes was hung in front of the window so as to reduce distractions while also letting the sunlight in. Table lamps, floor lamps, and hanging light fixtures provided additional lighting in work areas but in the three classroom observations completed for this study, I never experienced a lesson with the overhead fluorescent lights on.

Mrs. Wells's desk and a bookshelf of reference materials were located at the front of the room as one entered from the exterior. Her teacher space was always very neat and orderly allowing for easy access to needed supplies and technology. A Promethean Board was mounted on the wall adjacent to Mrs. Wells's desk at the front of the room and a document camera sat nearby as well. The projector was ceiling mounted for ease of use.

Tucked in the corner between the teacher desk and the document camera was a stool that served as Mrs. Wells's instructional perch. From here she had access to her teacher computer, which ran the Promethean technology, the document camera, and a small easel where she kept a tablet of chart paper for instruction.  On the floor nearby

Mrs. Wells's perch was a colorful carpet that could comfortably seat her entire class of 21 during direct instruction and guided practice. Lined up against the front wall were reading bins full of the texts ordered by number that students were using during their independent reading times. The corner opposite from Mrs. Wells's desk was set up as a reading nook complete with a hanging light fixture, pillows, a fuzzy chair, and a bookshelf filled with leveled readers.

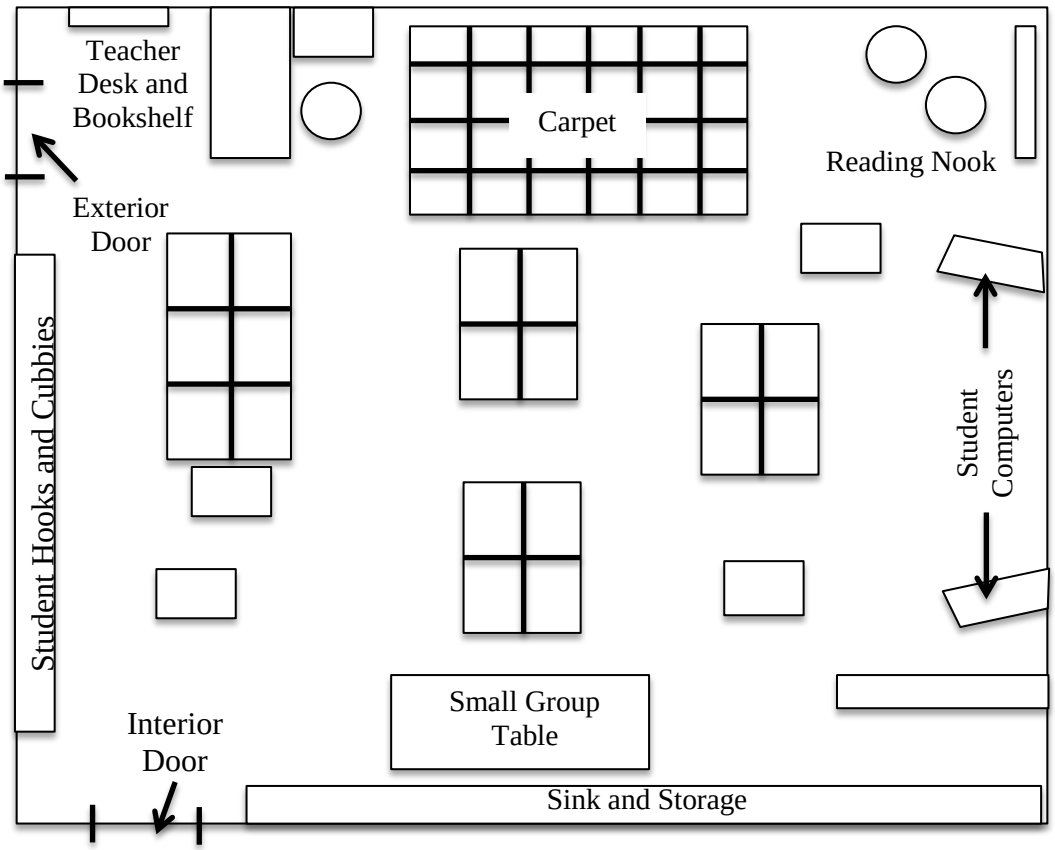



*Figure 4.2.* Mrs. Wells's Classroom Diagram

In addition to an area for direct instruction and a reading nook, four student computers were located against the west wall of the classroom. These computers were available for research activities, web-based practice, and the completion of Accelerated

Reader (AR) tests. Student hooks and cubbies were located on the east wall of the classroom. Each student was assigned a hook and a floating cube shelf where they stored their backpacks, jackets, and additional supplies during the day. On the north wall adjacent to the interior door was a sink for washing hands and a water fountain with a countertop that extended the full length of the wall under which was additional classroom storage. At the back of the room was a large rectangular table used for small group instruction and conferencing. Figures 4.3 and 4.4 are photographs of Mrs. Wells's classroom.

*Figure 4.3.* Mrs. Wells's classroom from the exterior door.

Student desks were grouped in tables of four to six with three desks pulled out around the perimeter rather than being included in a table group. Desks came in varying heights with tops of different shades of brown, but all had a single shelf underneath that held students' supplies, books, folders, and notebooks. Some were bursting with loose papers while others were neat and orderly with everything in its place. Green supply tubs

full of community supplies--glue, erasers, and pencils--were placed in the middle of each table.

The walls in Mrs. Wells's classroom were brightly decorated with teacher-created anchor charts reminding students of past lessons in reading, writing, and math. These posters included visuals, important vocabulary, and strategies for solving problems across content areas. At the front of the classroom to the left of the Promethean Board was a map of the United States. A color chart with 21 clothespins clipped to it used for discipline was located to the right of the Promethean Board. In the back of Mrs. Wells's classroom were posters reminding students of the seven habits practiced by the campus as a result of their Leader in Me initiative, these habits included be proactive; begin with the end in mind; put first things first; think win-win; seek first to understand, then to be understood; synergize; and sharpen the saw. Stretching across the back of the classroom was a clothesline displaying student work.

*Figure 4.4.* Mrs. Wells's classroom from the back counter.

*Students.* There were 21 students in Mrs. Wells's class, 11 males and ten females. Of those students, five were African American, 11 were Hispanic, four were White, and two identified as two or more races. Three of the 21 students had been diagnosed with attention deficit disorder (ADD)/attention deficit hyperactivity disorder (ADHD) and two had non-specified developmental impairments. Two students received special education (SPED) services as a result of learning disabilities and four received classroom instructional modifications as a result of a 504.

*Lesson Planning*

*Interview data.* An initial interview was conducted with Mrs. Wells at the beginning of data collection to discuss her lesson planning and delivery strategies. Questions were crafted with Gagné's (1985) instructional framework as a guide (see Appendix I).

I began by asking Mrs. Wells to describe her planning process. She responded by first referring to the Texas Essential Knowledge and Skills (TEKS), which are the state developed curriculum established for each grade level in each subject area. Specifically, Mrs. Wells said she would look at the standards expected to be covered in the upcoming weeks in order to guide her lesson planning. She also took the time to consider important vocabulary and terminology needed by the students during the upcoming lessons,

> I'll look at vocabulary that needs to be introduced or might be new to students or [needs] to be reviewed by students. Then from there, [I] start planning lessons based on those things. (Wells Initial Interview, 3/9/2016)

When introducing new topics to students, Mrs. Wells looked for engaging stimuli often in the form of BrainPops. BrainPop is a web-based collection of videos created for explaining concepts through examples and explanations given by animated characters.

She also mentioned integrating different songs and hand motions where appropriate, "that's just the way I like to do things and they remember it so well," (Wells Initial Interview, 3/9/2016) she added.

After the introduction of new information Mrs. Wells looked for guided and independent practice activities that were able to be used and referenced in the future. Her go-to activities for practicing and recording concepts were anchor charts and games. Anchor charts can come in many forms, some are teacher-created posters others are student examples created in notebooks. These graphic representations are called anchors because they act as a hook or grounding reference that students can use in the future when reviewing or learning new information. Mrs. Wells stated,

> Anchor charts are for reference of the students. They can go back in their text that they don't know or that they don't recall . . . For instance, how many inches are in a ruler, in a foot or whatnot. Those things they can go back and that can be something that they can learn independently to do instead of asking. (Wells Initial Interview, 3/9/2016)

Games were another activity often used by Mrs. Wells when practicing content. Games were often introduced when concepts were new to students and they could be used for practice, later they could be referred back to as review activities in center rotations.

> Games are [used] for additional practice and making sure [the students] had mastery of things that continue all year long because it's not just games for that week, it's games of concepts that [have] been taught all year long. (Wells Initial Interview, 3/9/2016)

After concepts have been introduced and practiced, students are expected to complete some form of performance or application of the material. Mrs. Wells often used worksheets and modules from the adopted textbook as well as Foldables® and something she called partner checks.

> [Partner checks are] where each student will do their own work independently and [then] they'll work with a partner. They'll each check their work and if something is incorrect or if there's a misconception there, they'll talk with each other and discuss, "Okay, what did I do here? Who's the right person and what's going on, what's wrong?" (Wells Initial Interview, 3/9/2016)

Products completed during the performance portion of lessons in Mrs. Wells's lesson planning often came in the form of anchors and Foldables®, either independently created or copied, as well as common level activities and/or assessments given to students.

Assessment of performance in Mrs. Wells' lessons came in the form of performance products as well as data from benchmarks, weekly tests, and quick checks. Feedback was given throughout lessons as well as at the end of units.

> During quick checks . . . I will let them know, "Great job showing your work," things like that and stress the importance of, "Hey, I don't know what's going on in your mind if you're not showing me. (Wells Initial Interview, 3/9/2016)

In addition, Mrs. Wells commented that, "[students] want an answer or they want to know how they're doing right then and there," (Wells Initial Interview, 3/9/2016) as a result she often tried to give students instant feedback on their mastery of concepts. When misconceptions were present, Mrs. Wells used small groups and repeated assessments to solidify learning.

> I'll pull them on the spot to try to clear [misconceptions] up as soon as possible. For instance, I'll once again do a quick check or an assessment and pull those students to figure out what their thinking is and why the misconception is there. (Wells Initial Interview, 3/9/2016)

After introducing new concepts and providing students with practice and performance opportunities during which they are given feedback, concepts must be spiraled back to in order to enhance retention and transfer. Games, anchor charts, and the use of small group instruction were Mrs. Wells's preferred

methods of ensuring the retention and transfer of mathematical concepts in her lesson planning process.

*Lesson plans.* Weekly lesson plans were collected over the eight weeks of data collection and were analyzed using the Weekly Document Observation Rubrics (see Appendix E) developed for this study. Lesson plans were analyzed in full week units, the only lessons analyzed for this case study were math plans because those were the plans submitted by Mrs. Wells. Table 4.1 is a summary of Mrs. Wells's lesson planning ratings across the study.

Lesson plan parts included in the format used at Ranger Elementary include *Learning Standards*, where teachers list the Texas Essential Knowledge and Skills (TEKS) covered by the lesson, *Daily Procedures*, which include warm-ups and reviews, a list of *Materials*, *Activities/Procedures*, *Differentiation* strategies, *Evaluation*, and *Academic Vocabulary.* Lesson plans were not scripted because they were discussed at the weekly team meetings. Rather, the plan served as a list of needed materials and possible activities to address the stated standards and objectives.

- *Standards*: The standards section of Mrs. Wells's lesson plans included the TEKS statements addressed by the lessons but did not reference prerequisite learning or connections and relationships across content areas. For this reason, the *Standards* rating for each week was *Basic*, which states, "*The teacher's plan includes specific standards and/or objectives for the lesson.*"
- *Gain attention*: Mrs. Wells used many varied ways to gain her students' attention for lessons. Several of the lessons began with a technology piece including StudyJams (weeks one and six), BrainPopJr videos (weeks three, four, five, and

Table 4.1

*Mrs. Wells's Weekly Lesson Plan Analysis*

| | Week 1 | | | | Week 2 | | | | Week 3 | | | | Week 4 | | | | Week 5 | | | | Week 6 | | | | Week 7 | | | | Week 8 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished |
| Standards | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Gain Attention | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| State Objectives | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Stimulate Recall | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Present Stimulus | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Guided Practice | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Independent Practice | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Performance | | | X | | | | X | | | X | | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Provide Feedback | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | |
| Assess Performance | | | X | | | | X | | | X | | | | | X | | | X | | | | | X | | | | X | | | | X | |
| Enhance Retention and Transfer | | | X | | | | X | | X | | | | | | X | | | | X | | | | X | | | | X | | | | X | |

seven), and SafeShare links (weeks two, six, and seven). These activities were tied to the objectives and integrated audio and visual stimuli to gain students' attention. In addition to the use of technology, Mrs. Wells also included a data collection activity ("Spin and Tally") in week eight that was used as both an attention grabber as well as a source of information and modeling throughout the lesson. For this reason, the *Gain Attention* rating for each week was *Proficient*, which states, "*The teacher's plan defines a stimulus that will be presented to gain the students' attention. Stimulus is related to the concepts being taught.*"

- *State objectives*: Student objectives were present in each of the lesson plans submitted by Mrs. Wells. Objectives were stated in terms of what the students would be doing ("Students will . . . ") during the lesson and what the expected outcome would be. In weeks five and six of the study the grade level was reviewing previously presented material for district benchmarking, two days (Thursday and Friday) of each of these weeks was spent doing review activities. During these days the student objectives ("Students will review concepts covered over the past six weeks to prepare for the benchmark") did not align with the stated standards (2.9G – The student is expected to read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.), for this reason the rating given during both weeks was *Basic*, which states, "*The objectives included in the teacher's plan are vague or unclear. Objectives reflect a low level of rigor or are not clearly connected to the performance.*" All other weeks' student objectives were closely tied to the standards and lesson activities presented. Examples of objectives include "Students

will make and identify 3D shapes, naming their vertices, faces, and edges"; "Students will identify polygon examples and nonexamples"; and "Students will learn to properly use a ruler in order to measure to the nearest inch." While these objectives include a variety of learning processes including identification, naming, application, and creation, there is a lack of alignment with preassessment as a result the degree of rigor and important learning can not be established. For this reason in weeks one, two, three, four, seven, and eight Mrs. Wells's rating for stating objectives was also *Basic*, which states, "*The objectives included in the teacher's plan are vague or unclear. Objectives reflect a low level of rigor or are not clearly connected to the performance."*

- *Stimulate recall*: A variety of methods were used in Mrs. Wells's lesson plans to stimulate her students' recall of information. These methods included referencing previously made anchor charts and notebook entries (weeks one, two, three, five, and eight), as well as using technology applications such as SafeShare links (weeks two and seven), BrainPopJrs (weeks four and six), and GoMath modules (weeks two and eight). References to previous notebook entries remind students of prior learning and provide a foundation for connected concepts. Technology applications present both visual and auditory stimulus for students to remind them of simpler concepts that have already been covered and often include questioning about prior learning that the teacher can use to help activate knowledge before presenting new information. For this reason, Mrs. Wells received a rating of *Proficient* in *Stimulate Recall*, which states, "*The teacher's plan connects current learning to past concepts and begin by activating existing knowledge and demonstrating how the*

*new information relates. Students are involved in the process by answering low-level questions."*

- *Present stimulus*: Mrs. Wells often used technology to present new concepts to her students in mathematics. Resources such as BrainPopJr (weeks one, three, five, and six), SafeShare links (weeks two and seven), and Promethean Board activities (week five) were used to introduce new material. Manipulatives and measurement tools were also used in weeks three, four, six and seven to give students hands-on experiences with the concepts being presented. Artifacts such as anchor charts (weeks one, two, and seven) and Foldables® (week six) were also used to introduce new information. Anchor charts, Foldables®, and technology applications used to present new concepts integrate previously taught concepts, examples, and discipline-specific vocabulary that build off of students' existing knowledge about a topic. These connections allow students to recognize how the concepts they are learning relate to and build upon one another. A rating of *Proficient* was given for each week in the *Present Stimulus* category of the rubric, which states, "*The teacher's plan uses both auditory and visual stimuli to present new information. Lesson plan is aligned with the stated objectives and builds off of the students' existing knowledge."*
- *Guided practice*: After new content is presented, there is a time of guided practice where the teacher and students work together to model and practice the skills that were introduced. Mrs. Wells used many strategies when guiding her students' practice with new information. She moved from concrete to abstract examples in geometry (week one), presented examples and nonexamples of concepts (week 3),

she used flip chart activities on the Promethean board to model and give students experience with using measuring tools (weeks two and seven), other technology applications such as GoMath (weeks five and seven) and Math on the Spot (week five) were also used to help practice concepts. In addition, Mrs. Wells also used teacher modeling and think aloud strategies (weeks seven and eight) as well as small group instruction (week six) and Foldables® (week five) for extra practice. While a variety of practice options were present in the lesson plans, there was not regular and explicit use of nonexamples during guided practice. The absence of nonexamples during guided practice would earn a rating of *Basic*, which states, "*The teacher's plan presents numerous accurate examples of the new content. Students will observe but will not be active participants in the process. Nonexamples are not presented during guided practice.*"

- *Independent practice*: Practice activities that students completed independently or in small groups without the direct assistance of the teacher included worksheets addressing concepts (weekly), Foldables® (weeks one and five), and GoMath modules (weeks two, three, and seven). These activities fell under the *Proficient* category, which states, "*In the teacher's plan students are given the opportunity to use the terms and examples presented without the direct support of the teacher but may be practicing in groups for support.*"
- *Performance*: Students were given multiple performance opportunities each week. Performance was often completed with the support of peers either in partners or small group settings (weeks one, two, four, six, and seven). The majority of performance assignments were worksheet-based (weeks one, two, and four-eight)

but also included scavenger hunts (week three), and web-based activities (week six). These activities most closely aligned with the *Proficient* rating under *Performance*, which states, "*The teacher plans to assess students individually or in groups on their level of mastery of the new content. Planned performance options are varied and closely tied to the stated learning objectives, Performance options are reflective of the learning outcome (intellectual, verbal, cognitive).*" In week three students were assessed using a district benchmark at the end of the week, because this assessment didn't tie directly to the stated standards and objectives, the rating given for that week in this section was *Basic*, which states, "*Teacher plans to assess students individually on their level of mastery of the new content. Only one performance option is planned for and is loosely tied to stated learning objectives.*"

- *Provide feedback*: Feedback from the teacher lets students know how they're doing in the learning process. Specific methods for providing feedback were missing from all of the lesson plans submitted, only in week three was there a general reference that stated, "observe and guide thinking." For this reason, a rating of *Unsatisfactory* was assigned to this category, which states, "*The teacher's plan does not include methods to provide feedback.*"
- *Assess performance*: Some performance opportunities are formally assessed and graded to establish student mastery of concepts. Mrs. Wells included several options to assess performance each week including homework worksheets (weekly), Foldables® (week six), GoMath modules (week two), and exit tickets (week four), as well as the survey project completed in week eight. These

assessment options aligned with the *Proficient* rating in this section, which states "*The teacher plans to assess students for mastery using varied performance assignments.*" During weeks three and five additional district benchmarks were given. These weeks were given the rating of *Basic* for their use of a single assessment option, this rating states, "*The teacher plans to assess students for mastery using a single performance assignment.*"

- *Enhance retention and transfer*: Activities used to enhance retention and transfer of concepts in Mrs. Wells's lesson plans collected for this study included games and center activities (weeks one and five-eight), additional enrichment activities (weeks two, four, and seven), and small group instruction (weeks five and six). This variety of activities aligned with the *Proficient* rating in this category, which states, "*The teacher's plan includes additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning.*" Week three lacked the mention of any additional activities to enhance the retention and transfer of information, as a result a rating of *Unsatisfactory* was assigned, which states, "*The teacher's plan does not include additional practice activities.*"

Analysis of the weekly lesson planning documents submitted by Mrs. Wells for math instruction demonstrate a level of proficiency in the majority of lesson parts including: gaining attention, stimulating recall, presentation of stimulus, independent practice, performance, assessing performance, and enhancing retention and transfer of concepts. Mrs. Wells showed a basic level of performance in the alignment of standards due to the fact that prerequisite learning and connections and/or relationships across

content areas were not addressed in her plans. A rating of *Basic* was also given for stating objectives due to a lack of preassessment the level of rigor and importance of learning could not be established. Similarly, a rating of *Basic* was given in the area of guided practice due to the absence of explicit and systematic use of nonexamples during the practice portions of the lesson plan. The only area in which Mrs. Wells received unsatisfactory ratings for her lesson plans was in the category of providing feedback. This was due to the fact that there was no mention of specific methods for providing feedback to students in Mrs. Wells's lesson plans.

*Classroom Observation One*

*Lesson narrative.* My first lesson observation in Mrs. Wells's classroom was completed on the Monday of our first week of data collection. I entered the back of the classroom through the interior door at 10:50 as the class was transitioning from writing into their math time. I took a seat at the large rectangle table at the back of the room and began typing notes on my laptop. Nineteen students, 10 males and nine females, were present in the classroom including four African Americans, 11 Hispanic, two White, and two students from two or more races.

Students had been researching important figures in American history. Mrs. Wells asked that the students find a stopping point on the Foldable® organizer they were working on, to put their Foldable® into their writing folder, and then to meet her at the carpet at the front of the room. Students complied with her directions and joined their classmates on the carpet at the front of the classroom where Mrs. Wells had pulled up StudyJams and a BrainPopJr.

Mrs. Wells began by asking her students, “What have we been learning about in math lately?” to which multiple students called out answers such as “Shapes, “Geometry,” “Two-D Figures.” Mrs. Wells confirmed all of the various answers and pulled up an activity on the Promethean Board from StudyJams that contained a screen full of figures, she and the students reviewed the number of sides and names for each of the two-dimensional shapes before Mrs. Wells pulled up a different tab on her browser that had a BrainPopJr video about congruent figures. Before watching the video Mrs. Wells told the students, “Today we’re going to expand our knowledge of shapes by learning about the words congruent, incongruent, and similar. Listen for these as we watch the BrainPop.” Mrs. Wells and her students paused and discussed concepts and vocabulary as they watched the video over congruent figures.

After the BrainPop, Mrs. Wells drew several shapes on her easel. Some shapes were similar others were congruent, still others were not polygons at all. She modeled her thinking about each shape and how they related to the other shapes. For example, when considering two small circles and a small square she said,

> I think the circles are congruent because they’re the same shape and they look like they’re the same size as well. When I look at the circle and the square through I know they’re not congruent because they’re different shapes, but I could say that they’re similar because they’re all small. They are all about the same size. (Wells Observation One, 3/7/2016)

After this modeling, Mrs. Wells navigated back to the StudyJam page where she projected several pairs of figures on the Promethean Board in multiple choice format. Mrs. Wells read each question and had students discuss their thinking about whether or not each pair of figures was congruent, incongruent, or similar. Both correct and incorrect answers were discussed.

Before dismissing students back to their desks Mrs. Wells gave them directions to find their Math Notebooks, scissors, and glue when they got back to their seats because they were going to be gluing in an activity where they could practice naming congruent and similar figures. Students were dismissed by row from the carpet to return to their desks and find their supplies. Mrs. Wells passed out papers and wooden rulers while students settled. Mrs. Wells used the document camera to model what would be put on the notebook pages for this entry. She began by writing the title "Am I Congruent?" in marker at the top of her page. She them worked with the students to define congruent and wrote the definition under her title – "congruent: same shape and size." Students were then given directions for cutting out their single tabs and gluing them into their notebooks. Pairs of figures were printed on the front of each tab, students were responsible for labeling the figures as congruent or similar under the tab. Mrs. Wells modeled by completing one example as a class and discussing what adjustments could be made if their Foldable® was labeled or glued incorrectly.

Students completed the remaining examples independently or in pairs at their table groups. While students were working Mrs. Wells walked around the room visiting with different groups to check on their progress and to ensure they were labeling correctly. General feedback such as, "Good job, they look nice," "Good job," and "Very nice" was given. Redirection and reteaching did not appear to be needed for this activity, the students were successful in labeling figures as congruent or similar. When students finished they shared their notebooks to check each other's work and to quiz each other on the figures.

Mrs. Wells closed the lesson by having students give her their eyes and ears. She said, “Show me thumbs up, sideways, or down, how you’re currently feeling about congruent figures.” The majority of students gave a thumbs up, two were sideways or down demonstrating a lack of understanding. These students she would meet with after lunch. Mrs. Wells told students to leave their notebooks out to dry while they were at lunch and then called students by groups to line up at the door.

*Lesson part analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Mrs. Wells’s lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.2.

*Foldable®.* The Foldable® created during this lesson was a collection of one-tabs that was purchased through an on-line collection of teacher resources. This particular set of Foldables® was designed to be dependent (i.e., glued into a notebook in order to be operational). They had a rectangle at the top of each example that served as the anchor tab where the Foldable® would be glued into the notebook. Below the anchor was a pair of two dimensional figures that students would compare and label as congruent or similar underneath on their notebook paper. Figure 4.5 is a student example of the Foldable® created during this lesson.

Table 4.2

*Mrs. Wells's First Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject* | Teacher connected concept (congruent/similar) to previous learning through introductory activities.<br><br>Teacher used technology (StudyJams and BrainPop) for audio/visual input and presentation of the content.<br><br>Notebook entry and Foldable® created for practice. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities with some variety. The lesson or unit has a recognizable structure.* | All activities at a single academic level (no differentiation).<br><br>The majority of students were engaged/involved in activities.<br><br>Pacing of activities kept students active in the learning process. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Distinguished | *The teacher presents a stimulus related to the content that focuses the learners' attention on the information being presented.* | StudyJam activities to review previously taught geometry concepts. |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging and relevant learning.~~* | |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | | Teacher stated that they were going to expand their knowledge of geometry by learning about congruent and similar. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Teacher and students reviewed previous learning about polygons and two-dimensional figures through a StudyJam activity and discussion. |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and builds off of the students' existing knowledge.* | BrainPop video was used to present and discuss new terms as well as connect to previous learning. |
| Guided Practice | Basic | *The teacher presents numerous examples of the new content. Students observe but are not active participants in the process. Nonexamples are not presented during guided practice.* | Teacher used modeling and think aloud strategies at the easel.<br><br>StudyJam activity on Promethean using gradual release of control<br><br><u>Outcomes</u>:<br>Intellectual and Verbal – Labeling<br>Physical – Promethean examples |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked independently or in small groups to complete notebook page with Foldables®.<br><br>Teacher moved from table to table to offer assistance.<br><br><u>Outcomes</u>:<br>Intellectual and Verbal – Labeling<br>Physical – Foldable® |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available.* | The Foldable® was the only performance option in this lesson. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions.* | Some feedback is general (“Good job”) but is offered throughout lesson through praise, corrections, and questioning.<br><br>Sharing Foldables® allowed for peer feedback. |
| Assess Performance | Basic | *Students are assessed for mastery using a single performance assignment.* | Single performance option (Foldable®) at the end of the lesson. |
| Enhance Retention and Transfer | | **Not observed during Lesson** | |

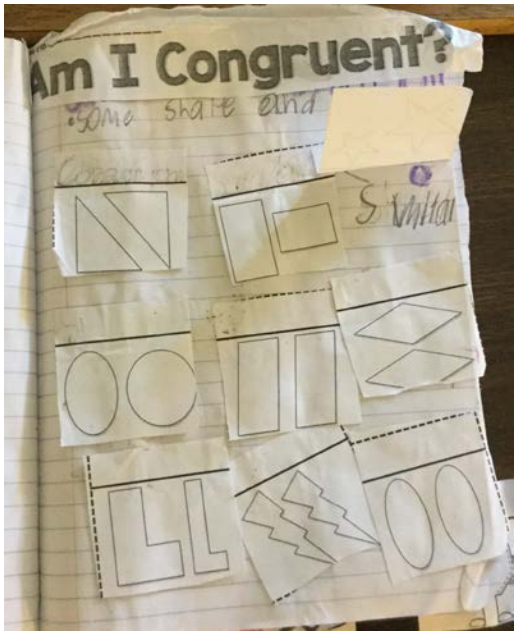



*Figure 4.5.* Student example of congruent and similar Foldables®

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory*, *Basic*, *Proficient*, or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.3.

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Wells were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Mrs. Wells asked a total of 15 questions during her lesson on congruent figures (see Table 4.4). Of those 15 questions, nine (60%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “How would you define the word *congruent*?” and “Are these figures

Table 4.3

*Mrs. Wells's First Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – 1-tab with pre printed figures on the front<br><br>Students write congruent or similar under each tab to describe the figures on the front. |
| Arrangement of Information | Basic | *The teacher organized the information effectively providing big ideas on the outside and details on the inside of the Foldable®. Different planes of the Foldable® could have been used more effectively.* | Big idea (visual) on the outside, details (vocabulary) on the inside.<br><br>Could have strengthened fold by having students justify their answer on one of the inside planes |
| Organization of Knowledge | Proficient. | *The teacher considered the specific learning outcomes when designing the Foldable®* | Students completed multiple examples in their notebook<br><br>Objectives:<br>Intellectual and Verbal – labeling<br>Motor – writing and manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students chose their own responses for each pair of figures |

congruent or similar?" The remaining six questions (40%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, "What doyou know about 2D figures?" and "How do you know?". Multiple answer questions require a higher level of thinking than single answer questions, as a result the six multiple

answer questions were further coded based on the type of connections required to answer them. Mrs. Wells made cognitive connections in three (50%) of the multiple answer questions she asked (e.g., "Can you add to that *(referring to a student definition of congruent)?*") the remaining three multiple answer questions (50%) made evaluative and implication connections related to the content (e.g., "How do you know these are similar?"). There were no process or affective connections made in Mrs. Wells's questioning during this lesson.

Table 4.4

*Mrs. Wells's First Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 9 | 60% |
| Multiple Answer | 6 | 40% |
| Question Connections | | |
| Cognitive | 3 | 50% |
| Affective | 0 | 0% |
| Process | 0 | 0% |
| Evaluation/Implications | 3 | 50% |

*Lesson analysis.* Mrs. Wells' lesson on congruent and similar figures made effective connections between prior learning, two dimensional shapes, and the relationships that can exist between two or more of those shapes. Mrs. Wells began by reviewing previous lessons and then quickly transitioned to the presentation of new content through the audio and visual input of a BrainPop video. The examples and nonexamples discussed during the BrainPop and following guided practice further solidified the students' understanding of congruent and similar figures. Mrs. Wells' questioning during the lesson was

predominately lower level due to the fact that the majority of questions had a single answer option. Upper level questioning centered on having students make cognitive and evaluative connections related to the content being covered. The use of Foldables® during the independent practice portion of the lesson allowed for students to complete multiple examples that could be later referenced in notebooks. The independent practice activity allowed for feedback both from the teacher and by peers as they discussed the relationships between figures. Students were able to demonstrate understanding and mastery of the content through the accurate completion of examples.

*Classroom Observation Two*

*Lesson narrative.* The second lesson observation completed in Mrs. Wells's classroom was on the Thursday of week five of data collection. I entered the back of the classroom through the interior hallway door and took a seat at the large rectangular table as the students filed in from visiting the restroom after their lunch and recess times. There were 19 students present for the lesson, 10 males and nine females. The students represented various backgrounds, four of the students were African American, 11 were Hispanic, two were White, and 2 students were two or more races.

As they came into the dimly lit classroom Mrs. Wells gave directions to come straight to the carpet to find a seat for math. Mrs. Wells reviewed carpet expectations--sitting on bottoms, hands to self, eyes looking and ears listening--before beginning her lesson over time. After reviewing expectations, Mrs. Wells stated her objective, "Can you move from a time written in numbers to a time drawn using a minute and hour hand? That's what we're going to practice today," she explained to her students. Next, Mrs. Wells

reviewed the work they had done in the past week learning about time by referencing her notebook and projecting several pages onto the Promethean Board. She visited a page with a large clock that had large numbers counting by fives on its face, a clock divided into fourths demonstrating quarter and half hours, and a three-tab Foldable® that they had completed the day before describing how long a second, a minute, and an hour are. After reviewing notebook pages Mrs. Wells and her class practiced counting by fives from zero, which she reminded them was "o'clock" in time talk, to sixty, which she said would help them with the work they would be doing together during the lesson.

Mrs. Wells then pulled up a page of clock faces paired with digital times on the Promethean Board using a SafeShare link. On this page she used the Promethean markers to demonstrate converting a time from digital to analog form. Mrs. Wells used a think aloud model to demonstrate her thinking saying,

> This time says 2:45 so I know that my hour hand will be pointing to the two, may be in between the two and the three (*draws hour hand using marker*). Now, when I come to the minutes I need to count by fives just like we practiced. I'm going to start at the 12, which stands for o'clock or zero. Now get ready because you all are going to tell me when I should stop to draw my minute hand. Ready? O'clock, five, ten (*students join counting by tens as she draws semi circles moving from one number to the next*), 15, 20, 25, 30, 35, 40, 45 (*STOP! the students yelled and pushed their hands out in front of them*). Very good, so we stopped at the nine, our minute hand will point to the nine. So a time of 2:45 looks like the hour hand pointing between the two and three and the minute hand pointing at the nine. Let's practice some more. (Wells Observation Two, 4/14/2016)

After completing three examples herself, Mrs. Wells had several students volunteer to come up to model the process with their classmates counting along and telling them when to stop then drawing the minute and hour hands. Mrs. Wells offered support through praise and encouragement to volunteers and their classmates throughout the guided practice portion of the lesson.

Following the instructional and guided practice portions of the lessons Mrs. Wells gave directions for her students to return to their desks and find their math notebooks along with scissors and glue for the independent practice portion of the lesson. As students settled into their desks and found their supplies Mrs. Wells passed out two pre-printed three-tab dependent folds to each student. On the front of each tab was a digital clock with a time printed on it. Mrs. Wells gave directions for gluing the anchor tab into their math notebook and modeled in her own notebook using the document camera. She then passed out pieces of paper that had clock faces without minute and hour hands. Mrs. Wells modeled using the strategy presented during guided practice to convert the time on the digital clock into analog form by drawing minute and hour hands on her blank clock face. She also took the time to discuss writing and gluing strategies when it comes to Foldables® and notebooking, "We want to write our minute and hour hands on our clocks before gluing them under the flap," she said. "Because if you glue it first, it will be hard to write on. We have experience with this, remember?" At which point she gave me a knowing glance and her class all chuckled, clearly they had some positive and negative experiences with using Foldables® and liquid glue in their notebooks, but I appreciated that she took this moment to think through the process with them.

After working an example and asking if there were any questions she allowed the students to complete their remaining practice problems independently or as a table group if they chose to. While students were working, Mrs. Wells walked around the room checking the students' work and ensuring that they were drawing their minute and hour hands to accurately represent the digital time shown on the front of the tab. Students could be seen bobbing their heads as they skip counted by fives and several audibly told themselves to

stop as they reached the correct time on their analog clock. Mrs. Wells ended up sitting with one particular student during this time to help him through the process. She sat with her back to the wall so that she could still see the rest of the class while aiding this particular student.

Following about 15 minutes of independent work time, students were asked to give their attention to Mrs. Wells as they prepared to move to specials. She instructed them to leave their notebooks open on their desks to this page so that they could dry and so that she could come around and check the work they had done while they were at PE. She then called students by table groups to line up at the door.

*Lesson part analysis.* The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Mrs. Wells's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.5.

*Foldable®.* The Foldables® created during this lesson were two three-tab Foldables® that were purchased through an on-line collection of teacher resources. This particular set of Foldables® was designed to be dependent (i.e., glued into a notebook in order to be operational). They had a rectangle at the top of each example that served as the anchor tab Where the Foldable® would be glued into the notebook. Below the anchor was a digital clock showing a different time on each tab. Students would convert that time to analog by drawing minute and hour hands onto separate blank clock faces that would then be glued underneath each of the digital time tabs onto the paper of their notebook. Figure 4.6 is a student example of the Foldables® created during this lesson.

Table 4.5

*Mrs. Wells's Second Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject* | Teacher connected the skill of converting from digital to analog to skip counting by fives.<br><br>Teacher modeled using think aloud procedures and offered repeated practice of a step-by-step strategy |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities with some variety. The lesson or unit has a recognizable structure.* | All activities at a single academic level, no differentiation.<br><br>The majority of students were engaged/involved in activities<br><br>Pacing of activities kept students active in the learning process |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Basic | *The teacher presents a stimulus that gains students' attention. Students are attentive, but not actively engaged.* | Teacher reviewed carpet expectations after coming in from lunch and recess. |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging and relevant learning.~~* | Converting from digital (number) time to analog (clock time using hands). |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Teacher reviewed previous lessons by referencing notebook entries on the clock face, quarter and half hours, and how long is a second, minute, and hour |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and builds off of the students' existing knowledge.* | SafeShare Promethean activity<br><br>Teacher made thinking "visible" by thinking aloud and modeling the process of counting by fives using a clock face. |
| Guided Practice | Basic | *The teacher presents numerous examples of the new content. Students observe but are not active participants in the process. Nonexamples are not presented during guided practice.* | Teacher used modeling and think aloud with an activity on the Promethean board.<br><br>Students helping teacher decide when to stop, then students volunteering to work examples on the board<br><br><u>Outcomes</u>:<br>Intellectual – Converting time to analog by adding hands to clock face<br>Verbal – Think aloud during Promethean activity<br>Physical – Drawing clock hands on Promethean examples |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked independently or in small groups to complete notebook page with Foldables®.<br><br>Teacher moved from table to table to offer assistance.<br><br>Outcomes:<br>Intellectual – Converting time to analog by adding hands to clock face<br>Verbal – Table discussions about process, defending hand placement choices<br>Physical – Drawing clock hands on Foldable® |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available.* | Foldable® only performance option |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions.* | Some feedback is general (“Good job”), but is offered throughout lesson in the form of praise, correction, and questioning.<br><br>Sharing of Foldables® allowed for feedback from peers. |
| Assess Performance | Basic | *Students are assessed for mastery using a single performance assignment.* | Single performance option (Foldable®) at the end of the lesson. |
| Enhance Retention and Transfer | | **Not observed during Lesson** | |

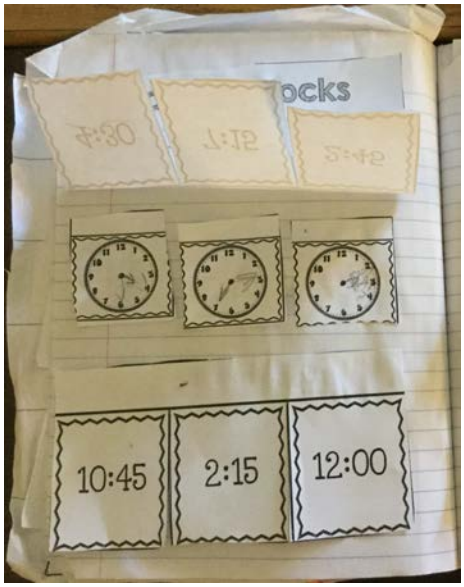



*Figure 4.6.* Student example of time conversion Foldables®.

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E) This tool rated the Foldables® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.6.

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Wells were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Mrs. Wells asked a total of 12 questions during her lesson on converting digital time to analog (see Table 4.7). All 12 (100%) of the questions asked were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “The short hand [on a clock] stands for what?” and

"How many hours have past?" There were no multiple answer questions asked during this lesson.

Table 4.6

*Mrs. Wells's Second Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – two 3-tabs with digital times on the front.<br><br>Students glued separate clock faces underneath with matching analog time drawn on. |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside* | Connection between digital and analog forms is clear using this type of fold with examples of each.<br><br>Content is easily accessible and ideal for review. |
| Organization of Knowledge | Proficient | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students completed multiple examples in their notebook.<br><br><u>Objectives</u>:<br>Intellectual – Converting between digital and analog times<br>Verbal – Discussion of examples with peers and teacher<br>Motor – drawing of minute and hour hands; manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students completed their own analog clock faces without direct teacher assistance. |

Table 4.7

*Mrs. Wells's Second Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 12 | 100% |
| Multiple Answer | 0 | 0% |
| Question Connections | | |
| Cognitive | 0 | 0% |
| Affective | 0 | 0% |
| Process | 0 | 0% |
| Evaluation/Implications | 0 | 0% |

*Lesson analysis.* The majority of Mrs. Wells's lesson on the conversion of time from digital to analog form centered on the step-by-step teaching and modeling of the conversion process. Mrs. Wells effectively used a think aloud process and involved her students in time conversions by having them count along as she moved from one number to the next on the clock face and integrating physical movement by having them push their hands in front of them and yell, "STOP!" when she had reached the desired number of minutes. Students were asked to further participate when they came up to the Promethean Board to work examples of their own. Through this process they were able to give and receive feedback on the process before being required to perform independently. Mrs. Wells' questioning during this lesson consisted solely of lower level single answer questions. The absence of multiple answer questioning suggests that there was little to no upper level connections made to cognitive, affective, processing, and evaluative thinking. The use of Foldables® for independent practice allowed for additional practice with the process of converting time while also providing an artifact of the learning that took place during the lesson. Students were able to demonstrate their understanding and mastery of the

process independently or as pairs through the completion multiple examples of time conversions.

*Classroom Observation Three*

*Lesson narrative.* My final lesson observation in Mrs. Wells's classroom was on Monday of week seven of data collection. I entered the back of the classroom through the interior door, sat at the back of the classroom at the large rectangular table, and began taking notes as Mrs. Wells and her students wrapped up their writing lesson for the day. Students were working independently on a draft as Mrs. Wells conferenced with individuals at their tables. There were 19 students present for this lesson, nine males and 10 females. Four of the students were African American, 11 were Hispanic, two were White, and 2 represented two or more races. After about five minutes of conferencing, Mrs. Wells asked for her students' attention and gave them directions for transitioning into math. "Boys and girls, give me your eyes and ears." she said, "If you will find a stopping point in your current piece and put your draft into your writing folder, I'd like for all of you to join me on the carpet for our math lesson. I'm going to count down from 10 and then you should be on the carpet." She slowly began counting down from ten to zero as students put their work away and started moving to the carpet at the front of the room. Once all students were settled on the carpet she began.

"This week we'll be moving from our unit on time; we spent a lot of time on time!" Mrs. Wells began, "Now we're going to learn about graphs." There was an audible excitement among the students, who were presumably excited about doing something new. "We'll be looking at graphs in detail this week and next week and then you'll be able to

create your own graphs with information that interests you." Mrs. Wells continued, then she added, "We'll be talking about specific vocabulary this week. Today, I want you to focus on the words *title* and *key*." This objective statement led several students to comment that they had seen graphs with titles before on their Excel math warm ups. Mrs. Wells praised this connection then focused the students' attention on the Promethean Board where she had pulled up a BrainPopJr on graphing. She reminded the students of the two vocabulary words they were to be listening for and then they viewed the video as a class, pausing and discussing as they went. The video contained several examples of bar graphs and pictographs that were analyzed by the class looking specifically at titles, keys, and identifying values for each category.

Following the BrainPop, Mrs. Wells gave students directions for returning to their seats where they were to find their math notebooks, scissors, and glue. As students moved back to their seats and found their supplies, Mrs. Wells passed out several small pieces of paper–an example of a tally chart, an example of a bar graph, and an example of a pictograph to glue into their notebooks as reference. Mrs. Wells projected her own notebook onto the Promethean Board using the document camera so that students had a model to follow. She began by writing the word *Graphing* on the title line with a marker and then turned her attention to the anchor examples she passed out to the students. She had them glue each of the examples to the page and then began discussing the similarities, differences, and uses for each of the graphs. It was in her discussion of the tally chart that she began to see some confusion and misunderstanding. Students were not able to accurately tell what the tally chart was used for so Mrs. Wells modified her plan and directed the students' attention to her easel where she had a pad of chart paper.

The students were having a difficult time connecting tally charts to other graphic representations of data so Mrs. Wells took the opportunity to model the process a researcher might follow. She had students brainstorm types of milk they could get in the cafeteria (as lunch was quickly approaching). The students responded with chocolate, white, and strawberry milk. Mrs. Wells made a t-chart on her paper showing milk types on one side and recorded student votes on the other. She surveyed the class about their preferred type of milk giving one option at a time and having students raise their hands. For each option she modeled tallying her data by the corresponding milk type on the chart. Students were engaged in the process and suggested different ways that the data could be modeled as a bar graph and pictograph. While this mini-lesson on data collection was not a part of Mrs. Wells' original lesson plan, it appeared to be necessary for the understanding of her students.

After clarifying the use of the tally chart, Mrs. Wells completed her discussion of the types of graphs that they glued into their notebooks pointing out the title and key on each of the examples. Mrs. Wells then passed out a half sheet of white paper to each of her students and had them fold it in half hotdog then in half again hamburger to create a two-tab independent Foldable®®. They wrote the word *title* on the outside of one tab and the word *key* on the outside of the other and cut between the two to make them independent of one another. The last five minutes of the lesson was spent coming up with a class definition of each of the words and color coding examples before tables were called for lunch. The students left their notebooks and two-tab Foldables® on their desks to continue their discussion and be glued after lunch.

*Lesson part analysis.* The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Mrs. Wells' lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.8.

*Foldable®.* The Foldable® created during this lesson was a two-tab independent fold created by Mrs. Wells to meet her specific needs for this lesson. This particular Foldable® is designed to be independent, that is it does not have to be glued into a notebook in order to be operational. Students were given a blank half sheet of paper that they folded in half hotdog then hamburger to create two tabs when cut along the crease. A single vocabulary word was written on the outside of each tab – *title* on one *key* on the other. On the inside of each tab students wrote a class-created definition of the word and glued in an example that they then color-coded to identify an example of each on a graph. Figure 4.7 is the teacher example of the Foldable created during this lesson.

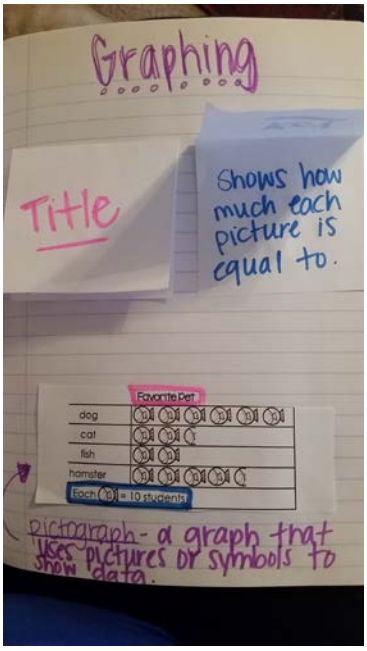



*Figure 4.7.* Teacher example of Title and Key Foldable®.

Table 4.8

*Mrs. Wells's Third Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject* | Teacher introduced graphing unit using a BrainPop video.<br><br>Teacher connected to common experience of weekly practice with graphs on Excel math. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities, with some variety. The lesson or unit has a recognizable structure.* | All activities at a single academic level, no differentiation present.<br><br>Teacher took the time to address a misconception/lack of understanding about tally charts by collecting class data in order to model the process of data collection |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Basic | *The teacher presents a stimulus that gains students' attention. Students are attentive, but not actively engaged.* | Teacher told students that they would be moving from unit on time to new unit on graphing. |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging and relevant learning.~~* | Teacher focused student listening for specific vocabulary – title and key |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and* | Connection made to weekly examples in Excel math warm up. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | *demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and builds off of the students' existing knowledge.* | Watched BrainPopJr video over graphing. Paused and discussed examples and vocabulary throughout. |
| Guided Practice | Proficient | *The teacher integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples are then introduced to focus the students' attention on the important characteristics of the concept. Students are actively involved in the processing of examples and nonexamples.* | Students struggled connecting data collection with tally chart to bar and pictographs.<br><br>Teacher modeled process of collecting data from class and converting it into a visual.<br><br><u>Outcomes</u>:<br>Intellectual – Asking questions, collecting data<br>Verbal – Explaining process of data collection<br>Physical – Creation of t-chart with class data |
| Independent Practice | | **Not observed during Lesson** | |
| Performance | | **Not observed during Lesson** | |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions.* | Teacher used questioning and observations of students to identify areas where students were struggling and modified lesson as a result. |
| Assess Performance | | **Not observed during Lesson** | |
| Enhance Retention and Transfer | | **Not observed during Lesson** | |

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.9.

Table 4.9

*Mrs. Wells's Third Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – 2-tab independent with vocabulary words on the outside |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside* | Big idea (vocabulary words) on the outside, details (definition and example) on the inside of each tab. |
| Organization of Knowledge | Proficient. | *The teacher considered the specific learning outcomes when designing the Foldable®* | Students glued multiple examples of graphs into their notebook for reference.<br><br><u>Objectives</u>:<br>Intellectual and Verbal – define "title" and "key"<br>Motor – manipulation of Foldable® tabs and placement of example and definition |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students created their own definition for each of the vocabulary words. |

*Questioning.* Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Wells were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Mrs. Wells asked a total of 17 questions during her introductory lesson on graphing (see Table 4.10). Of those 17 questions, 15 (88%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “How many more voted for bananas than grapes?” and “How many of you are familiar with a pictograph?” The remaining two questions (12%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions fromthis lesson include, “Can you tell me how to collect data?” and “What kind of picture could I use to help represent my data?”. Multiple answer questions require a higher level of thinking than single answer questions, as a result the two multiple answer questions were further coded based on the type of connections required to answer them. Mrs. Wells made a cognitive connections in one (50%) of the multiple answer questions she asked (e.g., “What kind of picture could I use to help represent my data?”) the remaining multiple answer question (50%) made a connection to the process of data collection (e.g., “Can you tell me how we collect data?”). There were no affective or evaluative connections made in Mrs. Wells’s questioning during this lesson.

*Lesson analysis.* Mrs. Wells’ introductory lesson on graphs, while missing several parts of an ideal lesson was effective in reaching her objective for students to understand the definition and purpose of a graph’s *title* and *key*. Beginning with engaging students through the audio and visual input of a BrainPop video along with the resulting

Table 4.10

*Mrs. Wells's Third Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 15 | 88% |
| Multiple Answer | 2 | 12% |
| Question Connections | | |
| Cognitive | 1 | 50% |
| Affective | 0 | 0% |
| Process | 1 | 50% |
| Evaluation/Implications | 0 | 0% |

discussion proved effective for introducing the concept of graphs in addition to their parts. Mrs. Wells and her students then began to integrate artifacts into their notebooks, but this proved a little premature when through the use of questioning Mrs. Wells realized that several of her students were still unclear about the purpose of tally charts. A good portion of her lesson was then spent demonstrating the data collection process through questioning and creation of a tally chart, which was later converted into graph form. This guided practice and modeling really seemed to solidify the students' understanding of the content and allowed them to move on to the Foldable® artifact for the vocabulary of *title* and *key.* The presentation of vocabulary, creation of a class definition, and the inclusion of visual examples on the Foldable® provided shared experience and practice that could later be referred back to when needed throughout the unit.

*Foldable® Reflections*

A Foldable® Reflection form (see Appendix H) was sent by email to Mrs. Wells every two weeks to collect data on Foldable®® usage in her classroom. Included on the

reflections were questions about the subject areas and standards (TEKS) that were taught using Foldables®, the lesson part during which the Foldable® was used, the types of knowledge that were demonstrated through the Foldable®, as well as open-ended questions on planning, demonstration of knowledge and an opportunity for general reflection over the Foldables® used in the previous two weeks of teaching.

Mrs. Wells completed three of the four Foldable® Reflection forms as the final survey was sent after she had left for maternity leave. Table 4.11 summarizes the closed response data collected using the Foldable® Reflection form. Analysis of short answer responses follows.

Table 4.11

*Mrs. Wells's Foldable® Reflection Responses*

| Week | Subject Areas | Lesson Parts[a] | TEKS | Types of Knowledge |
|---|---|---|---|---|
| Week 2 | Reading and Math | GA, SO, GP, IP, P | Math: 2.8 B & C; 2.3 A & D<br>ELA: 2.24 B; 2.25C; 2.26; 2.27 | Intellectual, Verbal, and Cognitive |
| Week 4 | Writing and Science | GP, P, AP | Science: 2.9 B; 2.10 A<br>ELA: 2.17 A-E | Intellectual and Verbal |
| Week 6 | Writing, Math, and Spelling | IP, P, AP | Math: 9G<br>ELA: 2.17 A-E | Intellectual, Verbal, and Cognitive |

[a] - Gain Attention (GA), State Objectives (SO), Guided Practice (GP) Independent Practice (IP), Performance (P), Assess Performance (AP)

When asked to reflect on her planning processes while using Foldables®, Mrs. Wells found that the majority of the Foldable® that she planned for math centered on vocabulary. "I often use Foldables® to present new information to students," she reflected, "in order to gain [their] attention" (Wells Foldable® Reflection, 3/21/2016). She found when she used the Foldables® to present new information that would be stored

in the students' notebooks that, "students are able to use their notebooks and remember their own learning through their tactile activities and remember their connection to newly taught vocabulary and examples" (Wells Foldable® Reflection, 3/21/2016).

*Planning.* When asked to reflect on her planning processes while using Foldables®, Mrs. Wells found that the majority of the Foldable® that she planned for math centered on vocabulary. "I often use Foldables® to present new information to students," she reflected, "in order to gain [their] attention" (Wells Foldable® Reflection, 3/21/2016). She found when she used the Foldables® to present new information that would be stored in the students' notebooks that, "students are able to use their notebooks and remember their own learning through their tactile activities and remember their connection to newly taught vocabulary and examples" (Wells Foldable® Reflection, 3/21/2016).

*Foldables® in math.* Students were able to demonstrate their knowledge of content through Foldables® in several ways over the duration of the study. Mrs. Wells found that the inclusion of pictures of examples and nonexamples, specifically during their unit on geometry, "allowed students to test their understanding" (Wells Foldable® Reflection, 3/21/2016). Mrs. Wells felt that the Foldables® created, specifically in math, were acceptable for teaching basic concepts and vocabulary but that they lacked the depth and rigor needed by her higher achieving students. "I feel like [the Foldable®] was adequate, but too simplistic for my higher students," she commented. Mrs. Wells went on to add, "I would like to brainstorm ways in which I can help them think on a higher level rather than simply stating whether the shape fit into a particular category or not" (Wells

Foldable® Reflection, 3/21/2016). Time during the math block also posed a challenge when using Foldables®. Mrs. Wells commented that, “Some of the work that was included into our notebooks was not our best work, as we have such a limited amount of time for our math block with the inclusion of Reasoning Minds, Excel/LoneStar Math, and our regular math content for the week” (Wells Foldable® Reflection, 3/21/2016).

*Foldables® in other content areas.* Mrs. Wells found that using Foldables® was most effective for her and her students in the context of writing. “Foldables® this week were a fantastic inclusion into our writing and science lesson plans.” she stated. “I love the ability of students to organize their thinking and writing in our BME (Beginning, Middle, End) Foldable® for clarity and focus. This is one of my favorite ways to use Foldables®,” she added, “to incorporate them somehow into the writing process.” Mrs. Wells stated that, “giving students a concrete way to plan, organize, and think about their writing has really improved their final products” (Wells Foldable® Reflection, 4/5/2016)

In science, students created a project fold for research that was conducted on animals and their adaptations. Mrs. Wells commented that by using a Foldable® as a final product students were able to “present their knowledge in a nice orderly fashion in which they were proud and showed their knowledge on the subject” (Wells Foldable® Reflection, 4/5/2016) In writing, Mrs. Wells found that the use of Foldables® in the planning process helped students to “organize their ideas sequentially . . . which helped their writing of sentences and sequencing of ideas” (Wells Foldable® Reflection, 4/20/2016).

Finally, Mrs. Wells reflected on the use of Foldables® as a method for the presentation and assessment of projects. “Students were more willing to include their

information in this particular way, rather than simply writing down facts or sentences in their notebooks." She went on to add, "It was quite interesting to see how much pride and patience they put into their work when it was in this format" (Wells Foldable® Reflection, 4/5/2016).

*Final Interview*

The final piece of data collected from each participant in this study was an interview in which the participants were asked to reflect on their planning and teaching processes with Foldables® as well as their perceived benefits for students. Mrs. Wells' final interview was conducted on Monday afternoon during our seventh week of data collection, the day before her scheduled delivery.

First, Mrs. Wells was asked to reflect on her thinking about content when Foldables® were involved. She found that Foldables® made her more aware of the content that was being taught.

> I think the extra time [it takes] to figure out what's the purpose of the Foldable® and how it is going to benefit the students in the best way . . . we want to make it purposeful and I feel like it kind of helps guide instruction in that way. (Wells Final Interview, 5/2/2016)

While she was "not a fan of how long it takes on second graders," (Wells Final Interview, 5/2/2016) Mrs. Wells did comment that she felt the use of Foldables® made students more aware of the standards that were being taught. Mrs. Wells found that Foldables® were most effective in her instruction at the beginning of lessons when introducing new concepts and vocabulary as well as during independent practice times when students could collaborate with classmates.

Mrs. Wells was also asked to reflect on the impact she felt that Foldables® had on her students. She commented that Foldables® seemed to help with remembering concepts and presenting examples, specifically she felt that her lower level learners benefitted from Foldables® the most. Foldables® "put things into a concrete form for them," she commented,

> They really understand it instead of just hearing and seeing my examples. The lower students see it, do it, hear it, practice it, and so it's all of those things combined for understanding. (Wells Final Interview, 5/2/2016)

In addition to benefitting her struggling learners, Mrs. Wells found that the creation of Foldables® and their inclusion in a notebook benefitted her students as a whole.

> The biggest benefit would be . . . having all that information collected together in that notebook for students to go back and reference and that's in any subject area. It's something they created. They understand. They know what it is. It's not just my anchor chart up on the board. (Wells Final Interview, 5/2/2016)

Similarly, Mrs. Wells found that having student-created Foldables® available for reference benefitted her students,

> We focus a lot on vocabulary and examples. For [students] to go back and reference those materials has been awesome when previously I hadn't done that before . . . Seeing them understand it because it's their writing, it's their examples, has really shown me that may be I need to let go of the reigns and allow them . . . now I'm seeing them pull [their notebooks] out a lot more frequently to remind themselves what elapsed time is or what is multiplication or whatever we're doing. (Wells Final Interview, 5/2/2016)

One of Mrs. Wells' most powerful connections made during her final interview was when she discussed the way the use of Foldables® had guided her lesson delivery. "It helps them and I'm the same way. I don't know why it didn't click. When I write, I remember. When they write, they remember" (Wells Final Interview, 5/2/2016).

*Case Study Analysis*

The case study analysis section will serve as the synthesis of all of the individual data collected and presented for the case study. This section will discuss how each piece of data collected from Mrs. Wells over the period of the study contributes to her case as a whole and how the data in this case relates to the study questions – How does the creation of Foldables® affect teacher understanding of standards? How does the use of Foldables® affect the way a teacher plans for instruction? and How does the use of Foldables® affect the way a teacher instructs?

*How does the creation of Foldables® affect teacher understanding of standards?* As stated in her initial interview, standards are always the starting point for Mrs. Wells's planning and preparation of math lessons. The district scope and sequence along with the state testing calendar dictate the time she has to spend on each unit and how those skills will be assessed. The majority of the lessons planned and presented by Mrs. Wells to her teammates were activities that had been used in previous years or resources that were perceived to be effective in previous units. For this reason, Mrs. Wells did not demonstrate any changes in her depth of understanding of the standards through Foldables® in her interview responses.

In addition to interview responses, eight weeks of lesson planning documents were collected over the duration of this study. In her lesson plans Mrs. Wells referenced standards and identified student objectives for each lesson but both her stated standards and objectives were rated at a *Basic* level using the Weekly Document Observation Rubrics (see Appendix E). Mrs. Wells's standards lacked the mention of prerequisite skills and connections within and across content areas. Similarly, her stated objectives

lacked any form of preassessment, as a result the level of rigor and challenge could not be established. Ratings of *Basic* were given each of the eight weeks in these two areas. Based on this lesson planning data, Mrs. Wells did not demonstrate any changes in her depth of understanding of the standards as a result of her Foldable® usage.

Questioning data collected during lesson observations also contributes to our knowledge of Mrs. Wells's depth of understanding and thinking about the standards being presented. In all three of the lessons observed for this study Mrs. Wells relied heavily on single answer questioning, which generally requires lower levels of thinking and application. In her first lesson on congruent figures, 60% of her questions required a single answer. The questioning in Mrs. Wells's second lesson over converting time consisted solely of single answer questions. Her final lesson over graphing and data collection contained 88% single answer questions. Questioning in Mrs. Wells's lesson delivery lacked upper level thinking and required very few cognitive, affective, process, and evaluative connections, which suggests that the level of understanding, or at the very least the level of rigor of standards is consistently low. Similar to interview and lesson planning information, the questioning data in Mrs. Wells's observations does not demonstrate any changes in her depth of understanding of the standards over the period of the study.

*How does the use of Foldables® affecct the way a teacher plans for instruction?* Mrs. Wells commented in her final interview that the use of Foldables® caused her to think more deeply about the purpose of the lessons, anchors, and activities that she planned. The use of Foldables® caused her to consider the content-specific vocabulary needed for success in different units as well as ways that examples of concepts could be

demonstrated visually. The creation of Foldables® required Mrs. Wells to think more intentionally about specific concepts examples and vocabulary needed for the understanding of mathematical ideas during her planning process. She found that she generally used Foldables® for knowledge-level applications and lower levels of thinking such as vocabulary words and definitions or labeling examples.

In addition to interview data, eight weeks of lesson plans were collected over the period of this study. The format and content of Mrs. Wells's lesson plans remained consistent throughout the entire data collection period. She demonstrated overall proficiency in her lesson planning through all eight weeks. Specific areas rated as having a *Basic* level of performance were *Standards, Stating Objectives,* and *Guided Practice.* The *Standards* section lacked prerequisite skills and cross-curricular connections, *Stating Objectives* lacked preassessment to establish rigor and challenge, and *Guided Practice* was missing the systematic use of nonexamples. In addition, Mrs. Wells received a rating of *Unsatisfactory* in the area of *Providing Feedback* as a result of the lack of specific methods for communicating with students about their progress. The consistency and lack of change through the eight weeks of data collection may be a result of team planning and the use of a prescribed format with required lesson parts. As a result, there cannot be any conclusions drawn from submitted lesson plans about changes in Mrs. Wells's planning processes as a result of using Foldables®.

Overall, Mrs. Wells's usage and integration of Foldables® into her lessons demonstrated a level of proficiency in all three observed lessons. Foldables® were used during the independent practice and direct instruction portions of her lessons and all three were glued into students' math notebooks as evidence of their learning and practice

experiences. The shift from pre-made purchased Foldables® in her first two lessons to a teacher-created fold in her third lesson suggests that Mrs. Wells became more comfortable and confident in her creation and use of Foldables® through the weeks of the study and began to own the process of fitting a Foldable® to the specific content being covered during her planning processes.

In addition to improvements in the consistency and clarity of directions, Mrs. Wells demonstrated growth in her confidence to create her own Foldables®. Lessons one and two involved the creation of Foldables® that were purchased pre-made from an on-line teacher resource. They were both good fits to the content being covered and provided an engaging method for practice and evidence of learning but neither was created by Mrs. Wells. For lesson three, Mrs. Wells was unable to find a Foldable® that met her specific needs for introducing a new unit on data analysis and graphing so she created her own to fit the specific content she was covering. This independent creation of a Foldable®, while seemingly insignificant, suggests that Mrs. Wells found Foldables® to be an effective method for delivering new content to the point that she saw fit to create her own version when one was not readily available.

Finally, Mrs. Wells found that students were more willing, committed, and motivated to produce high quality work when a Foldable® was used rather than a worksheet or notebook entry. Mrs. Wells found that the novelty of demonstrating and presenting knowledge in a new and different way was motivating and challenging to her students in a way she did not expect. For this reason, Mrs. Wells began to look for additional opportunities to integrate Foldables® into not only lesson delivery and instruction but also into the assessment of mastery.

*How does the use of Foldables® affect the way a teacher instructs?* In her final interview Mrs. Wells commented that the inclusion of Foldables® into a content-specific notebook was the biggest instructional change brought about by the Foldable® integration required by this study. During our initial summer training on the creation and use of Foldables®, notebooks were presented as a method for storing learning artifacts such as notes, anchors, and Foldables® produced during lessons and periods of practice. As a result, Mrs. Wells adopted the strategy of notebooking and began the process of archiving the learning done in each unit through the creation of notebook entries that students could refer back to in review as well as a way to stimulate recall of previous learning.

Classroom observation data also contributed important information to Mrs. Wells's instructional case. While only three lessons were observed during the course of this study, changes in Mrs. Wells's instructional processes and delivery of information were evident in the way she gave directions for the construction of Foldables®. In her initial lesson on congruent figures Mrs. Wells sometimes struggled with consistently using terminology (i.e., referring to the anchor as an anchor, tab, and flap) these inconsistencies led to some confusion in the folding and gluing of Foldables® into math notebooks. By the third lesson observation Mrs. Wells was much more consistent and confident in the directions she gave for folding and her students had improved in their ability to follow her directions as well.

Mrs. Wells's Foldable® reflection data offered insights into her experiences with Foldables® both in math as well as other content areas. In the area of math, Mrs. Wells stated that Foldables® seemed to be very helpful for her struggling students but found it

difficult to challenge her higher learners using Foldables®. The use of Foldables® as a reference back to previous learning and for recalling mathematical concepts was one of the biggest benefits for math instruction that Mrs. Wells reflected on.

While the use of Foldables® in a notebook for mathematical reference purposes was useful in her own planning and lesson delivery, Mrs. Wells felt that Foldables® were most beneficial to her students as authors. There were several weeks during data collection in which the grade level used a three-tab beginning, middle, and end (BME) Foldable® to help students organize their thoughts during the planning and drafting stages of writing. Mrs. Wells felt that using a Foldable® as a graphic organizer for telling stories led to more effective final products. The use of a Foldable® as a planning tool in the writing process changed the way Mrs. Wells thought about the writing process and strengthened her understanding of the process used by her students when planning and drafting their writing pieces.

*Themes*

In the analysis and synthesis of the data collected from Mrs. Wells during this study several themes emerged including the themes of student engagement, creation, and the ability to reference.

The first theme was the theme of engagement. In her planning and lesson delivery Mrs. Wells looked for ways to engage her students with the content and concepts being taught. Engaging students came in many forms including technology applications such as BrainPop and StudyJams, interactive activities such as Promethean Board flip charts and GoMath modules, content specific games, and notebook entries that often integrated Foldables®. Mrs. Wells believed that students who were engaged and involved in

learning activities that they enjoyed would learn and retain more of the information presented. The theme of engagement was further evident in Mrs. Wells's lesson observations. During each of the lessons Mrs. Wells looked for ways to involve her students in direct instruction by using hand motions, chants, and available technology resources. The Foldables® used in lessons served as a hands-on method for practice and organizing information around concepts. In each lesson students were encouraged to contribute examples as well as engage in conversation while working on their Foldables®. Student engagement was also seen in Mrs. Wells's interview and reflection data as she recalled her students' excitement and commitment to the creation of project folds as well as the ease of recall when resources such as student notebooks and Foldables® were available.

In addition to student engagement, Mrs. Wells made several references to the power of product development during her final interview. She found that her students were more engaged and committed to their learning when they had a product that they made. Mrs. Wells found power in the act of students writing information rather than simply discussing concepts and reading information off of a teacher-created anchor chart. When her students were involved in the creation of a product, in this case Foldables®, Mrs. Wells found that they were more motivated, engaged, and likely to recall the information taught.

A third theme that emerged in Mrs. Wells's case study was the theme of using Foldables® as a reference. Mrs. Wells found great success with using a math notebook in her classroom. This theme was seen in practice during the second lesson observation when Mrs. Wells used her own notebook during her introduction to stimulate recall and

remind students of what they had learned previously about time and the ability to tell time. During guided practice Mrs. Wells also modeled referencing her notebook entries when discussing content vocabulary such as *congruent, similar, title,* and *key.* In her final interview, Mrs. Wells commented that having students create their own anchors as well as providing them the ability to archive their practice activities and examples of concepts benefitted both her and her students.

The last theme present in Mrs. Wells's data was the theme of using Foldables® to organize knowledge at lower levels of thinking (e.g., verbal and declarative). This theme can first be seen in the Foldable® applications observed during classroom lessons. In her first lesson Mrs. Wells used single tab Foldables® in her independent practice activity to have students identify pairs of figures as congruent or similar. This activity required students to name or label, which is considered verbal (Gagné & Driskoll, 1988) or general (Feldhusen, 2006) knowledge, the very levels in the Learning Outcomes and Categories of Knowledge. Mrs. Wells's second lesson used a Foldable®® similar to the first where students were asked to convert digital time to analog time, again this activity asked students to name or label an example at the verbal (Gagné & Driskoll, 1988) or general (Feldhusen, 2006) level of thinking. Lastly, Mrs. Wells used a two tab Foldable® to define and give examples of a graph's title and key. The actions of identifying and defining examples are also found at the very bottom of the Learning Outcomes and Categories of Knowledge, requiring lower levels of thinking. This theme can be seen in Mrs. Wells's questioning techniques as well. In all three of the lessons observed in her classroom, the majority of Mrs. Wells's questions sought a single correct answer. As a result, her students weren't often challenged to think more deeply about the concepts

being learned through Foldables®, which was corroborated by Mrs. Wells reflection when she commented that the use of Foldables® was adequate and helpful for her struggling students but did not challenge her more advanced students.

In conclusion, the use of Foldables® in Mrs. Wells's classroom led to several changes in her practice. While changes in the depth of Mrs. Wells's understanding of the standards were not demonstrated through any of the data collected, Mrs. Wells found that Foldables® influenced the ways that she engaged her students with hands-on activities. Mrs. Wells perceived increases in her students' engagement, motivation, recall, and commitment to tasks when Foldables® were involved, and, as a result, she began to integrate them more into her instruction. Classroom observations suggested an increase in Mrs. Wells's confidence in the creation and usage of Foldables® in her classroom to meet her specific instructional needs. While her Foldables® represented lower level thinking opportunities for students, she found that they were beneficial in planning and organizing major concepts of written compositions and final research products.

## *Case Study: Ms. Moser*

### *Context*

*Classroom environment.* Ms. Moser's classroom could be accessed either from the outdoor walkway leading up to building two or through an interior hallway door. For observations I would come through the exterior door because students were often transitioning when I arrived so my entrance was not a distraction to learning activities. The exterior door was surrounded on all sides by windows, which often housed science

experiments and conceptual simulations including water cycle zip-lock bag models and germinating seedlings in zip-lock bags.

Ms. Moser's desk and a bookshelf of reference materials were located at the front of the room as one entered from the exterior. Her teacher space was generally full of materials for the day's lessons as well as notes and calendars that served as reminders of Ms. Moser's commitments. In addition to needed materials and supplies, Ms. Moser's teacher desk also included a desktop computer for teacher use as well as the document camera used for instruction. A Promethean Board was mounted on the wall adjacent to Ms. Moser's desk at the front of the room. The projector was ceiling mounted for ease of use. Figure 4.8 is a diagram of Ms. Moser's classroom layout.

On the floor in front of the Promethean Board was a collection of blue and green foam mats fitted together to make a carpet for students to sit on during direct instruction and guided practice activities. On the left side of the Promethean Board there was a bulletin board with a calendar and job chart with each students' picture represented. Below the board was a tower of four pull-out drawers and a bookshelf with plastic bins that stored teacher and student supplies. To the right was a bulletin board with classroom rules, reminders, and a 100 chart; below this bulletin board was another small shelf of supplies. Nearby a high-backed wooden chair and easel with chart paper served as the location for the majority of Ms. Moser's direct instruction and modeling.

On the wall directly across from the exterior classroom door was a large bookshelf that served as the classroom library. Books in the library were arranged on the shelves in baskets and bins by subject and reading level. In addition to the tall bookcase there was a smaller cart of leveled readers used in conjunction with the adopted reading

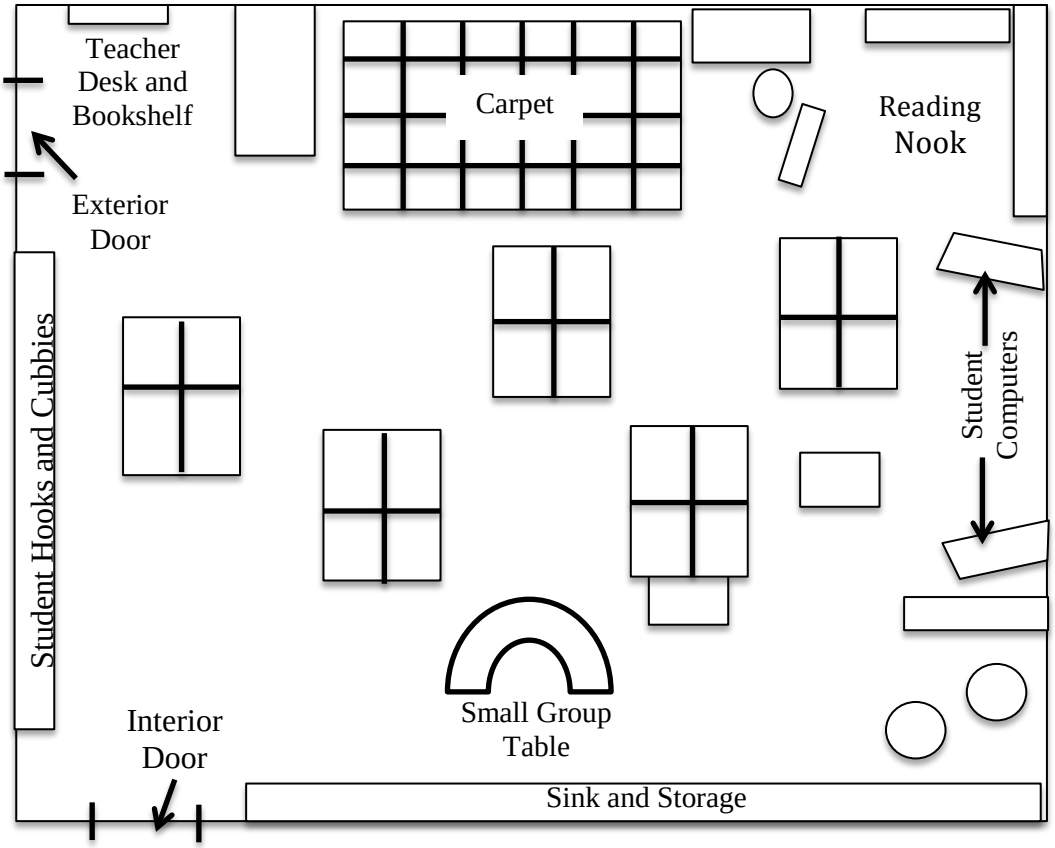



*Figure 4.8.* Mrs. Moser's Classroom Diagram

textbook. On the floor in front of these bookcases was a collection of floor pillows for student use during reading or group work times. Additionally, there was a second reading nook located at the back of the room. This area consisted of a small bookshelf, a colorful carpet and a bright green bucket chair for student use. Two trapezoid-shaped tables housed four desktop computers for student use on the wall between the two reading nooks. Figures 4.9 and 4.10 are photographs of Ms. Moser's classroom from different perspectives.

At the back of the classroom adjacent to the interior door was a sink and countertop that stretched the entire length of the classroom. Student consumable

textbooks and workbooks were arranged in stacks on top of the counter. Below were shelves used to store math manipulatives and games in clear plastic bins. Nearby was a kidney shaped table used for small group instruction and individual student testing.

*Figure 4.9.* Ms. Moser's classroom from the interior door.

*Figure 4.10.* Ms. Moser's classroom from the exterior door.

Student desks were clustered in groups of four and five with a single desk pulled out toward the back of the room. Student desks varied in height and color, but all included a single shelf under the desktop that served as storage for student supplies,

notebooks, and papers. Students' desks contained their personal school supplies (pencils, crayons, markers, glue, etc.) but there were also bins of labeled supplies around the room for student use if needed including extra paper, clipboards, and folders.

Ms. Moser's walls were decorated with colorful posters, anchor charts, and examples of student work. Four cables stretched across each side of the classroom displaying student work including self portraits, writing samples, and measurement models that were hung by clothespins from each line.

*Students.* There were 22 students in Mrs. Moser's class, 11 males and 11 females. Of those students, four were African American, 10 were Hispanic, six were White, and two identified as two or more races. Five of the 22 students had been diagnosed with attention deficit disorder (ADD)/attention deficit hyperactivity disorder (ADHD). Four of Mrs. Moser's students were identified as gifted and three received additional academic support through the Response to Intervention (RtI) programming at Ranger Elementary.

*Lesson Planning*

*Interview Data.* An initial interview was conducted with Ms. Moser at the beginning of data collection to discuss her lesson planning and delivery strategies. Questions were crafted with Gagné's (1985) instructional framework as a guide (see Appendix I).

I began by asking Ms. Moser to describe her planning process. When planning lessons in reading, she began by looking at the Texas Essential Knowledge and Skills (TEKS), which serve as the state content standards. After considering the standards to be covered, Ms. Moser would refer to lessons from previous years, look for ways to improve

or modify them to better fit the current group of students, and find new resources to improve the unit or the lessons in a way that engaged students.

When introducing new topics to students, Ms. Moser generally used technology and on-line resources such as YouTube videos and SafeShare links that integrate both audio and visual input to gain students' attention and focus their thinking. Once students were engaged in the lesson Ms. Moser relied on anchor charts to serve as a visual reminder of learning.

> We'll start with one [anchor chart] and we'll refer to it throughout our discussion all week for our classwork. Then [we] review with the anchor chart before we take our final test. (Moser Initial Interview, 3/9/2016)

In addition, Ms. Moser commented that anchor charts were helpful for her as a teacher, "[Anchor charts] help me to go back and stay focused on the objectives for the day, that's what we're sticking to" (Moser Initial Interview, 3/9/2016). Anchor charts served as a concrete reference that students could use and offered imagery to go along with concepts. Along with YouTube videos, SafeShare links, and anchor charts, Ms. Moser also used iPads and Promethean board activities as well as read alouds and manipulatives to engage her students in the content being covered.

After the introduction of new information Ms. Moser looked for guided and independent practice activities that met the specific needs of her students. Small group reading instruction was often based on assessment data. Groups in Ms. Moser's class were formed based on students' demonstrated needs and lessons were planned to meet specific reading goals that were shared with students at the beginning of small group instruction. In addition to small group instruction, Ms. Moser also used games and discussion for practice times,

> There's a lot of discussion that goes on in our classroom sharing, especially in writing. When sharing with partners, you're actually handing your work over and your partner is reading it. You can see if you've made a mistake if someone else is reading your work. (Moser Initial Interview, 3/9/2016)

Instructional strategies in math and science differed slightly from those used in reading lessons,

> With math, we do a lot more hands-on, manipulatives and Foldables®. I feel like we do them a lot more in math than we do in reading and writing. Science is a planned activity or an experiment where we normally test it out before and find out what happens at the end. (Moser Initial Interview, 3/9/2016)

After concepts have been introduced and practiced, students are expected to complete some form of performance or application of the material. Ms. Moser often collected student performance data and provided feedback to her students during their small group lessons.

> In our reading groups, we talk about our goal for that reading grade. [For example,] My goal is to keep my eyes on the book. My goal is to break down the words into syllables. At the end we ask, 'How did you do on your goal?' . . . I think that's one of the most important things we can do for our feedback and letting them know how they're doing. (Moser Initial Interview, 3/9/2016)

Other performance options in Ms. Moser's class come in the form of worksheets, reflections, and notebook entries that are assigned a letter grade based on grade-level expectations.

In addition to small group performance and daily worksheet assignments, the second grade team also used more open-ended cross-curricular projects later in the year for students to demonstrate their learning. These projects were often tied to research

activities in science and social studies. When asked about the use of projects, Ms. Moser stated,

> We've tried to do [projects] a lot this year and last year. Before we were squeezing plants into 45 minutes at the end of the day. This year with the way that the reading plans are we're researching and learning about plants during a reading block and then writing about it and then we're doing science experiments at the end of the day. It's all connected. (Moser Initial Interview, 3/9/2016)

After introducing new concepts and providing students with practice and performance opportunities during which they are given feedback, there is often a need for addressing misconceptions about the content. Ms. Moser generally turned to the use of examples and nonexamples to help her students better understand difficult concepts. "I think giving them a lot of nonexamples is probably the best way," she commented, "Then we also address misconceptions on our anchor chart, sometimes we'll put what did we think and what we've learned that is way off from our thinking originally" (Moser Initial Interview, 3/9/2016). After clarifying misconceptions, she spirals back to concepts in order to enhance retention and transfer. Activities used for achieving retention and transfer in Ms. Moser's class included the use of centers, games, and small group instruction.

*Lesson Plans.* Weekly lesson plans were collected over the eight weeks of data collection and were analyzed using the Weekly Document Observation Rubrics (see Appendix E) developed for this study. Lesson plans were analyzed in full week units, the only lessons analyzed for this case study were reading plans because those were the plans submitted by Ms. Moser. Table 4.12 is a summary of Ms. Moser's lesson planning ratings across the study.

Lesson plan parts included in the format used at Ranger Elementary were *Learning Standards*, where teachers list the Texas Essential Knowledge and Skills (TEKS) covered by the lesson, *Daily Procedures*, which include warm-ups and reviews, a list of *Materials*, *Activities/Procedures*, *Differentiation* strategies, *Evaluation*, and *Academic Vocabulary.* Lesson plans were not scripted because they were discussed at the weekly team meetings. Rather, the plan served as a list of needed materials and possible activities to address the stated standards and objectives.

- *Standards:* The standards section of Ms. Moser's lesson plans included the TEKS statements addressed by the lessons but did not reference prerequisite learning or connections and relationships across grade levels or content areas. For this reason, the *Standards* rating for each week was *Basic*, which states, *The teacher's plan includes specific standards and/or objectives for the lesson.*
- *Gain Attention:* Ms. Moser used various methods to gain her students' attention for lessons. The sharing of a book through read aloud and discussion often served as the method used for gaining students' attention (weeks 1-3). In other weeks Ms. Moser began by introducing the characteristics of different types of texts such as fables (week 5) and poetry (week 8). Ms. Moser began some of her lessons by having students practice the skill they would be learning about that day (week 4) or by using web-based hooks such as BrainPops and SafeShare links (week 6). For this reason, the *Gain Attention* rating for each week was *Proficient*, which states, *The teacher's plan defines a stimulus that will be presented to gain the students' attention. Stimulus is related to the concepts being taught.*

Table 4.12

*Ms. Moser's Weekly Lesson Plan Analysis*

| | Week 1 | | | | Week 2 | | | | Week 3 | | | | Week 4 | | | | Week 5 | | | | Week 6 | | | | Week 7 | | | | Week 8 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished |
| Standards | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Gain Attention | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| State Objectives | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Stimulate Recall | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Present Stimulus | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Guided Practice | | X | | | | X | | | | | X | | | | X | | | X | | | | X | | | | X | | | | | X | |
| Independent Practice | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Performance | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Provide Feedback | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | |
| Assess Performance | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Enhance Retention and Transfer | | X | | | | X | | | X | | | | | | X | | | | X | | | | X | | | X | | | | | X | |

- *State Objectives*: Student objectives were present in each of the lesson plans submitted by Ms. Moser. Objectives were stated in terms of what the students would be doing ("Students will . . . ") during the lesson and what the expected outcome would be. Student objectives were closely tied to the standards and lesson activities presented. Examples of objectives include, "Students will analyze and make inferences about the theme in *TEEDIE: The Teddy Roosevelt story,*" "Students will locate information using text features," "Students will identify themes in Aesop's fables," and "Students will identify character traits for the Once-ler in *The Lorax*. Students will determine how the character changed throughout the text." While these objectives include a variety of learning processes including identifying, naming, and application of skills, there is a lack of alignment with preassessment. As a result, the degree of rigor and important learning cannot be established. For this reason Ms. Moser's rating for stating objectives was *Basic*, which states, "*The objectives included in the teacher's plan are vague or unclear. Objectives reflect a low level of rigor or are not clearly connected to the performance."*
- *Stimulate Recall*: A variety of methods were used in Ms. Moser's lesson plans to stimulate her students' recall of information. These methods always revolved around a review and discussion of previous lesson content (weeks 1-8), but also included connections to other concepts such as Leader in Me traits (week 2) and sensory integration (week 4). References to previous lessons and shared classroom experience in the form of lower-level questions such as, "What did we discuss yesterday?" or "Does anyone remember when we did the classroom scavenger hunt

for polygons?" offered students the opportunity to access previous knowledge as well as apply it to their current learning. Connections made during the introductory portion of the lesson also added the opportunity for deeper thinking about the concepts and their relationships with other content. For this reason, Ms. Moser received a rating of *Proficient* in *Stimulate Recall*, which states, *The teacher's plan connects current learning to past concepts and begin by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions* for each week.

- *Present Stimulus*: Ms. Moser presented her stimulus for reading lessons through the reading aloud of a mentor text on a daily basis (weeks 1-8). Texts were intentionally chosen to match with standards and objectives for the day, for example, biographies were read daily during their unit on historical figures, non-fiction texts were used when covering text features, and poems and songs served as the mentor texts during the week devoted to the study of poetry. In addition to reading aloud mentor texts, Ms. Moser also integrated technology into the presentation of stimuli using BrainPop (week 6), YouTube (week 7), and SafeShare links (week 8) that related to the content being covered. Reading mentor texts and integrating technology into the presentation of stimuli not only served as a shared experience and engaging activity, they also allowed Ms. Moser to add to the number of examples her students had to refer to in their knowledge base. This enabled students to recognize similarities and connections between concepts and how they relate to one another. A rating of *Proficient* was given for each week in the *Present Stimulus* category of the rubric, which states, *The teacher's plan uses both auditory and visual stimuli to present*

*new information. Lesson plan is aligned with the stated objectives and builds off of the students' existing knowledge.*

- *Guided Practice*: After new content is presented there is a time of guided practice where the teacher and students work together to model and practice the skills that were introduced. Ms. Moser used many strategies when guiding her students' practice with new information. Teacher modeling, questioning, and discussion during read alouds were strategies that were used on a daily basis. In addition, Ms. Moser used Foldables® (week 8) for guiding her students' thinking during instruction. Although these are effective strategies, there was often only reference to accurate examples of concepts during guided practice without the introduction of nonexamples in Ms. Moser's plans. For this reason, a rating of *Basic* was assigned to weeks one, two, four, six, and seven. This rating states, *The teacher's plan presents numerous accurate examples of the new content . . . Nonexamples are not presented during guided practice.* In weeks three, four, and eight nonexamples were specifically referenced in Ms. Moser's plans, including nonexamples of words that would be found in the glossary of nonfiction texts, asking nonrelated questions during a questioning lesson, and the use of boring monotone reading during a poetry unit. As a result, a rating of *Proficient* in the *Guided Practice* section, which states, *The teacher's plan integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples will be presented first to establish a basic understanding, nonexamples will then be introduced to strengthen knowledge. Students will be actively involved in the processing of examples and nonexamples* was assigned.

- *Independent Practice*: Practice activities that students completed independently or in small groups without the direct assistance of the teacher included the writing and justification of theme statements (week 1), development of a class timeline and map of historical figures (week 2), notebook entries (weeks 3, 7, and 8), partner activities (weeks 3, 4, 6, and 8), as well as the completion of worksheets (weeks 1, 3, 5, and 6-8). These activities fell under the *Proficient* category, which states, *In the teacher's plan students are given the opportunity to use the terms and examples presented without the direct support of the teacher but may be practicing in groups for support.*
- *Performance:* Students were given multiple performance opportunities each week. Performance was often completed with the support of peers either in partners or small group settings. Performance activities included in Ms. Moser's lesson plans included research documentation (weeks 1 and 2), notebook entries (weeks 3, 7, and 8), and worksheets (weeks 4-6). These activities most closely aligned with the *Proficient* rating under *Performance*, which states, *The teacher plans to assess students individually or in groups on their level of mastery of the new content. Planned performance options are varied and closely tied to the stated learning objectives, Performance options are reflective of the learning outcome (intellectual, verbal, cognitive).*
- *Provide Feedback*: Feedback from the teacher lets students know how they are doing in the learning process. In Ms. Moser's plans there were often opportunities for students to collaborate, share, and discuss concepts but specific methods for providing feedback were missing from all of the lesson plans submitted. For this

reason, a rating of *Unsatisfactory* was assigned to this category, which states, *The teacher's plan does not include methods to provide feedback.*

- *Assess Performance*: Some performance opportunities are formally assessed and graded to establish student mastery of concepts. Ms. Moser included several options to assess performance each week including research documents and a "Bio Buddy" project (weeks 1 and 2), notebook entries (weeks 3, 7, and 8), quizzes (week 4), and worksheets (weeks 5 and 6). These assessment options aligned with the *Proficient* rating in this section, which states *The teacher plans to assess students for mastery using varied performance assignments.*
- *Enhance Retention and Transfer*: Activities used to enhance retention and transfer of concepts in Ms. Moser's lesson plans collected for this study included web-based activities (weeks four, five, and seven), additional research opportunities (week eight), and the use of popular culture examples in stations when learning about the 5Ws (week 7). This variety of activities aligned with the *Proficient* rating in this category, which states, *The teacher's plan includes additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning.* Weeks one and two included daily read alouds and work on biographical research but no additional activities to spiral back on learning were included. For this reason, a rating of *Basic* was assigned for weeks one and two, which states, *The teacher's plan includes additional opportunities to practice with the new content.* Week three lacked the mention of any additional activities to enhance the retention and transfer of information. As a result, a rating

of *Unsatisfactory* was assigned, which states, *The teacher's plan does not include additional practice activities.*

Analysis of the weekly lesson planning documents submitted by Ms. Moser for reading instruction demonstrate a level of proficiency in the majority of lesson parts including: gaining attention, stimulating recall, presentation of stimulus, independent practice, performance, and assessing performance. Ms. Moser received a rating of *Basic* in the area of guided practice in weeks one, two, five, six, and seven due to the absence of explicit and systematic use of nonexamples during the practice portions of the lesson plan. Ms. Moser's ratings in enhancing retention and transfer ranged from *Unsatisfactory* in week three to *Proficient* in weeks four through six and week eight, and a rating of *Basic* for weeks one and two. Ms. Moser showed a basic level of performance in the alignment of standards due to the fact that prerequisite learning and connections and/or relationships across content areas were not addressed in her plans. Similarly, a rating of *Basic* was assigned each week in the category of *Stating Objectives* because the lack of preassessment data made it difficult to identify whether learning was rigorous or challenging. The only area in which Ms. Moser consistently received unsatisfactory ratings for her lesson plans was in the category of providing feedback. This was due to the fact that there was no mention of specific methods for providing feedback to students in her lesson plans.

*Classroom Observation One*

*Lesson narrative.* The first lesson observation conducted in Ms. Moser's classroom took place at 10:00 in the morning on the first Monday of data collection. I entered the classroom through the exterior door. Students were taking a bathroom break in the interior

hallway so I set up my laptop and iPad at the teacher's desk. Students filed back into the room accompanied by their student teacher and were instructed to find a place on the carpet for writing. Students came to the front of the room and settled into their places as Ms. Moser reminded them of expectations while on the floor. There were 21 students present for the lesson, 11 male and 10 female. Of the students present, four were African American, 10 were Hispanic, five were White, and two identified as two or more races.

Ms. Moser began her lesson by reminding students of the Foldable® they had made the previous week as a timeline of their historical figures' biography. She referenced her own six-tab example that had been made using a blue piece of copy paper. She reviewed the events that she had chosen to include on her timeline about her historical figure, Mohammed Ali. Students were engaged in this conversation and several offered additional information about Ali's life that didn't appear on the tabs. Ms. Moser then opened each tab to reveal her key words and simple sentences that she had begun writing last time they had worked on this project. She told students that today they were going to work to make their sentences the very strongest they could be by making revisions, or changes, that make their writing more powerful.

"When we revise I want you to think of ARMS," she began, "Everybody put your arms up (*students and teacher put their arms up like they were flexing their muscles*). ARMS stands for Add, Remove, Move, and Substitute." Ms. Moser explained as she wrote the acronym and accompanying words on her easel. She then had students turn and talk to a neighbor about what ARMS stood for as well as what they'd be doing during revising. After a minute or so of discussion students' eyes and ears were requested and Ms. Moser reminded them that during revision they weren't looking to make changes to the

punctuation and capitalization of words, instead their job was to focus on their words and content to make it as strong as possible.

Ms. Moser began guided practice by introducing the first sentence from her Ali Foldable®, it read, “Him was good with boxing.” Students giggled and sighed when they heard her first sentence as they clearly knew there were improvements to be made. Ms. Moser walked through the ARMS acronym with her students allowing many to suggest possible improvements that could be made. They discussed finding more powerful words, or *synonyms*, to use in their writing as well as strategies for reordering their words to make their sentences flow more smoothly. Throughout this process Ms. Moser offered feedback in the form of praise, questioning for clarification, and correction when students offered incorrect solutions. With each suggested revision Ms. Moser would model how an author would mark their sentence using carrots or striking through words to be removed. The final revised sentence read, “He was the greatest boxer in history.”

Before sending students back to their desks to find their own Foldables®, Ms. Moser reviewed the revision process and gave directions for their independent writing time. She then dismissed students back to their desks to find their Foldable® and begin revising their sentences from the previous week. During writing time students worked independently to revise their own writing. Some looked back at notes or reviewed the biography of their historical figure for more information. As they worked Ms. Moser walked from group to group to check in with individuals to see where they were in the process, to answer any questions, and to offer suggestions if needed. Several times during independent writing time, Ms. Moser stopped the class saying:

> Boys and girls, let me show you what a good author did (*picking up a student’s Foldable® and reading from it*); she wrote, “She won three

> medals." Do we remember who Angel's talking about? (*students answer yes, Wilma Rudolph)* Good, I think this is the time she won three medals for AR, for earning AR points. Do y'all think that? Maybe, it's AR points? (*students answer no*) When did she win three medals? Gabriel? (*when she was running in the Olympics*) Good. So instead of Angel writing, "She won three medals." She's revising this sentence to say, "She won three medals at the Olympics." Because that's a big deal when you go to the Olympics. She added words, she added details to make her sentence better and to make her reader understand what happened. (Moser Observation One, 3/7/2016)

After about 20 minutes of independent writing time Ms. Moser had her students find a stopping point in their revision process and find a partner that they could share their revisions with. Students moved around the room and found places on the floor, at desks, and on the carpet to visit with one another about the changes they had made to their original sentences.

*Lesson part analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Ms. Moser's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.13.

*Foldable®.* The Foldable® created during this lesson was a six-tab hotdog fold made out of blue copy paper that was oriented vertically. This particular Foldable® was independent (i.e., it is operational outside of a notebook or other cover). Students had previously created the Foldable® and would continue to work in it for the next week or so as they completed their bio buddy project. Students began by drawing important life events of their historical figure on the outside of each tab. They then worked on the inside to write important words that could then be turned into a complete sentence. Revisions were completed inside of the Foldable® and final revised sentences were written on the facing

part of the tab using each plane of the Foldable®.  Figure 4.11 is a teacher example of the revising Foldable® created in Ms. Moser's first lesson.

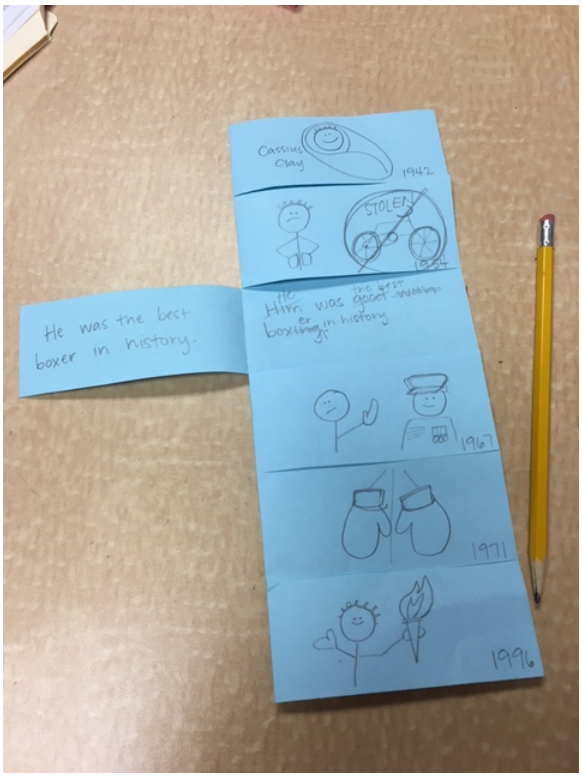



*Figure 4.11.* Teacher created example of revising and editing Foldable®.

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.14.

Table 4.13

*Ms. Moser's First Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject* | Teacher taught revision through modeling, think aloud, and discussion.<br><br>Teacher used ARMS acronym to help students remember steps |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities with some variety. The lesson or unit has a recognizable structure.* | Students worked whole group, individually, and in pairs.<br><br>Teacher met with individuals to answer questions and offer feedback.<br><br>Some Foldables® had less tabs than others for struggling/lower level students. No preassessment or differentiation of assignment/activity. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Proficient | *The teacher presents a stimulus that gains the students' attention. Students are attentive and actively engaged.* | Teacher began by reviewing previously made Foldable® on historical figure. |
| State Objectives | Basic | ~~*The teacher's objectives are vague or unclear*~~*. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity.* ~~*Objectives reflect challenging and relevant learning.*~~ | Teacher stated that students would be strengthening their sentences by making revisions. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and* | Referred to teacher Foldable® on Mohammed Ali to review important events and steps they had |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | *demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | taken to get to their current point in the writing process. |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and build off of the students' existing knowledge.* | Teacher used acronym ARMS (add, remove, move, substitute) to highlight revision options. Defined and gave an example of each type of change before revising writing in Foldable®®. |
| Guided Practice | Proficient | *The teacher integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples are presented first to establish a basic understanding, nonexamples are then introduced to focus students' attention on the important characteristics of the concept. Students are actively involved in the processing of examples and nonexamples.* | Teacher modeled revisions to improve her own sentences in the Foldable®®. Demonstrated marks and processes involved in revision.<br><br><u>Outcomes</u>:<br>Intellectual – locate effective and ineffective writing<br>Verbal – writing changes and discussing the part of ARMS that was being used<br>Cognitive – deciding what revisions to make<br>Physical – writing and manipulation of Foldable® |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students returned to desks to work independently on own revisions in their Foldable®.<br><br>Teacher walked from table to table to offer assistance.<br><br>Students met in pairs to discuss changes made to their writing.<br><br><u>Outcomes</u>:<br>Intellectual – locate effective and ineffective writing<br>Verbal – writing changes and discussing the part of ARMS that was being used<br>Cognitive – deciding what revisions to make<br>Physical – writing and manipulation of Foldable® |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Performance | Proficient | *Students are assessed individually or in groups on their level of mastery of the new content.*<br>*Performance options are reflective of the learning outcome and may be differentiated based on the learning needs of the students* | Students revised their own sentences.<br><br><u>Outcomes</u>:<br>Intellectual – locate effective and ineffective writing<br>Verbal – writing changes and discussing the part of ARMS that was being used<br>Cognitive – deciding what revisions to make<br>Physical – writing and manipulation of Foldable® |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise and guiding questions.* | Feedback offered throughout the lesson from teacher in whole group and individual settings.<br><br>Additional feedback given through peer sharing of revisions. |
| Assess Performance | Basic | *Students are assessed for mastery using a single performance assignment.* | Single performance option (Foldable®) |
| Enhance Retention and Transfer | Proficient | *Students are given additional opportunities to practice with the content to solidify learning.*<br>*Concepts are also spiraled back to when appropriate for further learning.* | Students repeated the revision process for each tab of their Foldable®.<br><br>Revision skills used throughout writing across genres. |

Table 4.14

*Ms. Moser's First Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – 6-tab out of blue copy paper, vertically oriented |
| Arrangement of Information | Distinguished | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside. The layout is demonstrative of the content being covered.* | Big idea (picture of life event) on the outside, details (key words converted into sentences) on the right plane inside.<br><br>Revised sentences on the left plane inside. |
| Organization of Knowledge | Distinguished | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students had to read their original sentence and use ARMS strategy to revise/improve their writing.<br><br>Objectives:<br>Intellectual and Verbal – writing and discussion<br>Cognitive – Revision of sentences<br>Motor – manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Each student wrote about his or her own historical figure, revised independently, and shared with peers. |

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Ms. Moser were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Ms. Moser asked a total of 24 questions during her lesson on revising sentences (see Table 4.15). Of those 24 questions, 16 (67%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from

this lesson include, “When we revise are we checking for spelling, punctuation, and periods?” and “What are all of my sentences starting with?” The remaining eight questions (33%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, “Instead of the word *great* what could I say?” and “What changes can I make?”. Multiple answer questions require a higher level of thinking than single answer questions, as a result the eight multiple answer questions were further coded based on the type of connections required to answer them. Ms. Moser made cognitive connections in four (50%) of the multiple answer questions she asked (e.g., “How could I say that differently?”) the remaining four multiple answer questions (50%) concerned processes tied to the content being discussed (e.g., “Is there a way you can improve this?”). There were no affective or evaluative connections made in Ms. Moser’s questioning during this lesson.

Table 4.15

*Ms. Moser’s First Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 16 | 67% |
| Multiple Answer | 8 | 33% |
| Question Connections | | |
| Cognitive | 4 | 50% |
| Affect | 0 | 0% |
| Process | 4 | 50% |
| Evaluation/Implications | 0 | 0% |

*Lesson analysis.* Ms. Moser’s lesson on using the acronym ARMS in revision was the continuation of an ongoing research project that students were working on. Students

used a Foldable® to help organize their sentences into chronological order earlier in the week and had previously worked to compose simple sentences telling about each of the life events they had chosen to include in their biography. The use of this particular Foldable® as well as the effective use of multiple planes and thoughtful arrangement of information acted as a support for Ms. Moser's second graders. The process of planning and writing was intentionally broken down into manageable concepts and processes so as to not overwhelm the students and to make each step logically follow the previous day's work. Ms. Moser effectively used a gradual release of control during this lesson by introducing a stimulus, modeling the use of that stimulus, involving students in the process, and then having students work independently applying the process to their own writing. Ms. Moser demonstrated proficiency in all areas of her lesson except for the assessment of performance where she received a rating of *Basic* due to the fact that the Foldable® served as the only performance option for this particular lesson. She received a *Distinguished* rating in the areas of designing coherent instruction as a result of chunking the writing process into manageable parts and allowing students the opportunity to apply modeled processes independently. Ms. Moser's use of questioning was generally limited to lower-level single answer questions, of those questions that challenged students to think more deeply, there were only cognitive and process connections made.

*Classroom Observation Two*

*Lesson narrative.* My second lesson observation in Ms. Moser's classroom was on the final Thursday of data collection at 9:45 in the morning. On this particular day, Ranger Elementary opened without water due to emergency city water maintenance. Parents had

been notified and several had chosen to pick up their children instead of leaving them on campus for the day. As a result, Ms. Moser's class was made up of 17 students for this lesson, eight male and nine female. Of those students, four were African American, nine were Hispanic, three were White, and one student was from two or more races.

I entered the classroom through the exterior door and took a seat at the nearest empty student desk because Ms. Moser would need access to her computer and desk for her lesson on rhythm in poetry. Students were completing their morning work when I came in, and Ms. Moser was visiting with a table of students about their spelling words for the week. She announced to the students that they would be starting with reading in three minutes and advised them to start finding a stopping point and putting their work in the appropriate folder. Students were given a one-minute warning before being given directions to meet Ms. Moser on the carpet for reading. Students complied and settled into spots on the floor as Ms. Moser set up her computer and Promethean board for the lesson.

Ms. Moser began by asking students, "What do we know about poetry so far?" To which students hands flew up and she was given responses such as, "We know powerful words pack a punch;" "It appeals to our senses;" and "rhyming words." This strategy appeared to be effective in reviewing previous lessons and focusing students' attention on the genre of literature they were working on. Ms. Moser went on to tell her students, "Today we're going to learn something new--poetry has rhythm." After this objective statement, Ms. Moser opened up a discussion on rhythm – what is it and where can we hear it? Students offered many responses until a student named Angel offered an example that sounded like rap. This was the perfect opportunity for Ms. Moser to introduce the stimulus of a popular song with a strong beat.

Ms. Moser moved to her computer on which she accessed a Safe Share link of Queen's "We Will Rock You." Before listening to the song, Ms. Moser told students to listen specifically for the beat and once they found it to clap or stomp along. Students quickly picked up on the beat and began stomping and capping along with the song, *Stomp, Stomp, Clap, Stomp, Stomp, Clap*. Ms. Moser then pointed out that this song had a very strong rhythm or beat because musicians created the rhythm using instruments such as drums and guitars. "Poets do something similar," she added, "but instead of using instruments, poets use their words and syllables." Ms. Moser then pulled up an example of a poem on the Promethean board that had a strong rhythm and pointed out that poets create rhythm by putting the same number of syllables onto each line. She read the first line of verse and had her students count syllables, they counted seven. Ms. Moser had a student label the line with the number seven and then they read, counted, and labeled syllables on each of the remaining lines in the stanza discussing the fact that each line contained seven syllables.

After these guided practice activities Ms. Moser had her students return to their desks and find the poetry Foldable® they had begun earlier in the week. The Foldable® was a four-tab independent fold with each tab representing a different characteristic of poetry including powerful words, sensory words, and rhyming words. On the outside of each tab the class had drawn a visual image that represented the characteristic and on the inside of each tab they wrote a definition along with examples of each characteristic. For the tab on rhythm Ms. Moser had several students give definitions before they wrote, "Poets make poetry fun by using rhythm or a beat;" then they wrote examples and clues to help them remember what rhythm is, "Think: drum or patterns (AABBAA or stomp, clap,

stomp, clap).” After giving a definition and examples the class worked together to come up with a visual for the front of their tab. One student suggested a drum with sticks, another wanted music notes so the class decided to combine the two and draw a drum with music notes and the phrase, “Keep the beat.”

Once students had completed the notes on their Foldable®, Ms. Moser moved into the independent practice phase of her lesson where she wanted students to practice reading poems and identifying the rhythm, rhyme, and word choice used by the author in each. She began this portion of the lesson by modeling both effective and monotone reading of poetry to show students the difference that rhythm and intonation could make when reading. Ms. Moser encouraged students to read with good voice and to try to identify the rhythm in each poem. Partners and tablemates were assigned the task of listening to identify the rhythm, rhyme, and word choice in the poem; then they would discuss the things they noticed. Ms. Moser passed out several large cardstock notecards to each table with poems printed on them, and students began to read. Ms. Moser moved from table to table listening to students read and adding to their conversations through commenting (e.g., “I agree, that word makes me see and taste the sea.”) or questioning (e.g., “Did you notice a rhythm or beat as you read that poem?”). She provided feedback in the form of generic praise (e.g., “Good job!,” “Nice thinking,” or “Exactly right.”). Every few minutes Ms. Moser would ask for everyone’s attention so that a student could read an example. She would lead the students’ listening for specific characteristics that she wanted them to notice in the example.

There was no formal assessment of performance or additional activities completed during this lesson. Students were given about 10-15 minutes to work in ability-like

reading groups at their table, reading and discussing their poem examples and then were called back to the carpet for a brief review (e.g., “Someone remind me what characteristic of poetry we discussed today;” “Remember to be listening for rhythm as we read poetry for the rest of the week.”) before moving on to the next activity for the day.

*Lesson part analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Ms. Moser’s lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.16.

*Foldable®.* The Foldable® created during this lesson was a four-tab made out of white copy paper oriented horizontally. This particular Foldable® was independent (i.e., it is operational outside of a notebook or other cover). The Foldable® had been created at the beginning of the week when the unit on poetry began. Each day the class identified an important aspect of poetry (sensory images, rhyme. rhythm, etc.) and worked together to create a definition and examples as well as a visual to help them remember what was discussed. For this Foldable®, Ms. Moser decided to put the word and visual cue on the outside of the each tab and the definition and examples on the inside. Once completed the Foldable® would be put in the students’ notebook for future reference. Figure 4.12 is a student example of the poetry Foldable® created in this lesson.

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldable® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the

following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.17.

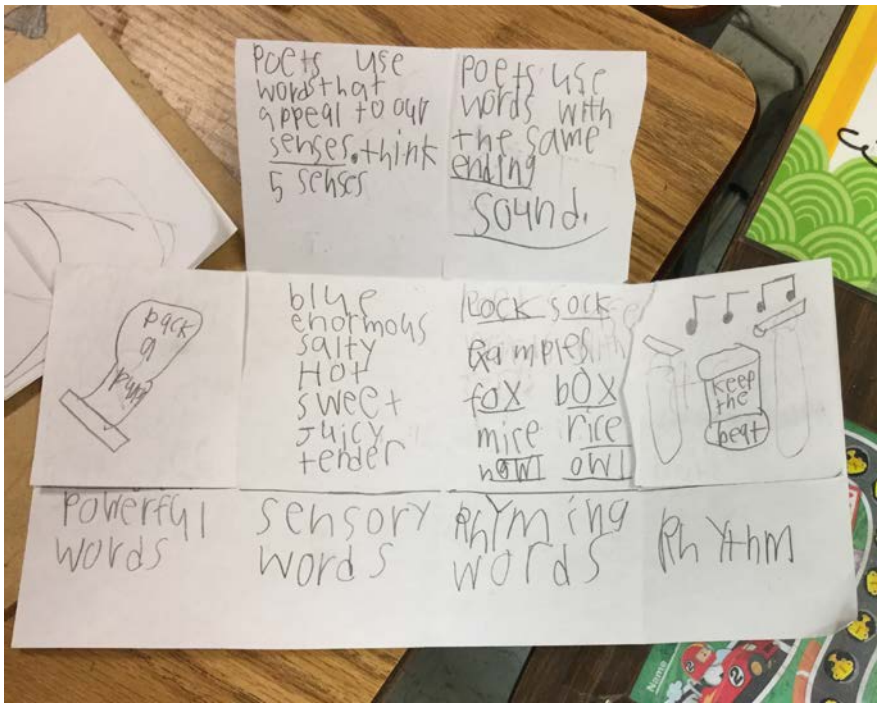



*Figure 4.12.* Student example of poetry Foldable®.

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Ms. Moser were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Ms. Moser asked a total of 25 questions during her lesson on rhythm in poetry (see Table 4.18). Of those 25 questions, 17 (68%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “What do rhyming words do?” and “Can you find the rhythm in this song?” The remaining eight questions (32%) were multiple answer questions, meaning

Table 4.16

*Ms. Moser's Second Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject* | Teacher connected rhythm to student experiences (rap), gave an example in song (We Will Rock You), and demonstrated in print with syllable counting.<br><br>Students were given the opportunity to practice reading and identifying characteristics of poetry through the use of multiple examples. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities with some variety. The lesson or unit has a recognizable structure.* | Students worked in whole and small group settings.<br><br>No explicit differentiation of activities, independent practice involved different levels of poems |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Distinguished | *The teacher presents a stimulus related to the content that focuses the learners' attention on the information being presented* | Review of characteristics of poetry covered in previous unit lessons (rhyme and powerful/sensory words) through questioning and discussion. |
| State Objectives | Basic | ~~*The teacher's objectives are vague or unclear.*~~ *Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity.* ~~*Objectives reflect challenging and relevant learning.*~~ | Poetry has rhythm, we can hear rhythm by listening for a beat in what is being read. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and* | Reviewed concepts covered through questioning and discussion of previous lessons, students |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | *demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | gave examples of rhyming, sensory, and powerful word choices. |
| Present Stimulus | Distinguished | *The teacher uses auditory, visual, and/or tactile stimuli to present new information. Lesson is closely aligned with stated objectives as well as outcomes. Lesson is explicitly related to existing knowledge, crossing content areas where appropriate.* | Teacher used a SafeShare link to listen to "We Will Rock You." Students clapped and stomped to the rhythm. |
| Guided Practice | Proficient | *The teacher integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples are presented first to establish a basic understanding nonexamples are then introduced to focus students' attention on the important characteristics of the concept. Students are actively involved in the processing of examples and nonexamples.* | Teacher related rhythm to syllables in lines of a poem using the Promethean board.<br><br>Teacher modeled ineffective and effective reading of poetry paying attention to the rhythm of the piece.<br><br>Foldable® defining rhythm as well as giving a visual and example.<br><br><u>Outcomes</u>:<br>Intellectual – listening/identifying rhythm in poems; describing effective/ineffective reading of poems<br>Verbal – Discussing/naming characteristics (rhythm, rhyme, and powerful words)<br>Physical – Clapping and stomping rhythms |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked in pairs/table groups to read poem examples and identify rhythm, rhyme, and powerful words.<br><br>Teacher walked around and discussed findings with table groups, had several students stand up and read aloud, classmates pointed out characteristics they identified. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | | Outcomes:<br>Intellectual – Read poetry examples aloud, listened for characteristics discussed (rhythm, rhyme, powerful words)<br>Verbal – Discussion/naming of poetry characteristics |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available.* | Students read examples and visited about poems at their tables. |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise and guiding questions.* | Feedback given by teacher during direct instructions and independent practice.<br><br>Peers offered feedback during independent practice |
| Assess Performance | Unsatisfactory | *Students are not assessed for mastery* | Students visited about poetry and read examples but are not assessed for mastery. |
| Enhance Retention and Transfer | Proficient | *Students are given additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning* | Students observed and identified multiple characteristics of poetry during shared reading time. |

Table 4.17

*Ms. Moser's Second Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – four-tab made from white copy paper, horizontally oriented |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside.* | Big ideas (vocabulary and visual) on the outside, details (definition and examples) on the inside. |
| Organization of Knowledge | Proficient | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students helped come up with a visual representing rhythm for the outside<br><br>Class-created definition and teacher example inside<br><br>Objectives:<br>Intellectual – example of rhythm (Clap, clap, stomp)<br>Verbal – Written definition, drawing of visual representation<br>Motor –writing of information, manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Foldable® represented a full week of instruction on characteristics of poetry, students provided much input into its creation. |

that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, "What do you know about require a higher level of thinking than single answer questions, as a result the eight multiple answer questions were further coded based on the type of connections

required to answer them. Ms. Moser made cognitive connections in all eight (100%) of the multiple answer questions. For example, she asked, “What poetry parts did you notice in what you read?” There were no process, affective, or evaluative connections made in Ms. Moser’s questioning in this lesson.

Table 4.18

*Ms. Moser’s Second Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 17 | 68% |
| Multiple Answer | 8 | 32% |
| Question Connections | | |
| Cognitive | 7 | 100% |
| Affective | 0 | 0% |
| Process | 0 | 0% |
| Evaluation/Implications | 0 | 0% |

*Lesson analysis.* Ms. Moser’s lesson on rhythm in poetry allowed for multiple experiences with rhythm and beat both within the context of poetry as well as music. The lesson began with a review of previous lessons to activate prior knowledge. Ms. Moser referred to the Foldable® they had created at the beginning of the week to help stimulate her students recall of important characteristics of poetry. During direct instruction and guided practice Ms. Moser’s inclusion of a popular song with a strong beat engaged students and helped them to easily identify rhythm in music, her transition to poetry and the connections made between instruments in music and syllables in words helped students to make connections and see the relationships present between what they were working on in reading and what they experience in the real world. The addition of rhythm to their poetry Foldable® and the students’ involvement in the generation of a definition, examples, and visual served as a quick check of student understanding before moving on to students

independently practicing identifying characteristics in examples of poetry. Ms. Moser demonstrated proficiency in the majority of lesson parts in this lesson, however she received a rating of *Basic* in designing coherent instruction and performance due to the lack of differentiated instruction and activities as well as an *Unsatisfactory* in assessing performance because students were not formally assessed for mastery during the lesson. On the other hand, ratings of *Distinguished* were received in both gaining attention and presenting stimulus. Ms. Moser's relied heavily on single answer questions during this lesson indicating a lower level of thought. Of the higher-level questions that were asked only cognitive connections were made.

*Classroom Observation Three*

*Lesson narrative.* The final lesson observation conducted in Ms. Moser's class took place during science instruction on the final Thursday of data collection. I had previously observed their reading lesson over rhythm in poetry and had remained in the back of the room completing field notes between observed lessons. Before beginning her lesson on the environment and Earth's habitats, Ms. Moser took her class for a restroom break in a different building on campus due to the water being shut off in building two earlier in the morning. There were 17 students present for the lesson, eight males and nine females. Of the students present, four were African American, nine were Hispanic, three were White, and one student represented multiple races.

Ms. Moser began by calling her students to the front of the room to have a seat in front of her easel where she had drawn two overlapping ovals to represent a Venn diagram. She directed the students' attention to the diagram drawn on the easel and had them

describe the use for the intersecting circles. Ms. Moser reminded students of previous lessons in reading and writing where they compared and contrasted characters and settings from stories to connect to the comparing and contrasting that they would be doing together as a class during science that day. Students seemed familiar with the graphic and were able to accurately describe what each section of the diagram was used for – the outside areas were for differences while middle section was for ways in which the topics were the same.

For guided practice, Ms. Moser asked two students for their assigned habitats that they had been researching that week during science. One student gave the habitat of the desert, which Ms. Moser put on the left side of the Venn diagram, and the other student gave the habitat of the ocean, which was put on the right side. Ms. Moser then asked students for characteristics of each of the habitats and as a class they discussed the correct placement of the information. After accurately placing several examples into the correct section of the diagram Ms. Moser began introducing nonexamples,

> Let's see, you said that there were animals in the ocean, so the word *animals* should go in the ocean section, right? (*some students agreed while others shook their heads in disagreement*) Some of you say yes and some say no. Can I put animals here? (*pointing to the ocean section, one student answered yes and explained that there are animals in the ocean, another answered no because there are also animals in the desert*) So what you're telling me is that there are animals in both habitats, so the word *animals* should go in the middle section. But I can put certain types of animals in the outside sections. What animal lives in the ocean that does not live in the desert? (Moser Observation Three, 5/5/2016)

Several more examples and nonexamples were discussed by the class before Ms. Moser moved on to the independent practice portion of the lesson. Before having students return to their desks to create their Foldable®, Ms. Moser took a quick status of the class by having them give her a thumbs up, down, or sideways to indicate their readiness for

independent work. Once all students indicated that they were ready, Ms. Moser had them return to their seats by sections on the carpet.

As students returned to their seats, Ms. Moser passed out pieces of white copy paper to each table and asked students to find their scissors, a pencil, and a piece of white paper. Once students were settled with their supplies, Ms. Moser gave directions for the creation of their Venn diagram Foldable®. She modeled each step by Folding in the air. Ms. Moser began by having students fold their papers in half hotdogs and then having them fold the left and right sides in to the middle creating three tabs with the middle tab being the largest. She then used the easel to model drawing her ovals on the paper overlapping in the middle to create the different sections of the Venn diagram. Once students had drawn their ovals, Ms. Moser instructed them to cut their sections apart creating three independently movable tabs. Students were directed to put the name of their habitat on one side of the Venn and their partner's habitat on the opposite tab. Once students had labeled their Foldables®, Ms. Moser gave directions for partners to meet around the room to discuss their research findings and compare their habitats using their Venn diagram Foldable®.

Students gathered their Foldables® and pencils along with folders containing research and spread around the room. Some sat at desks, others on the floor, and a few ended up in the chairs in the reading nook. Discussion began almost immediately as they found their spots. Ms. Moser walked from group to group to monitor conversations and in some cases to settle disputes between partners. She would often refer them back to their research and the books and articles they had been reading that week to settle disagreements.

Students had about ten minutes to work together before Ms. Moser called the class back to the floor to discuss their findings.

Once students were settled back on the floor at the front of the room with their Foldables® Ms. Moser had students turn and talk to a different classmate about their Venn diagrams then she asked one student to share the comparisons she and her partner had made between the ocean and the desert. After sharing their work Ms. Moser asked, "How does this skill help us? How does comparing and contrasting help us to learn?" to which several students volunteered answers including, "It helps us get organized," "Helps us to synergize because a friend is learning from you and you are learning from your friend," and "You could use it when comparing food choices or collecting data (their current math unit)." Ms. Moser seemed pleased with these connections and thanked her students for their work during science. She collected their Venn diagrams and had them line up for lunch.

*Lesson part analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Ms. Moser's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory*, *Basic*, *Proficient*, or *Distinguished*. Results and lesson notes can be found in Table 4.19.

*Foldable®.* The Foldable® created during this lesson was a three-tab independent fold with a Venn diagram drawn on the front plane. This particular Foldable® is designed to be independent, that is it does not have to be glued into a notebook in order to be operational. Students were given a blank sheet of copy paper that they folded in half hotdog then in thirds. Ms. Moser then gave directions for drawing two interlocking ovals using the creases as guides for their size, to create three independent tabs students cut along the

creases separating the different Venn sections. Students put their assigned habitat on one side of the Venn and their partner's assigned habitat on the opposite side. On the inside of each tab students wrote information about the habitat similarities and differences discussed with their partner. Figure 4.13 is an example of a Venn Diagram Foldable® created by a student during this lesson.

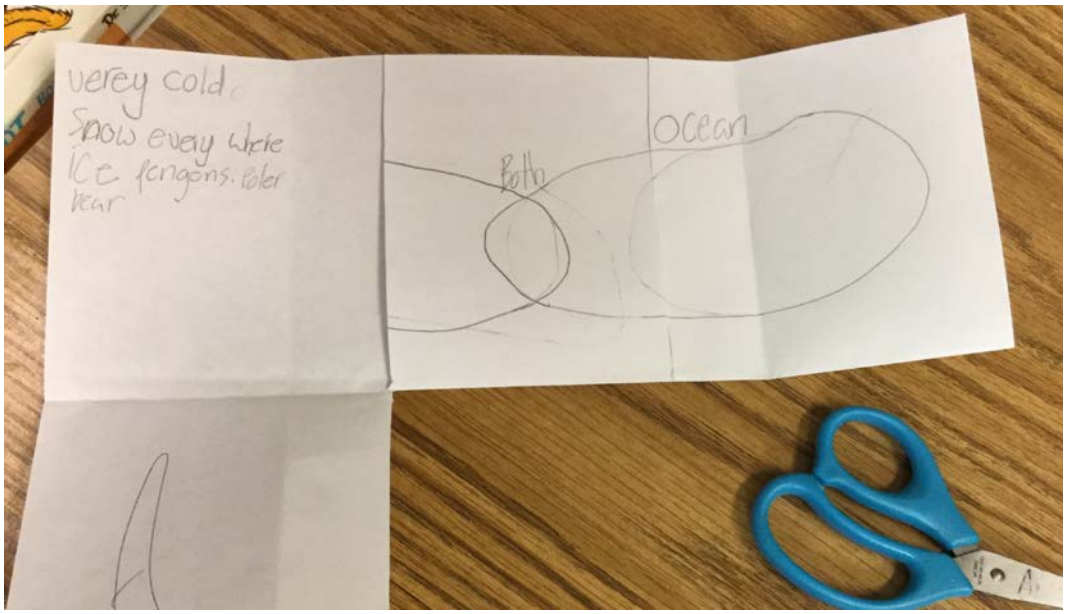



*Figure 4.13.* Student example of habitat Venn Diagram Foldable®.

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory*, *Basic*, *Proficient*, or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.20.

Table 4.19

*Ms. Moser's Third Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Distinguished | *The teacher displays extensive knowledge of the important concepts on the discipline and how these relate both to one another and to other disciplines. The teacher demonstrates understanding of prerequisite relationships among topics and concepts and understands the link to necessary cognitive structures that ensure student understanding. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the discipline and the ability to anticipate student misconceptions.* | Teacher began by connecting the ideas of comparing and contrasting to previous lessons in reading and writing.<br><br>Teacher modeled application of Venn Diagram using accurate examples and inaccurate nonexamples to demonstrate to students where information could be located in each section. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities, with some variety. The lesson or unit has a recognizable structure.* | Activities at a single academic level, no differentiation.<br><br>Students worked both as a whole group and in pairs to complete their Venn Diagram comparing different habitats. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Proficient | *The teacher presents a stimulus that gains the students' attention. Students are attentive and actively engaged.* | Teacher introduced graphic of a Venn Diagram (two overlapping ovals) and asked students what they knew about the tool. |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging~~* | |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | ~~*and relevant learning.*~~ | Teacher stated that students would be learning more about their own habitat as well as another habitat by using a Venn Diagram. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Teacher reviewed compare and contrast from reading and writing instruction and connected the skills to what they would be doing during their science time. |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and build off of the students' existing knowledge.* | Teacher modeled filling out a Venn Diagram at the easel using student input about their assigned habitat. |
| Guided Practice | Proficient | *The teacher integrates the use of accurate examples and nonexamples to help students categorize their knowledge of the new content. Examples are presented first to establish a basic understanding, nonexamples are then introduced to focus the students' attention on the important characteristics of the concept. Students are actively involved in the processing of examples and nonexamples.* | Teacher created a Venn diagram and modeled the correct placement of information from two habitats.<br><br>The teacher presented several nonexamples, having students explain why the information was placed incorrectly on the diagram.<br><br><u>Outcomes</u>:<br>Intellectual – Categorizing habitat characteristics as the same or different<br>Verbal – Discussing and justifying the placement of information on the Venn Diagram<br>Cognitive – Applying compare/contrast skills learned in ELAR to scientific content (transferring skills)<br>Physical – Creation of Venn graphic, placement of information |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked in pairs around the room to discuss their habitats and fill out their Venn Diagrams with the information presented by their partner (continued) |

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | | Outcomes:<br>Intellectual – Categorizing habitat characteristics as the same or different<br>Verbal – Discussing and justifying the placement of information on the Venn Diagram; writing facts under appropriate tabs<br>Cognitive – Analyze information about habitats and correctly categorize as the same or different<br>Physical – Creation of Venn graphic, writing of information, manipulation of tabs |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available and is loosely tied to stated learning objective.* | Students completed Venn Diagram.<br><br>Single performance option offered (Foldable®), no differentiation for varied cognitive abilities. |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions.* | Teacher provided feedback to students during direct instruction, guided practice, and independent practice in the form of praise and corrections.<br><br>Students worked in pairs during independent practice to discuss habitats, feedback was given during this activity as well. |
| Assess Performance | Basic | *Students are assessed for mastery using single performance assignment.* | Venn Diagram only performance option. |
| Enhance Retention and Transfer | | **Not observed during Lesson** | |

Table 4.20

*Ms. Moser's Third Lesson Foldable® Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – 3-tab independent Venn Diagram |
| Arrangement of Information | Distinguished | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside. The layout of the information is demonstrative of the content being covered.* | Two overlapping ovals were drawn on the front tabs to create a Venn diagram.<br><br>One habitat was written on the front of each of the outside tabs. |
| Organization of Knowledge | Distinguished | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students wrote similarities under the middle tab and differences underneath each of the outside tabs.<br><br>Objectives:<br>Intellectual – Giving characteristics of each habitat to compare and contrast.<br>Verbal – Naming similarities and differences between habitats both orally and in written form.<br>Cognitive – Deciding where each characteristic goes and defending placement choice.<br>Motor – Placement of habitat characteristics under corresponding tabs, manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Using a Foldable® for a Venn gives students more space to write than in traditional layouts. The three tabs creates more of a separation between sections and ideas. |

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Ms. Moser were recorded throughout the lesson

and coded according to the type of questions as well as the connections being made through the question. Ms. Moser asked a total of 28 questions during her lesson on revising sentences (see Table 4.21). Of those 28 questions, 19 (68%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “When we have something that looks like this (*referring to a Venn Diagram*) what is it called?” and “Would you find a jack rabbit in the ocean?” The remaining nine questions (32%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, “Can I put animals here? Why not?” and “What animal lives in the ocean that does not live in the desert?”. Multiple answer questions require a higher level of thinking than single answer questions, as a result the nine multiple answer questions were further coded based on the type of connections required to answer them. Ms. Moser made cognitive connections in five (56%) of the multiple answer questions she asked (e.g., “What animal could go here?”), one multiple answer question (11%) required connections to the process of making comparisons (e.g., “What are some things we have to do when working on Foldables®?”), the remaining three multiple answer questions (33%) made evaluative and implication connections related to the content (e.g., “How does this help you get organized?”). There were no affective connections made in Ms. Moser’s questioning in this lesson.

*Lesson analysis.* Ms. Moser’s final lesson on comparing and contrasting habitats using a Venn Diagram used a Foldable® in place of the traditional worksheet format of a Venn diagram. The use of a Foldable® as a Venn diagram allows for more separation of information and often offers more flexible writing space than traditional layouts that

Table 4.21

*Ms. Moser's Third Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 19 | 68% |
| Multiple Answer | 9 | 32% |
| Question Connections | | |
| Cognitive | 5 | 56% |
| Affective | 0 | 0% |
| Process | 1 | 11% |
| Evaluation/Implications | 3 | 33% |

require information to fit into crescent and gibbous shaped spaces. Ms. Moser began by reminding students about the skills of comparing and contrasting by referring to previous lessons in both reading and writing, she then connected those skills to the graphic organizer they would be using for the lesson. Her use of both examples and nonexamples in the modeling portion of her lesson gave students an opportunity to think about and discuss the categorization of facts that they had been researching in their study of habitats. Ms. Moser's questioning during her direct instruction and guided practice gave students the opportunity to think about their knowledge of habitats and justify their placement within the graphic organizer before being asked to complete the process with a partner. Students were given many opportunities for interaction and feedback from both Ms. Moser and their peers during the independent practice phase of the lesson and demonstrated some upper level connections to real life uses for comparing and contrasting using Venn diagrams as the lesson closed.

*Foldable® Reflections*

A Foldable® Reflection form (see Appendix H) was sent by email to Ms. Moser every two weeks to collect data on Foldable® usage in her classroom. Included on the reflections were questions about the subject areas and standards (TEKS) that were taught using Foldables®, the lesson part during which the Foldable® was used, the types of knowledge that were demonstrated through the Foldable®, as well as open-ended questions on planning, demonstration of knowledge and an opportunity for general reflection over the Foldables® used in the previous two weeks of teaching.

Ms. Moser completed four Foldable® Reflection forms over the course of the study. Table 4.22 summarizes the closed response data collected using the Foldable® Reflection form. Analysis of short answer responses follows.

Table 4.22

*Ms. Moser's Foldable® Reflection Responses*

| Week | Subject Areas | Lesson Parts[a] | TEKS | Types of Knowledge |
|---|---|---|---|---|
| Week 2 | Writing | GA, SO, IP | ELA: 2.17 C | Intellectual, Cognitive, Motor Skills |
| Week 4 | Reading, Writing, and Social Studies | GA, PS, GP, IP | Reading: 2.14 D; 2.25 B<br>ELA: 2.18 A<br>Social Studies: 2.20 B | Cognitive |
| Week 6 | Reading | IP and P | Reading: 2.2 Aiii | Verbal and Motor Skills |
| Week 8 | Reading, Writing, and Science | GA, SR, GP, IP, AP | Reading: 2.7 A<br>ELA: 2.18 B<br>Science: 2.9 C | Intellectual and Verbal |

[a] - Gain Attention (GA), State Objectives (SO), Present Stimulus (PS), Guided Practice (GP) Independent Practice (IP), Performance (P), Assess Performance (AP)

*Planning.* When asked to reflect on her planning processes while using Foldables®, Ms. Moser found that her main purpose when including Foldables® in her

lessons was to engage her students and break the content down into more manageable chunks of information. For example, Ms. Moser stated,

> We used the Foldables® more for engagement while we were teaching text features . . . during planning, we wanted a more engaging way to teach text features because they are not real interesting on their own. (Moser Foldable® Reflection, 4/10/2016)

In a reflection over using Foldables® in word study, Ms. Moser added, "We wanted students to give examples of each consonant blend. [The Foldable®] made that task more engaging. It also broke the task down into smaller chunks" (Moser Foldable® Reflection, 4/26/2016). She went on in the following reflection to further describe her process,

> I thought about the objectives and how I could break it down into more manageable pieces so that we could focus on one a day and also one per flap of the Foldable®. This was different from how I have planned before because it was in smaller parts instead of looking at the entire objective. (Moser Foldable® Reflection, 5/15/2016)

*Foldables® in English, language arts, and reading.* Ms. Moser was able to integrate Foldables® into her English, language arts, and reading blocks numerous times throughout the study. She found Foldables® to be very helpful in breaking the writing, revising, and editing processes down into manageable chunks for both her and her students. From a teacher's perspective, Ms. Moser commented,

> I have always struggled with reading 22 students' writing compositions . . . We did a Foldable® that had one sentence on each fold. This allowed me to look at one sentence at a time to check and see if students are on the right track. (Moser Foldable® Reflection, 3/22/2016)

In addition, Ms. Moser found this Foldable® to be beneficial for students because, "[The Foldable®] also made it easier on the students to check one sentence at a time instead of

being overwhelmed about revising and editing the entire page" (Moser Foldable® Reflection, 3/22/2016). Ms. Moser also added that,

> [Students] could see right away if [the sentence] didn't start with a capital letter or if it had a misspelled word . . . When they did peer editing and revising it was also more fun for their partners because they were trying to identify the most impressive and interesting sentence. (Moser Foldable® Reflection, 3/22/2016)

The ability to quickly assess and provide students feedback was another benefit Ms. Moser discussed when using Foldables® in spelling and decoding lessons, she commented that,

> Using the Foldable® allowed us to see very quickly who understood the concepts. This made assessing much easier . . . we could decide which digraph students were struggling with the most. (Moser Foldable® Reflection, 4/26/2016)

The teacher appeared to use data from Foldables® to guide future lessons or grouping of students for focused instruction. Foldables® also acted as a tool for reference and recall of reading-specific concepts. "The students were able to look back at the Foldable® for reference," Ms. Moser stated, "We also drew a picture on each flap of the Foldable® that helped us remember each concept, which created a great visual that was memorable" (Moser Foldable® Reflection, 5/15/2016).

*Foldables® in other content areas.* In addition to reflections on Foldables® in the ELAR content areas, Ms. Moser also took the opportunity to think about the Foldable® applications made in other subjects. In social studies, the grade level completed a Foldable® that broke down the decision making process into parts, one part per tab. Not only was the Foldable® "helpful in keeping the students engaged," Ms. Moser commented that, "Students were able to recall the steps in the process. Without the Foldable® it

probably would not have been as easy to recall and give examples" (Moser Foldable® Reflection, 4/10/2016). She went on to explain that,

> In years past this concept has been difficult for students to master because there are too many steps to keep up with. The Foldable® was perfect for it. We created the social studies Foldable® on our own to match the TEKS exactly. (Moser Foldable® Reflection, 4/10/2016)

Ms. Moser also reflected on the use of Foldables® in Science for comparing and contrasting different habitats and natural environments. She and her students created a three tab Venn diagram for students to complete together. This particular Foldable® did not turn out exactly how Ms. Moser had intended. In her reflection she stated, "next time I will make the differences (middle flap) smaller than the same (outside flaps) because students were able to come up with more features that were the same than different" (Moser Foldable® Reflection, 5/15/2016). This reflection on the effectiveness of her Foldables® and possible modifications she would make in the future was also seen when Ms. Moser commented,

> I wish I had made Foldables® for C.U.P.S. (Capitalization, Usage, Punctuation, Spelling) and A.R.M.S. (Add, Remove, Move, Substitute) so that they could reference those in their notebooks. I will do that next year when teaching revising and editing concepts. (Moser Foldable® Reflection, 3/22/2016)

Comments like these suggest that Ms. Moser sees Foldables® as a beneficial and worthwhile instructional tool that she is committed to using in the future.

*Final Interview*

The final piece of data collected from each participant in this study was an interview in which the participants were asked to reflect on their planning and teaching processes with Foldables® as well as their perceived benefits for students. Ms. Moser's

final interview was conducted on the Thursday of week eight of data collection, right after her final lesson observation.

First, Ms. Moser was asked to reflect on her thinking about content when Foldables® were involved. She found that the integration of Foldables® into her lessons caused her to think more intentionally about how the concepts she teaches can be broken down. She called this process *chunking*.

> . . . the breaking it down into smaller chunks, it really keeps me organized when I know that these are the three things that we're putting on our Foldable® and these are the three concepts I'm going to cover – one on Monday, one on Tuesday, one on Wednesday . . . it helps [students] to learn the content one piece at a time instead of a whole bunch at one time. (Moser Final Interview, 5/5/2016)

In addition to chunking information, Ms. Moser commented that creating Foldables® for instruction requires her to think about the key words and vocabulary needed as well as the big ideas associated with the content being covered.

When asked to reflect on the use of purchased resources from on-line teacher sites versus teacher creation of Foldables® Ms. Moser commented,

> If I came up with the idea, it's so much better. I love it more and I'm sure that I create more enthusiasm for it when I've done it . . . [Foldables®] make me a better teacher because I'm more aware of the content . . . I can break them down and make them easier for my students. Where those Foldables® from [on-line resources] probably have done it, but they don't know what my students get and don't get. It makes a big difference when I make it, for sure. (Moser Final Interview, 5/5/2016)

When asked to think about when she uses Foldables® the most during instruction. Ms. Moser concluded that she regularly used them throughout her lessons. She reflected that she often used Foldables® before lessons or as an introduction to a unit when new vocabulary is needed. Ms. Moser also used Foldables® in her direct instruction when

presenting new concepts that could be added to and reviewed throughout the week, during independent practice, and as final products for various projects and assignments.

Ms. Moser was asked to describe the impact that she felt Foldables® had on her students, her automatic response was that Foldables® increased student engagement.

> They're more engaged. The ones that normally are not too interested in anything, it seems, will do it as part of a Foldable® . . . They're creating something that's theirs, so they have ownership in it and it's just more special than a worksheet. It just makes it more fun. It's more engaging for sure. (Moser Final Interview, 5/5/2016)

In addition to increasing engagement, Ms. Moser also found Foldables® and their integration into notebooks to be a helpful resource and reference point for her students.

> When it's a Foldable®, it is something that students want to return to and use . . . They can refer back to this because it doesn't have answers on it, but it has resources. It's a constant resource that they can return to and use. The vocabulary that, if we had just not glued it into a notebook, it wouldn't be available right away. (Moser Final Interview, 5/5/2016)

One of Ms. Moser's most powerful connections made during her final interview was when she discussed the way Foldables® guided her lesson planning and delivery. "It has changed the way that I teach because instead of giving it to them all at once, which I may have done before, I'm aware that I need it broken down. We're going to lay it out in a Foldable® where it's broken down for them" (Moser Final Interview, 5/5/2016).

*Case Study Analysis*

The case study analysis section will serve as the synthesis of all of the individual data collected and presented for the case study. This section will discuss how each piece of data collected from Ms. Moser over the period of the study contributes to her case as a whole and how the data in this case relates to the study questions : How does the creation of Foldables® affect teacher understanding of standards? How does the use of Foldables®

affect the way a teacher plans for instruction? and How does the use of Foldables® affect the way a teacher instructs?

*How does the creation of Foldables® affect teacher understanding of standards?* In her lesson plans, Ms. Moser referenced specific state standards and identified student objectives for each lesson. Both her stated standards and objectives were rated at a *Basic* level using the Weekly Document Observation Rubrics (see Appendix E) because Ms. Moser's standards lacked the mention of prerequisite skills and connections within and across content areas. Her stated objectives also lacked any form of preassessment. so the level of rigor and challenge could not be established. Ratings of *Basic* were given each of the eight weeks in these two areas. Based on this lesson planning data, no changes in the depth of understanding of the standards resulted from Ms. Moser's Foldable® usage.

Questioning data collected during lesson observations also contributed to our knowledge of Ms. Moser's depth of understanding and thinking about the standards being presented. In all three of the lessons observed for this study Ms. Moser's questioning consisted of a majority of single answer questions, which generally require lower levels of thinking and application. In her first lesson on revision of writing, 67% of her questions required a single correct answer. The questioning in both Ms. Moser's second lesson over rhythm in poetry and her third lesson over comparing and contrasting using Venn Diagrams consisted of 68% single answer questions. Questioning in Ms. Moser's lesson delivery lacked upper level thinking and required very few cognitive, affective, process, and evaluative connections, which suggests that the level of understanding, or at the very least the level of rigor of standards, was consistently low. The questioning data obtained

during Ms. Moser's observations does not demonstrate any changes in her depth of understanding of the standards over the period of the study.

However, depth in the teacher's knowledge of standards was seen in Ms. Moser's interview data. In her initial interview, Ms. Moser stated that she always began with the state standards, TEKS, to decide what content to cover. In her final interview Ms. Moser reflected on the effects that integrating Foldables® had on the depth of her understanding of standards. Ms. Moser found that the inclusion of Foldables® made her more aware of the standards and caused her to think more intentionally about how concepts could be broken down, or chunked, into smaller units for teaching. Ms. Moser found that the creation of Foldables® added depth to her understanding of the standards by causing her to break large ideas into more manageable concepts and processes rather than merely considering the big picture or larger goal. This deeper understanding of concepts allowed Ms. Moser to more easily make connections to and see relationships between the smaller concepts.

*How does the use of Foldables® affect the way a teacher plans for instruction?* The format and contents of Ms. Moser's lesson plans remained consistent throughout the entire data collection period. She demonstrated overall proficiency in her lesson planning through all eight weeks. Specific areas rated as having a *Basic* level of performance were *Standards, Stating Objectives,* and *Guided Practice.* The *Standards* section lacked prerequisite skills and cross-curricular connections, *Stating Objectives* lacked preassessment to establish rigor and challenge, and *Guided Practice* was missing the systematic use of nonexamples. In addition, Ms. Moser received a rating of *Unsatisfactory* in the area of *Providing Feedback* as a result of the lack of specific methods for

communicating with students about their progress. The consistency and lack of change through the eight weeks of data collection may be a result of team planning and the use of a prescribed format with required lesson parts. As a result, there cannot be any conclusions drawn from submitted lesson plans about changes in Ms. Moser's planning processes as a result of using Foldables®.

Lesson observations in Ms. Moser's classroom were conducted in three different subject areas. Lesson one was a revising lesson completed during her writing block using sentences that students had written as part of their research on an historical figure. Lesson two was a reading lesson on characteristics of poetry, specifically rhythm, which was a continuation of a poetry unit begun earlier in the week. The final observation was a science lesson comparing and contrasting two habitats. Given the broad range of content and skills being taught through these three lessons it would be difficult to conclude that any changes observed in Ms. Moser's planning for lesson delivery were due to the addition of Foldables®.

Changes in planning processes were seen in the interview and reflection data collected from Ms. Moser. In her Foldable® reflections, Ms. Moser commented that the creation and use of Foldables® for instruction influenced her careful consideration of vocabulary, key words, and big ideas that would drive lessons and activities in reading during her planning process. In addition, during her final interview Ms. Moser commented that in the past she would present an entire process or set of ideas to her students at once but that Foldables® caused her to think in smaller more manageable concepts. When concepts were broken down into smaller parts in the planning process Ms. Moser found that she became more organized and thoughtful about which parts should come first and

how the different concepts related to each other. Ms. Moser's planning process was changed because she found herself more carefully considering the needed vocabulary, key concepts, and big ideas for application of the concepts being taught.

*How does the use of Foldables® affect the way a teacher instructs?* In her initial interview Ms. Moser referred to engagement several times, mostly related to student engagement (e.g., looking for ways to involve and hook her students into her lessons). In her final interview Ms. Moser commented that Foldables® were engaging for students due to the hands-on creation of something new, but she also commented that *she* was more engaged in instruction when she used Foldables® to deliver content because she had taken the time to understand the concept and arrange the knowledge in a way that was meaningful to her. In addition to increased teacher engagement and excitement for teaching, Ms. Moser also commented that Foldables® kept her more organized and focused on the specific concepts and processes that were being discussed on that day or through that specific Foldable®. Added depth in the understanding of standards and more attentive planning as a result of using Foldables® led to a perceived increase in teacher and student engagement as well as more focused and organized instructional delivery on the part of Ms. Moser.

Two of the Foldables® used in observed lessons had been created during lessons earlier in the week. As a result, the actual construction of the Foldable® was only observed in observation number three. Ms. Moser used effective modeling and clear directions when having students create their Venn Diagram, and the majority of the students were successful in creating a working Venn. Only two had to be remade due to cutting errors. The revising and rhythm Foldables® that were created prior to the observed

lesson were well planned and students were aware of where information should go on each tab, suggesting that Ms. Moser was consistent in her lesson delivery and usage of the Foldables® and thoughtful about the concepts and how they connect to each other.

In addition, Ms. Moser used Foldables® in her instruction to help students think at higher levels. Her revising Foldable® had students think analytically about their historical figure's life and select specific events that they felt were most significant. Students then justified their choices through the writing of effective sentences, which produced short biographies for students to present. Ms. Moser's Foldable® choices also allowed for varied responses from her students. While there were still some instances where students copied specific vocabulary and definitions they were asked to generate their own examples for both the poetry and Venn diagram Foldables® produced in observed lessons. In this way, the Foldables® used by Ms. Moser required students to think at higher levels and to create an artifact that reflected that thinking.

Ms. Moser discussed the idea of *chunking* information into manageable "pieces" in her final interview and Foldable® reflections. She commented that the process of breaking standards into smaller pieces (i.e., definitions, concepts and processes) was helped by the use and creation of Foldables®. The lessons observed for this study are evidence of the *chunking* process in planning and instructional delivery described by Ms. Moser. The process of chunking can be seen in the breaking down of the writing process into step-by-step lessons like in her ARMS revising activity. Chunking is also demonstrated in the separation of specific characteristics of poetry and the focused teaching of each in Ms. Moser's rhythm lesson. Lastly, the idea of chunking and breaking bigger ideas into smaller concepts is seen in Ms. Moser's comparison lesson when

students are asked to take the information they've learned and make connections as well as distinctions between two habitats.

*Themes*

In the analysis and synthesis of the data collected from Ms. Moser during this study several themes emerged including the themes of chunking standards, student engagement, and the ability to reference.

The first theme was the theme referred to by Ms. Moser as *chunking*, the process of taking individual standards and breaking them down into smaller, more manageable concepts. When discussing this process, she included the identification of needed vocabulary, prerequisite skills, big ideas, and details needed by students in order to fully understand the content being taught. In her final interview, Ms. Moser commented on how in the past she would teach an entire multi-step process or cover many details of a concept in a single lesson. She reflected on how ineffective this strategy was and how her students would be unsuccessful in recalling details or steps in a process when it was taught in large *chunks*. The creation and use of Foldables® in instruction influenced Ms. Moser to be more intentional and organized about her lesson planning and delivery. Instead of teaching the entire writing process in a single lesson she would break down each step into more manageable parts. This strategy was observed in her revising lesson where she had taken several days to walk her students through the process of writing simple sentences in a Foldable® about their research and then taking the time to look at each individual sentence and revise it into a better version. Chunking was also seen in her lesson on rhythm. Ms. Moser had taken the characteristics of poetry described in the state standards

and taught one characteristic per day, devoting a tab on a Foldable® to a visual representation, definition, and examples of each characteristic.

An additional theme that emerged from Ms. Moser's data was the theme of student engagement. Student engagement was first mentioned in Ms. Moser's initial interview when explaining why she chose to include certain activities or resources in her lesson plans. Activities and resources used to grab student attention in Ms. Moser's lesson plans included BrainPop and StudyJam videos as well as read alouds, Promethean board flip charts, interactive games, small group activities, and Foldables®. These activities were seen in action during lesson observations in Ms. Moser's class where Foldables®, SafeShare links, Promethean activities, and class discussions were used to engage and involve students in the learning activities. Finally, in Ms. Moser's final interview and Foldable® reflections, she commented that her students seemed more engaged and excited to complete activities where a Foldable® was involved rather than a worksheet or assignment out of a book.

The third theme that emerged from Ms. Moser's data was the idea of using Foldables® as a reference. Ms. Moser often used teacher-created anchor charts that hung in the classroom to refer to during lessons, to guide her instruction, and to serve as a method for review at the end of a unit. These anchors were helpful while they hung in the classroom but eventually they had to be taken down and replaced by new content. In her final interview Ms. Moser reflected on the process of creating and storing Foldables® as evidence or artifacts of learning in subject-specific notebooks. She found this process to be very helpful because even when the anchor chart was removed from the classroom

wall, the students could still remind themselves of past learning by referring to the work stored in their notebooks and project folds.

In conclusion, data collected from Ms. Moser during this study suggests that Foldables® had an impact on Ms. Moser's depth of understanding of state standards as well as her planning and instruction. Foldables® caused Ms. Moser to *chunk* content to make standards more manageable by considering the big ideas and details, needed vocabulary, and related concepts to the content being taught. This increased understanding caused Ms. Moser to be more organized and methodical about the way she presented content and broke down processes for her students. Her intentional planning of lessons led to a perceived increase in student understanding and retention of information as well as an increase in both student and teacher engagement in the learning process.

## *Case Study: Mrs. Fletcher*

### *Context*

*Classroom environment.* Mrs. Fletcher's classroom could be accessed either from the outdoor walkway leading up to Building Two or through an interior hallway door (See Figure 4.14 for a classroom diagram). For observations I would come through the exterior door because students were often transitioning when I arrived so my entrance was not a distraction to learning activities. The exterior door was surrounded on all sides by windows, in front of which hung a translucent striped shower curtain to help diffuse the light. In addition to the light from the windows surrounding the doors Mrs. Fletcher had several floor lamps and strings of lights around various bulletin boards to serve as task

lighting during the school day. In all of my observations and interviews in Mrs. Fletcher's classroom the overhead fluorescent lights were never used, creating a dimly lit work area.

Mrs. Fletcher's desk and a bookshelf of reference materials were located at the front of the room as one entered from the exterior. Her teacher space was consistently neat and tidy without a lot of clutter. Mrs. Fletcher's desk also housed a desktop computer for teacher use as well as the document camera used for instruction. A Promethean board was mounted on the wall adjacent to Mrs. Fletcher's desk at the front of the room. The projector was ceiling mounted for ease of use.

On the floor in front of the Promethean board was a collection of blue, yellow, red, and green foam mats fitted together to make a carpet for students to sit on during direct instruction and guided practice activities. Below the Promethean board was a short shelf where students' book boxes were stored. On the left side of the Promethean Board there was a bulletin board with examples of student work as well as works in progress. Below the board was a shelf with plastic bins that stored teacher and student supplies. To the right of the Promethean board near Mrs. Fletcher's teacher space was a bulletin board with classroom rules, schedules, and emergency procedures. Between Mrs. Fletcher's teacher desk and the carpet sat a chair and easel with chart paper that served as the location for the majority of Mrs. Fletcher's whole class direct instruction and modeling.

Floating student cubbies and hooks where backpacks and jackets were hung were to the left of the exterior door as you entered Mrs. Fletcher's room. Above the cubbies was a word wall that contained sight words and content-area vocabulary words for student's reference. Strings of Christmas lights lined the perimeter of the bulletin board. Beyond the cubbies was a tall wooden bookcase full of labeled boxes and bins of supplies,

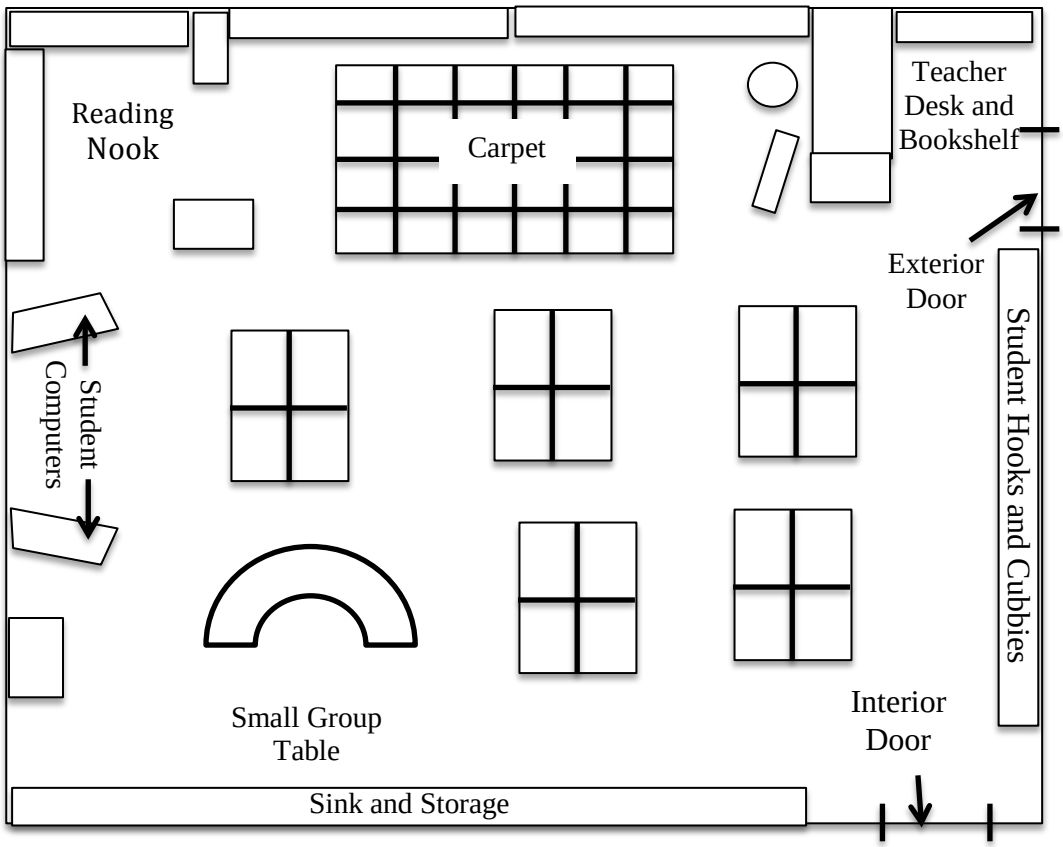



*Figure 4.14.* Mrs. Fletcher's Classroom Diagram

manipulatives, and games for student use. Figures 4.15 and 4.16 are photographs of Mrs. Fletcher's classroom.

On the wall directly across from the exterior classroom door was a large bookshelf that served as the classroom library. Books in the library were arranged on the shelves in baskets and bins by subject and reading level. On the floor in front of these bookcases were a rug and a collection of floor pillows for student use during reading or group work times. Adjacent to the reading nook were two trapezoid-shaped tables that housed four desktop computers for student use.

At the back of the classroom adjacent to the interior door was a sink and countertop that stretched the entire length of the classroom. Leveled readers and small

*Figure 4.15.* Mrs. Fletcher's classroom from the small group table.

*Figure 4.16.* Mrs. Fletcher's classroom from the interior door.

group supplies were arranged on the counter top for easy access from the nearby kidney-shaped table where Mrs. Fletcher pulled small groups for reading instruction. Below the counter were shelves for additional storage.

Student desks were clustered in groups of four and eight with three-drawer supply towers with notebooks, readers, and extra school supplies for the group's use arranged

between each set of four desks. Three individual student desks were pulled out around the room for students who required a more quiet area in which to work. Student desks varied in height and color, but all included a single shelf under the desktop that served as storage for student supplies, folders, and papers.

Mrs. Fletcher's walls were decorated with colorful posters, anchor charts, and examples of student work. Anchor charts and reference materials such as word walls were arranged by subject area around the room and were changed out regularly to reflect the current units or concepts being covered. A single cable stretched across the classroom above the student computers displayed student work hung by clothespins.

*Students.* There were 18 students in Mrs. Fletcher's class, 11 males and seven females. Of those students, four were African American, seven were Hispanic, and seven were White. Two of the 18 students received additional reading support and instruction through the Ranger Elementary Response to Intervention (RtI) program.

*Lesson Planning*

*Interview data.* An initial interview was conducted with Mrs. Fletcher at the beginning of data collection to discuss her lesson planning and delivery strategies. Questions were crafted with Gagné's (1985) instructional framework as a guide (see Appendix I).

I began by asking Mrs. Fletcher to describe her planning process. When planning lessons in writing, she began by looking at the district mandated scope and sequence to see what was to be covered in the upcoming days and weeks. Next, Mrs. Fletcher referred to the Texas Essential Knowledge and Skills (TEKS), which serve as the state content

standards to align her lessons with the standard statements. After considering the scope and sequence and standards to be covered, Mrs. Fletcher planned activities that would cover the content and processes within the standards as well as being engaging to students. Lessons and activities for writing would then be presented to her teammates at their weekly planning meeting.

When introducing new topics to students, Mrs. Fletcher would try to relate the content to students' experiences.

> We'll often try and relate it to their own life, so bringing a KWL chart in or trying to talk with them about different things. Asking questions like, "What do you know about this already?" Getting them to talk about it, or if it's something they might not have done anything with before then they might need to explore with that. (Fletcher Initial Interview, 3/4/2016)

In addition to connecting concepts to students' experiences, Mrs. Fletcher would often use technology such as video clips and songs that integrate both audio and visual input to gain students' attention and focus their thinking.

After the introduction of new information Mrs. Fletcher looked for activities that engaged her students with the content being covered. These activities most often involved video clips from BrainPop, YouTube, and StudyJams, but also included songs that students would memorize and then get stuck in their heads. Mrs. Fletcher commented,

> I feel like especially with songs and videos that kids these days are more engaged when they have something that is interesting to them - iPads, colorful things that move and dance and talk to them or feel like a game – I feel are always going to capture their attention more than I'm able to . . . Anytime I can bring technology into it like with a video or something, I know that they might listen to it or hear it in a different way and that is going to be beneficial to them. (Fletcher Initial Interview, 3/4/2016)

While not addressing the methods within the discipline, Mrs. Fletcher did point out that engaging activities often looked different depending on the content area. Math, for

example, often requires hands-on activities and the use of manipulatives; social studies might be more discussion-oriented; and science concepts might best be learned through observations and experiences with the environment. Regardless of content area, Mrs. Fletcher added,

> Finding a way for them to be hands-on is important or a way for them to be fully engaged. The practice has to be purposeful and it has to be something that is going to allow them to be interested in what they're doing . . . [With notebooks] we're trying to find a way where they can put something that is colorful or a picture of a Foldable®, something like that that is in there for them to be practicing that is a little more hands-on and a little bit more, "I remember doing this, therefore I remember the content a little bit more." (Fletcher Initial Interview, 3/4/2016)

When thinking specifically about Foldables® and why she feels they're an engaging activity for students Mrs. Fletcher commented,

> We've found a lot of benefit to it because it's a way where the kids don't feel like they're doing something boring. They feel like they're doing something fun because they've gotten to cut, they've gotten to glue, they've gotten to write it in a certain place and matching that information they've enjoyed. (Fletcher Initial Interview, 3/4/2016)

Mrs. Fletcher then went on to reflect specifically on activities in writing instruction.

> For writing in particular, we're always using a planner and organizer. That's something that we know our kids need to have a way to organize their thoughts and that's going to help them be better writers and include more information. (Fletcher Initial Interview, 3/4/2016)

Written organizers are not only important in the second grade classroom. Mrs. Fletcher commented that giving students practice with the use of graphic organizers and planning documents has a far-reaching effect on their schooling.

> Organizers are extremely important in anything they do. [Students] need to be able, when they're writing, to set a plan for what they're going to say and they need to be able to put pieces together so as they get older and are trying to write longer pieces and create paragraphs for each one, they have to have a way to see what they're going to write about. That's why we

> really focus on those . . . because they are what is going to set them up for success the most. (Fletcher Initial Interview, 3/4/2016)

After concepts have been introduced and practiced, students are expected to complete some form of performance or application of the material. Mrs. Fletcher used many types of performances in writing including formative checks throughout the writing process and rubric-graded final pieces. Outside of formal assessments of compositions, Mrs. Fletcher also used various formats for assessing student performance,

> It might be a matching page or it might be a "write the room" activity where they have to go around and solve the different problems. It might be sometimes unfortunately a worksheet. It might be a flapbook, a Foldable® that they've done. Whatever it might be, something that's final, "We're learned this. We've practiced this. Now show me what you can do" type of activity, not always tests. (Fletcher Initial Interview, 3/4/2016)

In addition to varied performance options, Mrs. Fletcher offers several forms of feedback from different audiences for her students throughout the learning process.

> Sometimes working with a partner can be a way of showing how effective you were, and they can realize, "Hey, I don't know this because my partner is telling me that it's not right or telling me that I didn't do that right," so sometimes we'll pair up. Sometimes they turn [assignments] in for a grade. Sometimes we'll bring it all together and discuss it and they're checking it as we go and realizing they're supposed to have this, they're supposed to have this, and they'll make corrections. They're giving themselves in some cases their own feedback because they know they need to make changes if they didn't have all the pieces they needed to have. (Fletcher Initial Interview, 3/4/2016)

After introducing new concepts and providing students with practice and performance opportunities during which they are given feedback, there is often a need for addressing misconceptions about the content. Mrs. Fletcher generally used small group instruction, teacher modeling, sharing of exemplars, and repeated practice activities to address misunderstandings.

*Lesson Plans.* Weekly lesson plans were collected over the eight weeks of data collection and were analyzed using the Weekly Document Observation Rubrics (see Appendix E) developed for this study. Lesson plans were analyzed in full week units, the only lessons analyzed for this case study were writing plans because those were the plans submitted by Mrs. Fletcher. Table 4.23 is a summary of Ms. Fletcher's lesson planning ratings across the study.

Lesson plan parts included in the format used at Ranger Elementary were *Learning Standards,* where teachers list the Texas Essential Knowledge and Skills (TEKS) covered by the lesson, *Daily Procedures,* which include warm-ups and reviews, a list of *Materials*, *Activities/Procedures*, *Differentiation* strategies, *Evaluation,* and *Academic Vocabulary.* Lesson plans were not scripted because they were discussed at the weekly team meetings. Rather, the plan served as a list of needed materials and possible activities to address the stated standards and objectives.

- *Standards:* The standards section of Mrs. Fletcher's lesson plans included the TEKS statements addressed by the lessons but did not reference prerequisite learning or connections and relationships across content areas. For this reason, the *Standards* rating for each week was *Basic,* which states *The teacher's plan includes specific standards and/or objectives for the lesson.*

  *Gain attention:* Mrs. Fletcher used various methods to gain her students' attention for lessons. Reviewing types of writing and the writing process was often used as an opener for writing lesson plans (weeks 3, 5, and 7). In other units Mrs. Fletcher would begin by reviewing previous lessons (week 2) or steps that they had completed in their current project (week 1). When second grade moved into a unit

on poetry Mrs. Fletcher chose to gain her students' attention by reading some of her favorite poetry examples (week 8). For this reason, the *Gain Attention* rating for each weeks one, two, three, five, seven, and eight was *Proficient*, which states *The teacher's plan defines a stimulus that will be presented to gain the students' attention. Stimulus is related to the concepts being taught.* In week four Mrs. Fletcher used a review of the Seven Habits, which are characteristics discussed regularly at Ranger Elementary as an introduction to a writing project where students would be teaching a moral lesson through their composition. In week six Mrs. Fletcher connected her writing activities to Earth Day celebrations by having students write persuasive texts from the Earth's perspective, she introduced this unit by asking students, "What does it mean to persuade?" and "When have you been persuaded?" to get them thinking about times in the real world where they had experienced this type of writing or advertisement. For this reason a rating of *Distinguished* was assigned in the area of *Gain Attention* for weeks four and six, this rating states *The teacher's plan defines a stimulus related to the content that focuses the learners' attention on the information being presented. Stimulus requires student response.*

- *State objectives:* Student objectives were present in each of the lesson plans submitted by Mrs. Fletcher. Objectives were stated in terms of what the students would be doing ("Students will . . . ") during the lesson and what the expected outcome would be. Student objectives were closely tied to the standards and lesson activities presented. Examples of objectives included, "Students will write

Table 4.23

*Mrs. Fletcher's Weekly Lesson Plan Analysis*

| | Week 1 | | | | Week 2 | | | | Week 3 | | | | Week 4 | | | | Week 5 | | | | Week 6 | | | | Week 7 | | | | Week 8 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished | Unsatisfactory | Basic | Proficient | Distinguished |
| Standards | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Gain Attention | | | X | | | | X | | | | X | | | | | X | | | X | | | | | X | | | X | | | | X | |
| State Objectives | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Stimulate Recall | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Present Stimulus | | | X | | | | X | | | | X | | | | X | | | | X | | | | | X | | | X | | | | X | |
| Guided Practice | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Independent Practice | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |
| Performance | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Provide Feedback | | X | | | | | | X | X | | | | X | | | | | | | X | X | | | | X | | | X | | | | |
| Assess Performance | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | |
| Enhance Retention and Transfer | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | | | | X | |

speeches about their biographical figures;" "Students will write a realistic narrative piece based on information learned about frogs;" "Students will revise their writing;" and "Students will write descriptive poetry." While these objectives include a variety of learning processes, no preassessment is used for aligning them to the students' performance. As a result, the degree of rigor and important learning cannot be established for individual students. For this reason Mrs. Fletcher's rating for stating objectives was *Basic*, which states, "*The objectives included in the teacher's plan are vague or unclear. Objectives reflect a low level of rigor or are not clearly connected to the performance."*

- *Stimulate recall:* A variety of methods were used in Mrs. Fletcher's lesson plans to stimulate her students' recall of information. These methods always revolved around a review and discussion of previous lesson content (weeks 1-8), but also included connections to other concepts such as different types and formats of writing (weeks 1-6), guiding questions (weeks 6 and 8) and Leader-in-Me traits (week 5). References to previous lessons and shared classroom experiences in the form of lower-level questions (e.g., "What type of writing have we been working on this week?" or "What do we call writing that gives information? What about writing that tells a story?") offered students the opportunity to access previous knowledge as well as apply it to their current learning. Connections made during the introductory portion of the lesson (e.g., "When have you been persuaded? or "What makes a poem a poem?") added the opportunity for deeper thinking about the concepts and their relationships with other content. For this reason, Mrs. Fletcher received a rating of *Proficient* in *Stimulate Recall*, which states *The teacher's plan connects current learning to past concepts and*

*begin by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions* for each week.

- *Present stimulus:* Mrs. Fletcher presented her stimulus for writing lessons through the use of shared writing in a writer's workshop format (weeks 1-3, 5, 7). Shared writing is a process where the teacher and students work together on a common writing piece throughout the week. The teacher models the skills an author uses through think-alouds and modeling the writing process often on chart paper or using a document camera before allowing students to apply the skills in their own writing. Mrs. Fletcher also used read-alouds of mentor texts (weeks 4, 7, and 8) to demonstrate what a finished composition might look like. A rating of *Proficient* was given for weeks one through five and weeks seven and eight in the *Present Stimulus* category of the rubric, which states *The teacher's plan uses both auditory and visual stimuli to present new information. Lesson plan is aligned with the stated objectives and builds off of the students' existing knowledge.* Week six received a rating of *Distinguished* in the *Present Stimulus* category due to the crossing of content areas in the discussion and brainstorming of reasons for caring for Earth as an introduction to their persuasive writing assignment for the week that Earth Day was celebrated. The *Distinguished* rating for this category states, *The teacher's plan uses both auditory, visual, and tactile stimuli to present new information. Lesson plan is closely aligned with stated objectives as well as outcomes Lesson plan is explicitly related to existing knowledge, crossing content areas where appropriate.*

- *Guided practice:* After new content is presented there is a time of guided practice where the teacher and students work together to model and practice the skills that were introduced. Mrs. Fletcher used shared writing and teacher modeling of the writing process in each of her writing lessons. With the whole group she would review the steps of the writing process they had discussed the day before and would then model the next step for her students using a class-created piece of writing. In this way each of the steps of the writing process – plan, draft, edit, revise, and publish were modeled on a regular basis for her students. Based on the rubric used for this study and due to the fact that there was no mention of the use of nonexamples during the guided practice portion of Mrs. Fletcher's lesson plans, a rating of *Basic* was assigned for all eight weeks. This rating states, *The teacher's plan presents numerous accurate examples of the new content . . . Nonexamples are not presented during guided practice.*
- *Independent practice:* After participating in the modeling and discussion of shared writing each day with Mrs. Fletcher, students were given independent writing time for applying the skills presented. During this time of writer's workshop, students return to their desks and continue working on their current piece of writing, applying the next steps of the writing process. This method of application falls under the *Proficient* category of *Independent Practice*, which states *In the teacher's plan students are given the opportunity to use the terms and examples presented without the direct support of the teacher but may be practicing in groups for support.*
- *Performance:* Each week in writing, the second graders at Ranger Elementary were working through the writing process in different genres for different audiences. For this reason, performance options were often limited to the specific genre/audience

being covered during the week or in the current unit of study. Performance was often completed with the support of peers either in partners or small group settings. Performance activities included in Mrs. Fletcher's lesson plans included biographical speeches (weeks 1 and 2), realistic nonfiction (week 3), teaching a moral (weeks 4 and 5), persuasive text (week 6), personal narrative (week 7), and poetry (week 8). Due to the lack of variety and choice in performance options, these activities most closely aligned with the *Basic* rating under *Performance*, which states, *The teacher plans to assess students individually on their level of mastery of the new content. Only one performance option is planned for and is loosely tied to stated learning objectives.*

- *Provide feedback:* Feedback from the teacher lets students know how they are doing in the learning process. In Mrs. Fletcher's plans were often opportunities for students to collaborate, share, and discuss concepts but specific methods for providing feedback were often missing from the lesson plans submitted (weeks 3, 4, 6, and 8). For this reason, a rating of *Unsatisfactory* was assigned to this category, which states *The teacher's plan does not include methods to provide feedback.* In weeks one and seven specific directions were given for conferencing with each student, having them share and receive feedback at the end of the workday. For weeks one and seven a rating of *Basic* was assigned, which states *The teacher's plan includes methods for providing specific feedback at the conclusion of the lesson.* In weeks two and five there was specific instruction and modeling provided during guided practice to demonstrate how to effectively give tips and compliments to peers during a writing conference these skills were then practiced during independent practice times. The inclusion of peers and the guidance given for providing specific feedback earned Mrs. Fletcher ratings of

*Distinguished* for these two weeks, which states, *The teacher plans to provide feedback opportunities through multiple sources including teacher, peers, and self-reflection. Specific and descriptive feedback in the form of corrections, praise, and guiding questions will be given throughout the learning process.*

- *Assess performance:* Some performance opportunities are formally assessed and graded to establish student mastery of concepts. Mrs. Fletcher assessed her students on a weekly basis informally and formatively on their progress through the writing process as well as formally on their published compositions produced in weeks two, three, five, six, seven, and eight. Due to the fact that there was only one performance option in writing each week, Mrs. Fletcher received a rating of *Basic* in the category of *Assess Performance* for each week of lesson planning. This rating states, *The teacher plans to assess students for mastery using a single performance assignment*.
- *Enhance retention and transfer*: Activities used to enhance retention and transfer of concepts in Mrs. Fletcher's lesson plans collected for this study included a continuous spiral on the writing process. Each week students moved through each of the steps of the writing process, sometimes at their own pace, other times at a pace decided upon by Mrs. Fletcher. This continuous repeated practice of the writing process aligned with the *Proficient* rating in this category, which states *The teacher's plan includes additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning.*

Analysis of the weekly lesson planning documents submitted by Mrs. Fletcher for writing instruction demonstrate a general level of proficiency in lesson parts including: gaining attention, stimulating recall, presentation of stimulus, independent practice, and

enhancing retention and transfer. Mrs. Fletcher received a rating of *Basic* in the areas of standards, stating objectives, guided practice, performance, and assessing performance. Ratings of basic in standards stemmed from the lack of prerequisite knowledge and cross-content connections. A lack of preassesments in lesson plans made establishing rigor and challenge difficult, which resulted in a rating of *Basic* in that category. In guided practice a rating of *Basic* was assigned due to the absence of explicit and systematic use of nonexamples during the practice portions of the lesson plan. Single performance and assessment options each week resulted in *Basic* ratings in both categories. Mrs. Fletcher's ratings in providing feedback ranged from *Unsatisfactory* in weeks three, four, and six to *Distinguished* in weeks two and five, and a rating of *Basic* for weeks one and seven. This range in ratings was due to the fact that there was no mention of specific methods for providing feedback to students in lesson plans for weeks three, four, and six, while weeks two and five had specific lessons devoted to how and when to give feedback during writing conferences using fishbowl modeling of conferences and sentence stems based on rubric categories.

*Classroom Observation One*

*Lesson narrative.* The first lesson observation conducted in Mrs. Fletcher's classroom took place at 8:30 in the morning on the third Wednesday of data collection. I entered the classroom through the exterior door, students were working quietly on morning work assignments. The room was dimly lit from the floor lamps and strings of light as well as the light streaming in from the windows surrounding the exterior door. There was a quiet but busy hum of students working on assigned tasks both independently and with tablemates. I found an empty spot at the kidney shaped table at the back of the room and set up my iPad and

laptop for data collection. Mrs. Fletcher set a timer for students to find a stopping point in their current activity and with one minute left asked students to begin putting their morning work assignments back into their folders and finding a spot on the floor to discuss their BioBuddy projects. Students followed directions and joined their classmates on the floor in front of the Promethean board once their spaces were cleared. There were 17 students present for the lesson, 10 male and 7 female. Of the students present, three were African American, seven were Hispanic, and seven were White.

Mrs. Fletcher began her lesson by showing students an example of a BioBuddy project that she completed the previous year over Abraham Lincoln. The project fold had a shutter folded piece of construction paper that served as its body with construction paper arms and legs that were crafted to look like the figure was wearing a suit. At the top of the Foldable® was a circle with a face drawn on it and a tall top hat making the project clearly representative of Abraham Lincoln. The students looked at the project excitedly and whispered to their neighbors about the different pieces of the research project that they recognized. Mrs. Fletcher pointed out that on each plane of the shutter fold there were pieces of information. On the front were the patches with the figure's name and dates of birth and death along with the symbol chosen to represent the figure. On the inside were the time line, most important things, and interesting facts, and on the back of the fold was the five-sentence speech about Abraham Lincoln. Students seemed knowledgeable of each of the pieces as Mrs. Fletcher pointed them out.

Mrs. Fletcher then told the students that they would be beginning their own shutter project folds during their writing time. She pulled out the shared research that the class had been working on together over Helen Keller – there were a notes page, a page with the patches

and most important things, and finally a third page with the timeline, interesting facts, and five sentence speech they had written as a class. Mrs. Fletcher told her class that they would be taking each of these pieces and arranging them on their project fold to get ready for their living museum presentations. She had collected pieces of different colored construction paper for each of her students based on what color and what type of clothes they felt their historical figure would wear. Most of the male historical figures were going to be represented by black construction paper made into suits, Jackie Kennedy would be wearing bright pink, and Florence Nightingale would wear a white nurse's outfit. Mrs. Fletcher called each student up to get their piece of paper and instructed them to return to their seats to find their research pages as well as their scissors.

Once all students had received their papers and returned to their desks, Mrs. Fletcher gave directions on the creation of the shutter project fold. She began by having her students orient their papers horizontally and then fold them carefully in half hamburger to create a crease down the very center of the paper. Mrs. Fletcher then had her students fold each of the outside ends of their papers in to meet with the center crease creating a two-door shutter fold. She then focused her students' attention on their research pages and modeled the cutting and gluing (using glue sticks passed out by a classmate) of each of the research pieces. Students who had completed each of the pieces worked along with her while students who still had sections to finish began referring back to their notes and biographies to put the final touches on their research before gluing their pieces of research onto their project fold.

After modeling the creation of the shutterfold and the gluing of the various research pieces onto the project, Mrs. Fletcher allowed students time to complete their research pages if they weren't already done. If they had completed each piece for their BioBuddy and had

correctly glued all of the parts onto their projects, students were instructed to use independent practice time to finish their BioBuddy speeches for the living museum and practice reading either to themselves or to a tablemate. Students were given 10-15 minutes to work independently on their research and final product before Mrs. Fletcher set a timer to bring an end to their work time. The lesson was wrapped up by reviewing the different pieces that had gone on to the project as well as carefully cleaning up work areas to make sure none of the pieces were accidentally thrown in the garbage.

*Lesson Part Analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Mrs. Fletcher's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.24.

*Foldable®.* The Foldable® created during this lesson was a vertically oriented shutter project fold made out of different colors of construction paper decided upon by individual students that was. This particular Foldable® was independent (i.e., it is operational outside of a notebook or other cover). The shutter fold was created as a project holder for their BioBuddy research project that would be presented to the community in a living museum setting where students dressed up and acted as their chosen historical figure. Research pieces were arranged on the inside, outside, and back cover of the shutter and students added a head, arms, and legs to make their fold look like the person they had researched. Figures 4.17 and 4.18 are a student example of the BioBuddy Foldable® created.

Table 4.24

*Mrs. Fletcher's First Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject.* | Teacher reviewed each piece of the research process to stimulate recall.<br><br>Teacher showed what the final product would look like using an example from the previous year. The teacher then modeled each step of the creation of the project fold along with the placement of research information before allowing students to work independently. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes, but with no differentiation for different students. Instructional groups partially support the activities, with some variety. The lesson or unit has a recognizable structure.* | This specific lesson was on the creation of a final product. No new learning was presented, since it was a continuation and closure of the previous unit on historical figure research.<br><br>Students worked whole group, individually, and in pairs.<br><br>Teacher met with individuals to answer questions and offer feedback.<br><br>No differentiation of performance, each student completed the same research pages and created a BioBuddy project fold. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Distinguished | *The teacher presents a stimulus related to the content that focuses the learners' attention on the information being presented.* | Teacher began by showing students a BioBuddy from the previous year to engage their interest. |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging and relevant learning.~~* | Teacher stated that students would be creating their final project for their historical figure research that would be used in their living museum the following week. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Teacher reviewed each piece of the research process for students to remind students who were still working what each section needed in order to be considered complete. |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and builds off of the students' existing knowledge.* | Teacher connected each piece of the research process to the example of the BioBuddy for students to see where their work would be located on the project fold. |
| Guided Practice | Basic | *The teacher presents numerous examples of the new content . . . Nonexamples are not presented during guided practice.* | Teacher modeled the creation and placement of research artifacts onto a final project fold. No new content or nonexamples were presented during guided practice.<br><br><u>Outcomes</u>:<br>Intellectual – locate and name most important contributions of figures<br>Verbal – writing research findings, discussing and delivering speeches about their figures<br>Cognitive – what information is most important, where should it be located<br>Physical – cutting, gluing, folding, and writing, manipulation of Foldable® |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked independently on completing research artifacts if needed. If research was complete, students worked on writing and delivering their speeches about their historical figure for the living museum.<br><br>Teacher walked from table to table to offer assistance. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | | Outcomes:<br>Intellectual – locate and name most important contributions of figures<br>Verbal – writing research findings, discussing and delivering speeches about their figures<br>Cognitive – what information is most important, where should it be located<br>Physical – cutting, gluing, folding, and writing, manipulation of Foldable® |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available and is loosely tied to stated learning objectives.* | BioBuddy project fold and speech were the only performance options.<br><br>Outcomes:<br>Intellectual – locate and name most important contributions of figures<br>Verbal – writing research findings, discussing and delivering speeches about their figures<br>Cognitive – what information is most important, where should it be located<br>Physical – cutting, gluing, folding, and writing, manipulation of Foldable® |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise and guiding questions.* | Feedback offered throughout the lesson from teacher in whole group and individual settings.<br>Teacher focused on naming and reinforcing desired behaviors .<br><br>Additional feedback given through peer sharing of speeches. |
| Assess Performance | Basic | *Students are assessed for mastery using a single performance assignment.* | Single performance option (BioBuddy and speech) |
| Enhance Retention and Transfer | Proficient | *Students are given additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning.* | Students practiced speeches and completed previously introduced research artifacts. |

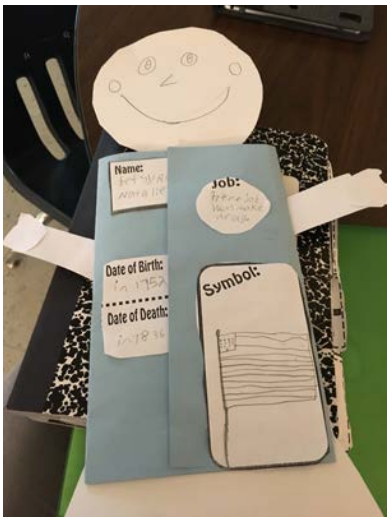



*Figure 4.17.* Student example of the BioBuddy Foldable®, front cover.

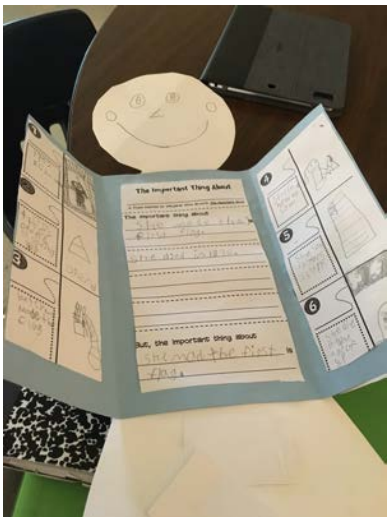



*Figure 4.18.* Student example of the BioBuddy Foldable®, interior planes.

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory*, *Basic*, *Proficient*, or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.25.

Table 4.25

*Mrs. Fletcher's First Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Distinguished | *The teacher was intentional about the fold chosen as well as the orientation of information (e.g., moving from left to right or top to bottom).* | Fold – shutter project fold, served as the body of their historical figure research project. |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside.* | Name, date of birth, date of death, and what the figure was famous for on the outside, details (timeline, interesting facts, speech) on the inside and back planes. |
| Organization of Knowledge | Proficient | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students able to organize and present each individual piece of their research process using the different planes of the Foldable®.<br><br>Objectives:<br>Intellectual and Verbal – writing and delivery of speech<br>Cognitive – Research on figure, organization of details<br>Motor – writing of information, manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students created a common fold, with a different color of paper based on the dress of their historical figure, all information glued into the shutter project fold was a result of their own research. |

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Fletcher were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Mrs. Fletcher asked a total of 11 questions during her lesson on creating the BioBuddy project fold (see Table 4.26). Of those 11 questions, eight (73%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “Who can remind us what we did with out timeline yesterday?” and “What names did we recognize in our reading about Helen Keller?” The remaining three questions (27%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, “What can I help you with?” and “What other important things will you want your audience to know about JFK?”. Multiple answer questions require a higher level of thinking than single answer questions, as a result the three multiple answer questions were further coded based on the type of connections required to answer them. Mrs. Fletcher made a cognitive connection in one (33%) of the multiple answer questions she asked (e.g., “What other important things will you want your audience to know about JFK?”). The remaining two multiple answer questions (67%) concerned processes tied to the content being discussed (e.g., “How can we fix this to make it easier to read?”). There were no affective or evaluative connections made in Mrs. Fletcher’s questioning during this lesson.

*Lesson analysis.* Mrs. Fletcher’s lesson on creating a shutter project fold called a BioBuddy was the continuation of an ongoing research project that students were working on. Students used a Foldable® to help present their research findings on their chosen

Table 4.26

*Ms. Moser's First Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 8 | 73% |
| Multiple Answer | 3 | 27% |
| Question Connections | | |
| Cognitive | 1 | 33% |
| Affect | 0 | 0% |
| Process | 2 | 67% |
| Evaluation/Implications | 0 | 0% |

historical figure. This final product would be used in their presentation during the second grade's presentation of a living museum. The use of this particular Foldable® proved engaging because students could use it to create an actual representation of the person they had been studying. Mrs. Fletcher used very controlled modeling during guided practice to ensure the success of each of the students in her classroom. Mrs. Fletcher demonstrated proficiency in a majority of the areas of her lesson including knowledge of content and pedagogy, stimulating recall, presenting stimulus, independent practice, providing feedback, and enhancing retention and transfer. She received ratings of *Basic* in the areas of designing coherent instruction due to the lack of differentiation, stating objectives due to the lack of using preassessment data, guided practice due to the lack of nonexamples, and the areas of performance and assessing performance due to the use of a single performance option. Mrs. Fletcher received a *Distinguished* rating in the area of gaining attention as a result of presenting a previously completed example of the project to hook students into the process. Mrs. Fletcher's use of questioning in this lesson was generally limited to lower-level single answer questions (73%). Of those questions that challenged students to think more deeply, there were only cognitive (33%) and process (67%) connections made.

*Classroom Observation Two*

*Lesson narrative.* My second lesson observation in Mrs. Fletcher's classroom was on the fourth Monday of data collection at 10:30 in the morning. I entered the classroom through the exterior door and took a seat at the kidney-shaped table in the back of the room. There were 18 students present that morning, three were African American, eight were Hispanic, and seven were White. Students were completing reading workshop when I came in, and Mrs. Fletcher was visiting with a group about the work they had done during their silent reading time. She announced to the students that they would be starting with writing in three minutes and that they'd need to begin coming to a stopping point on their current activity. She set a timer on her Promethean board so that students could self-monitor the time they had remaining. Students were given a one-minute warning to start putting their workshop supplies away. Mrs. Fletcher counted down with the timer from then to zero, when the timer went off students were ready for instruction with their desks cleared.

Mrs. Fletcher began her direct instruction with students seated at their desks. She reviewed the different genres they had been working on during writer's workshop saying,

> We've done a lot of writing this year. Lately we've been telling stories from our lives called personal narratives and we've written informational texts like our BioBuddy speeches. This week we're going to do something a little bit different, we're going to be writing a fictional, or made up, story that has some true information in it. For this we're going to be using the true factual information we're learning about frogs (*she holds up a nonfiction reader about frogs*) in our made up stories. (Fletcher Observation Two, 3/28/2016)

Mrs. Fletcher then introduced the format that they would be using during their lesson that day – a three-tab beginning, middle, end (BME) Foldable®. She had a large construction paper example that she would use during shared writing time that she held up to show the

class. On the front of each tab was a single word – on the first tab was the word *Beginning,* on the second tab was the word *Middle,* and on the final tab she had written the word *End.* She explained that this organizer would help them get their ideas down and make a plan for when they began the drafting process.

After introducing the new genre and graphic organizer to the class, Mrs. Fletcher called them by table to the carpet for the shared writing portion of her lesson. Students came to the front of the room and were seated on the multicolored foam mats facing Mrs. Fletcher who had positioned herself at the easel to the right of the Promethean board. She used magnets to hold her large Foldable® to the easel as she talked with her students,

> This week we're going to be combining story telling with information giving. Our stories will still have the same basic parts that your personal narratives have, but these stories are also going to include factual information about frogs. In a narrative we have characters, a setting, a problem and a solution (*Mrs. Fletcher wrote each of these story pieces on the white board*), our stories this week will have the same parts. The characters and setting are usually introduced at the beginning of the story, so those will go under my first tab. The middle is where the problem usually happens (*pointing to the second tab on the Foldable®*), and the solution where everything gets solved generally happens at the end of the story (*pointing to the final tab*). (Fletcher Observation Two, 3/28/2016)

Mrs. Fletcher then began to fill in the Foldable® with the information for the story she'd be writing during instructional times that week. Mr. Frog was the main character and his home was on a lily pad in the middle of a pond--these were all details that they had read earlier in the morning about where frog lived. Mrs. Fletcher wrote her ideas in simple phrases using bullets or a listing and pointed out to students that they didn't have to write in complete sentences in their Foldable® because this was just the planning stage of their story. Mrs. Fletcher continued setting up her story using the *middle* section of her Foldable® by telling the students that Mr. Frog had been eating flies all morning and his tummy was full so he

decided to take a nap on his lily pad when suddenly he was jostled awake by something moving his lily pad.

Up to this point Mrs. Fletcher had been modeling the writing process using think-aloud strategies and the students had been listening but not involved in the process. When Mrs. Fletcher got to the final tab of her Foldable® she opened her writing up for suggestions from the class saying, "What do y'all think could have jostled Mr. Frog's lily pad and woke him up?" Hands flew into the air and suggestions started pouring out as Mrs. Fletcher called on individuals for their ideas, all of which were written on a separate piece of paper for Mrs. Fletcher to use in a future lesson. With each suggestion Mrs. Fletcher offered feedback in the form of praise or questioning about the accuracy of the idea.

> *Maybe it was a big fish?* That's a good idea. *Maybe an alligator hit it with his tail*? Oh my goodness, that could get scary! *It could have been a whole bunch of tadpoles that swam up all together*. Could have been, good thinking. It would take a lot of those little tadpoles to actually move a lily pad, wouldn't it? *It could have been an octopus.* Hmmmm, an octopus. Let's think about that one, would an octopus live in a pond or would they live in the ocean where the water is salty? *What about a shark?* I think a shark would have to be in the ocean as well. *It could have been a bird that swooped down into the water to catch a fish and bumped the lily pad on its way back up to the sky.* Wow, what a creative idea! *What if it was an air bubble from something that lived under the water?* That sounds very mysterious . . . (Fletcher Observation Two, 3/28/2016)

In all, nine students offered suggestions for the cause of the lily pad bump. Mrs. Fletcher told the class that she hadn't quite decided how she was going to wrap up her story but that she had some very good ideas and she looked forward to telling them how her story would end the next day.

Mrs. Fletcher then told her students that this is the same process that they would be going through today, they would be planning their story using a BME Foldable® where the beginning established the characters and setting, the middle

introduced a problem, and the end offered a solution for the characters. She encouraged her students to create a story that was different than hers and to include facts about frogs that they had been learning about from their reading. Mrs. Fletcher dismissed students back to their desks by row with directions to find their pencils and scissors when they got to their desks. As they settled Mrs. Fletcher passed out white pieces of copy paper with the words *Beginning, Middle,* and *End* printed on them. In addition to the words, the pages also had bold lines running between the three sections to mark where students were to cut. Mrs. Fletcher had her students cut on the lines before folding the paper in half hotdog to ensure that no one cut through both thicknesses of paper. All eighteen students were successful in the creation of their Foldable® the first time instructions were given.

Students them moved into the independent writing portion of the lesson where they began planning their own pieces using the BME organizer. Mrs. Fletcher moved from table to table, reading students' work and discussing their choices as authors. She often gave feedback that helped students move forward in the process such as, "I like that you chose to include . . . have you thought about also . . . ," "I look forward to reading about . . . ," "Don't forget to include . . ." Students were engaged in their own writing but also in quiet conversations at their tables about their individual stories.

After about 20 minutes of writing time Mrs. Fletcher asked for her students' attention and informed them that they had done an excellent job planning very exciting stories about frogs and that they would return to this story tomorrow. She gave directions for students to put their Foldables® in their writing folders for safe

keeping and had them prepare to transition into their problem solving portion of math.

*Lesson part analysis*. The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Ms. Moser's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.27.

*Foldable®.* The Foldable® created during this lesson was a horizontally oriented three-tab made out of white copy paper. This particular Foldable® was independent (i.e., it is operational outside of a notebook or other cover). On each tab was a single word, on the first tab was the word *Beginning*, on the second tab the word *Middle* was printed, and on the third tab was the word *End.* Between each of the sections was a bold black line that served as a cutting guide for students. On the inside Mrs. Fletcher had students write clue words or big ideas for each section of their stories, this would serve as their plan for drafting later in the week.  Figure 4.19 is a student example of the BME Foldable® created.

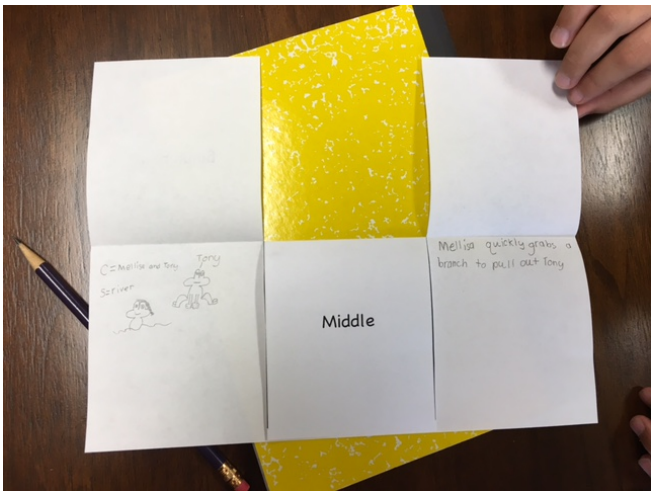



*Figure 4.19.* Student example of Beginning, Middle, and End Foldable®.

Table 4.27

*Mrs. Fletcher's Second Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Distinguished | *The teacher displays extensive knowledge of the important concepts in the discipline and how these relate both to one another and to other disciplines. The teacher demonstrates understanding of prerequisite relationships among topics and concepts and understands the link to necessary cognitive structures that ensure student understanding. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the discipline and the ability to anticipate student misconceptions.* | Teacher used writer's workshop approach effectively – direct instruction through mini-lesson with think-aloud and modeling using gradual release of control and conferencing during independent writing time. |
| Designing coherent instruction | Proficient | *Most of the learning activities are aligned with the instructional outcomes and follow an organized progression suitable to groups of students. The learning activities have reasonable time allocations; they represent significant cognitive challenge, with some differentiation for different groups of students and varied use of instructional groups.* | Students worked in whole and small group settings as well as independently.<br><br>Students worked at their own pace through the planning document according to their level of independent functioning. Some began drafting during independent writing time whereas others did not finish the BME Foldable®. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Proficient | *The teacher presents a stimulus that gains the students' attention. Students are attentive and actively engaged.* | Teacher reviewed previously written genres and introduced the writing genre the students would be using that week |
| State Objectives | Basic | *~~The teacher's objectives are vague or unclear~~. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity. ~~Objectives reflect challenging and relevant learning.~~* | |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Realistic nonfiction is a genre that combines storytelling from narrative writing with giving true facts like in expository writing. |
| Present Stimulus | Distinguished | *The teacher uses auditory, visual, and/or tactile stimuli to present new information. Lesson is closely aligned with stated objectives as well as outcomes. Lesson is explicitly related to existing knowledge, crossing content areas where appropriate.* | Teacher introduced BME Foldable® and connected each tab to story structures previously discussed in both reading and writing lessons. |
| Guided Practice | Basic | *The teacher presents numerous accurate examples of the new content. Students observe but are not active participants in the process. Nonexamples are not presented during guided practice.* | Teacher modeled the process of the process of using the BME Foldable® for planning through shared writing using think aloud strategies.<br><br>No explicit use of nonexamples, only discussed when students demonstrated misconceptions through their suggestions of problem/solution.<br><br><u>Outcomes</u>:<br>Intellectual – Choosing appropriate section of the Foldable® for story structures; inclusion of frog facts in story<br>Verbal – Writing ideas using a combination of lists, bullets, and simple sentences; discussing ideas with teacher and tablemates<br>Cognitive – Deciding on a realistic problem and solution for a frog to face<br>Physical – Cutting, folding, manipulation of Foldable® tabs; writing of plan |
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students wrote independently but had the opportunity to visit and conference with peers as needed. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| | | | Teacher moved from table to table, reading student work, offering feedback, and suggesting next steps in the process.<br><br><u>Outcomes</u>:<br>Intellectual – Choosing appropriate section of the Foldable® for story structures; inclusion of frog facts in story<br>Verbal – Writing ideas using a combination of lists, bullets, and simple sentences; discussing ideas with teacher and tablemates<br>Cognitive – Deciding on a realistic problem and solution for a frog to face<br>Physical – Cutting, folding, manipulation of Foldable® tabs; writing of plan |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available.* | BME Foldable® was the only performance option for this lesson. |
| Provide Feedback | Distinguished | *Feedback is given through multiple sources including teacher, peers, and self-reflection. Specific and descriptive feedback in the form of corrections, praise, and guiding questions is given throughout the learning process.* | Feedback given by teacher during direct instruction through praise and questioning and independent practice through individual conferences where specific praises and suggestions were made based on individual writing.<br><br>Peers offered feedback through short conferences and conversations during independent writing time. |
| Assess Performance | Basic | *Students are assessed for mastery using a single performance assignment.* | Teacher assessed students informally/formatively during conferences.<br><br>BME Foldable® was the only performance option. |
| Enhance Retention and Transfer | Proficient | *Students are given additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning* | Students spiraling through writing process using a new/different strategy (BME Foldable®). |

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldable® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.28.

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Fletcher were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the questions. Mrs. Fletcher asked a total of 20 questions during her lesson on planning a story using a Beginning, Middle, and End Foldable® (see Table 4.29).

Of those 20 questions, five (25%) were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, "What things belong in the beginning of my story?" and "What's happening at the beginning of your story?" The remaining 15 questions (75%) were multiple answer questions, meaning that the question could have multiple answers based on student perspective or understanding. Examples of multiple answer questions from this lesson include, "What details can I include here?" and "How might you feel if you were Mr. Frog?" Multiple answer questions require a higher level of thinking than single answer questions. As a result the 15 multiple answer questions were further coded based on the type of connections required to answer them. Mrs. Fletcher made cognitive connections in nine (60%) of the multiple answer questions by asking (e.g., "What do you already know about frogs that could help here?"). Three questions (20%) required affective connections

Table 4.28

*Mrs. Fletcher's Second Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information)* | Fold – three-tab made from white copy paper, horizontally oriented |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside.* | Story parts (beginning, middle, and end) on the outside, details (key words and bulleted lists of ideas) on the inside.<br><br>Beginning, Middle, and End titles on tabs serve as a linear representation of the flow of the story. |
| Organization of Knowledge | Proficient | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Beginning, middle, and end printed on the outside of each tab to guide students' planning. Ideas and complete sentences written on the interior planes<br><br>Objectives:<br>Intellectual – planning story using words and phrases before complete sentences<br>Verbal – written words and discussion of story as they move through the writing process<br>Motor –writing of information, manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students completed their own three-part stories using the beginning, middle, and end (BME) Foldable®. |

(e.g., How is she feeling about the wolf in the middle?”); two (13%) of the multiple answer questions connected to the process being discussed (e.g., How do you want to solve the problem at the end of the story?”); and the remaining multiple answer question (7%) required evaluation or thinking about implications of a situation (e.g., “Why did you chose the wolf as the bad guy?”).

Table 4.29

*Mrs. Fletcher’s Second Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 5 | 25% |
| Multiple Answer | 15 | 75% |
| Question Connections | | |
| Cognitive | 9 | 60% |
| Affective | 3 | 20% |
| Process | 2 | 13% |
| Evaluation/Implications | 1 | 7% |

*Lesson analysis.* Mrs. Fletcher’s writing lesson on planning using a Beginning, Middle, and End (BME) Foldable® allowed students to experience the planning process in a different format than previously used. The lesson began with a review of previous genres that the class had written including personal narratives and informational text. Mrs. Fletcher used this review to introduce the new writing genre, using characteristics from narrative and expository writing and combined them into something new. This connection was important for the students to understand before beginning to plan their pieces. Mrs. Fletcher introduced the Foldable® and its sections before using it in her mini-lesson so that her writing and think aloud would flow more smoothly once she began with her shared writing. Mrs. Fletcher’s use of think-aloud strategies during her mini-lesson helped students understand why she put certain pieces of information under certain tabs. Students were then able to replicate the process with their own

ideas during independent writing time. Mrs. Fletcher offered specific feedback to students based on their individual writing and during conferencing, which kept the students informed of their progress and moving in the right direction. Mrs. Fletcher demonstrated proficiency in the majority of lesson parts in this lesson, however she received a rating of *Basic* in stating objectives due to a lack of preassessment, a lack of nonexamples during guided practice, and limited performance options. On the other hand, ratings of *Distinguished* were received in the areas of knowledge of content and pedagogy, presentation of stimulus, and providing feedback. Mrs. Fletcher's questioning in this lesson reflected the generative nature of this lesson. Students were asked to create a piece of writing combining both their knowledge of frogs and effective narrative writing to generate new characters in a story that contained a traditional beginning, middle, and end format. As a result, the majority of questions were asked of individuals during independent writing conferences. The majority of Mrs. Fletcher's questions were multiple answer, requiring higher levels of thought and deeper connections to be made with content. Mrs. Fletcher included cognitive, affective, processing, and evaluative connections in her questioning during individual conferences with students.

*Classroom Observation Three*

*Lesson narrative.* The final lesson observation conducted in Mrs. Fletcher's classroom took place during math instruction on the sixth Wednesday of data collection at 12:00 noon. Students were coming back to the classroom from a restroom break after lunch and recess. As they filed in Mrs. Fletcher had them take a seat on the carpet at the front of the room to begin their math lesson for the day. There were 18 students present for the lesson, eleven males and

seven females. Of the students present, four were African American, seven were Hispanic, and seven were White.

As students found their places on the carpet and began settling quietly into their spots Mrs. Fletcher showed a BrainPopJr video on the Promethean board about telling time. Before playing the video she reminded her students that they had been working on a unit over time and the previous day had worked on using clocks to help tell time to the nearest five minutes using the large numbers on the clock face. She told the students that today they would be looking even more closely at the clock face to learn how to tell time to the nearest minute. Mrs. Fletcher led the students' viewing by telling them to listen to what each mark between the large numbers on a clock mean. She began the video and the students watched as the characters discussed telling time to the nearest five and single minute. Students skip counted along by fives when an example was given and gave correct answers for several of the problems worked on the video. In addition, they practiced counting on forwards and backwards from groups of five by single minutes when called for.

After the video Mrs. Fletcher sat in her teaching chair and pulled out a large yellow clock with red hands and bold numbers written in black. She began the guided practice portion of her lesson by reviewing a previous lesson on the two hands that are on an analog clock.

> This clock has two hands, a long hand and a short hand. We can remember that the short hand is the hour hand because hour is such a short word, it's only four letters long. I remember that the hour hand is the short hand by thinking of the word *hour*. The long hand is the minute hand and we can remember that it's the minute hand because *minute* is a much longer word and this hand reaches all the way out to the bog numbers to tell us how many minutes have passed. (Fletcher Observation Three, 4/14/2016)

Mrs. Fletcher then reviewed how to use the manipulative clocks to model a time by setting the hour hand on the correct number then moving the minute hand while counting by fives. She

demonstrated this process once with the time 4:15 before handing out individual student clocks for guided practice.

Once each student had a clock Mrs. Fletcher began the guided practice portion of her lesson. For this she gave the students a specific time to set on their individual clocks,

> Boys and girls I'd like you to find the time 11:30. Start with your hour hand, spin it to the 11 (*she modeled on her own clock*). Now take the minute hand, remember it's the longer one, and spin your minute hand until you find the time 11:30 (*again, modeling as she spoke*). Your red hour hand should be pointed at the hour, which is 11. Now our minute hand is at 30 minutes, which is halfway through, pointing at the six. Yours should look like mine if you have the correct time (*turning her clock towards the students so they could self-check*). (Fletcher Observation Three, 4/14/2016)

Mrs. Fletcher repeated this process a second time with the time 2:15 and had students hold up their clocks for her to see once they had set the time. She took this opportunity to give feedback. Students who had correctly set the time received praise such as, "Excellent!" or "I like the way you thought about that;" or "Very good!" Students who had the incorrect time showing on their clock faces were redirected by a phrase such as, "Try again;" or "Look one more time, your clock should say 2:15." Once students had adjusted their clocks and demonstrated the ability to set their clocks to 2:15, Mrs. Fletcher showed them her clock and praised them for the work they had done.

Mrs. Fletcher then moved to her teacher desk where she had her math notebook and examples of the lesson's practice Foldables® under the document camera. She modeled how to cut each of the six single tabs with blank clock faces printed on them as well as how to glue them down to the page using an anchor tab. She then explained that students would be cutting and gluing their own tabs down and using their clocks to create their own times. They would be responsible for drawing the hour and minute hands onto each of the clock faces and then accurately writing the correct digital time underneath the tab. She dismissed students by row

from the carpet with the directions to return to their desks, find their notebooks, scissors, and glue and begin getting their tabs into their notebooks.

Some students seemed a little unsure about how to glue in their tabs while others got to their seats and got right to work. Mrs. Fletcher moved from table to table troubleshooting with students for the first four or five minutes of independent practice time making sure that clocks were not upside down and that tabs were glued only at the top so that they could be lifted and written under. Once all of the students had their six working tabs Mrs. Fletcher began going around checking their work. She would compare the time drawn on the analog clock with the digital time written underneath and would offer praise for correct answers. When the times did not match Mrs. Fletcher would ask questions such as, “Which hand is your minute hand?; It’s hard for me to tell which is longer;” or would offer redirection such as, “Go back to this one and make sure that you’ve counted by fives correctly.” Students who had mastered the practice assignment were told to practice with times to the nearest minute rather than the nearest five minutes. Several students began drawing analog clocks and the corresponding digital times in the margins of the page. After about 12 minutes of independent work time, Mrs. Fletcher found her clipboard and began checking off students who had demonstrated mastery of the assignment and those who needed additional practice along with what specifically they were struggling with.

For closure, Mrs. Fletcher had students choose one of their times to set their clocks to and pair up at their tables with a partner to read the time as practice together. Students were given about two minutes to work with partners before they were asked to put their clocks on their nametags and move back to the carpet for problem solving.

*Lesson part analysis.* The observed lesson was analyzed using the Data Analysis Rubric (See Appendix J), which rated Ms. Moser's lesson planning and preparation as well as specific lesson parts and learning objectives on a four category scale as *Unsatisfactory, Basic, Proficient,* or *Distinguished*. Results and lesson notes can be found in Table 4.30.

*Foldable®.* The Foldable® created during this lesson was a purchased set of six one-tab Foldables® with analog clock faces printed on the front page. This particular Foldable® was a dependent fold, meaning that it has to be glued into a notebook in order to be operational. Six individual blank analog clock faces were cut out and glued into student notebooks as examples. Students used their own analog clock manipulatives to create a specific time, they then drew the hour and minute hands on their analog clocks and put the correct time written in digital form underneath. See Figure 4.20 for a student example of the time Foldables®.

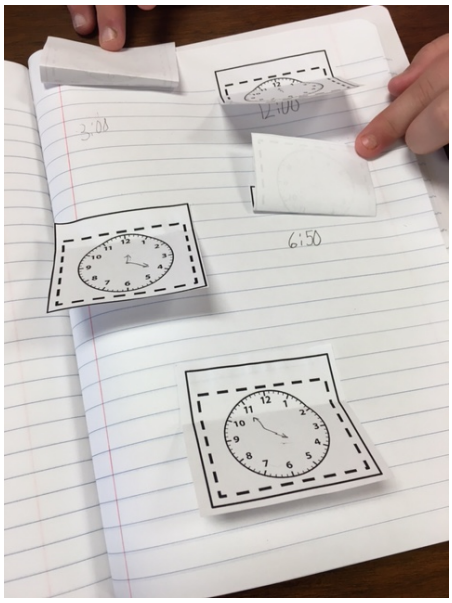



*Figure 4.20.* Student example of time conversion Foldables®.

Table 4.30

*Mrs. Fletcher's Third Classroom Observation Rubric Rating*

| | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating knowledge of content and pedagogy | Proficient | *The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject.* | Teacher began by connecting the lesson to previous lessons with counting by fives using a clock face.<br><br>The teacher used a video to introduce concepts and provide visual and auditory modeling of the concept of telling time.<br><br>Individual clock manipulatives allowed each student the opportunity to see how the hands on an analog clock move to tell time. |
| Designing coherent instruction | Basic | *Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities, with some variety. The lesson or unit has a recognizable structure.* | Activities at a single academic level, no differentiation. Students who finished early or demonstrated mastery were instructed to complete examples to the nearest minute rather than the nearest five minutes.<br><br>Students worked as a whole group, independently, and in pairs. |
| Lesson Parts and Learning Outcomes | | | |
| Gain Attention | Proficient | *The teacher presents a stimulus that gains the students' attention. Students are attentive and actively engaged.* | The teacher gained students' attention by using a large clock to review concepts previously covered and to show how they would be expanding their skills. |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| State Objectives | Basic | ~~*The teacher's objectives are vague or unclear*~~*. Objectives reflect a low level of challenge and are not clearly connected to the performance.* | Without preassessment data on student knowledge it is unknown whether this lesson's objective is rigorous or challenging to the students. |
| | Proficient | *The teacher establishes clear objectives for the learning activity.* ~~*Objectives reflect challenging and relevant learning.*~~ | Teacher stated that students would be telling time to the nearest five and one minute using analog and digital formats. |
| Stimulate Recall | Proficient | *The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions.* | Teacher reviewed the minute and hour hands as well as strategies for how to differentiate between the two. The class practiced counting by fives to help with telling times where the minute hand is on a number on the clock face. |
| Present Stimulus | Proficient | *The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and builds off of the students' existing knowledge.* | Teacher used a BrainPopJr video that introduced the skill and walked through several examples of telling time to the nearest five and single minute. |
| Guided Practice | Unsatisfactory | *The teacher uses a limited number of examples.* | The teacher modeled setting the analog time on a clock, using think aloud strategies with two examples. Students followed along using their own clock manipulatives.<br><br><u>Outcomes</u>:<br>Intellectual – Distinguishing between hour and minute hands; counting by fives and then forward or backward by ones if the minute hand is in between numbers<br>Verbal – Discussing process of telling analog time<br>Physical – Manipulation of clock hands |

(continued)

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Independent Practice | Proficient | *Students are given the opportunity to use the terms and examples presented without direct support of the teacher. The teacher is still available for scaffolding where needed.* | Students worked independently to create six examples. Students set a time on their clocks, drew their hands on blank clock faces, and wrote the digital time underneath the tab in their notebooks.<br><br><u>Outcomes</u>:<br>Intellectual – Distinguishing between hour and minute hands; counting by fives and then forward or backward by ones if the minute hand is in between numbers<br>Physical – Manipulation of clock hands; drawing of analog time; writing digital time |
| Performance | Basic | *Students are assessed individually on their level of mastery of the new content. Only one performance option is available and is loosely tied to stated learning objective.* | Students completed six examples of analog and digital time.<br><br>Single performance option offered (Foldable®); no differentiation for varied cognitive abilities. |
| Provide Feedback | Proficient | *The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions.* | Teacher provided feedback to students during direct instruction, guided practice, and independent practice in the form of praise and corrections. |
| Assess Performance | Basic | *Students are assessed for mastery using single performance assignment.* | Six clock tabs only performance option. |
| Enhance Retention and Transfer | Basic | *Students are given additional opportunities to practice with new content.* | After completing the six examples in their notebooks, students were allowed to create additional times using their manipulative clocks. |

The specific Foldable® made during this lesson was analyzed using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). This tool rated the Foldables® as *Unsatisfactory, Basic, Proficient,* or *Distinguished* in the following areas – choice of fold, arrangement of information, organization of knowledge, and usage. Results and lesson notes can be found in Table 4.31.

Table 4.31

*Mrs. Fletcher's Third Lesson Foldable® Rating*

| Indicator | Rating | Rating Statement | Lesson Notes |
|---|---|---|---|
| Choice of Fold | Proficient | *The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information).* | Fold – one-tab dependent folds with analog clock faces printed on the front |
| Arrangement of Information | Proficient | *The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside.* | Analog clock faces were printed on the outside of each tab, converted digital time written underneath each tab. |
| Organization of Knowledge | Proficient | *The teacher considered the specific learning outcomes when designing the Foldable®.* | Students completed six examples of analog to digital time conversions as independent practice in their math notebooks.<br><br>Objectives:<br>Intellectual – Examples of analog clock faces as well as their more well known digital times<br>Verbal – writing the time correctly in digital form<br>Motor – Using analog clock manipulative to help count minutes, writing correct digital time; manipulation of tabs |
| Usage | Proficient | *Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's.* | Students completed six practice time conversions without teacher assistance and then began creating their own to share with tablemates. |

*Questioning*. Further analysis of the lesson was completed by collecting data on teacher questioning. Questions asked by Mrs. Fletcher were recorded throughout the lesson and coded according to the type of questions as well as the connections being made through the question. Mrs. Fletcher asked a total of 16 questions during her lesson on analog and digital time (seeTable 4.32). All 16 questions asked were single answer, meaning that there was a single correct answer. Examples of single answer questions from this lesson include, “What hour does the clock show?” and “What do you call a time that is written using numbers?” There were no cognitive, affective, processing, or evaluative connections made through multiple answer questions in Mrs. Fletcher’s third lesson.

Table 4.32

*Mrs. Fletcher’s Third Lesson Questioning Data*

| Question Types | Number of Questions (n) | Percentage of Questions |
|---|---|---|
| Single Answer | 16 | 100% |
| Multiple Answer | 0 | 0% |
| Question Connections | | |
| Cognitive | 0 | 0% |
| Affective | 0 | 0% |
| Process | 0 | 0% |
| Evaluation/Implications | 0 | 0% |

*Lesson analysis.* Mrs. Fletcher’s final lesson on telling analog time to the nearest five and single minute used a set of Foldables® during independent practice for students to draw clock hands for analog time as well as write the time in digital form. The use of a Foldable® in a notebook allows for students to be able to refer back to the skills they have already learned and practiced, these Foldables® can be used in the future for reviewing and reteaching concepts if needed. Mrs. Fletcher began by reviewing the minute and

hour hands on an analog clock as well as skip counting by fives, a skill that was used for reading times where the minute hand fell on one of the large numbers on the clock face. Students watched a BrainPopJr video that modeled reading times to the nearest five minutes and explained the process of counting on forward or backward to find the time to the nearest minute. Mrs. Fletcher then used manipulative clocks to give students hands-on experience with creating times on a clock. She completed two examples during the guided practice portion of the lesson but did not discuss any nonexamples with her students. This was the least effective part of the lesson, students were only minimally involved in the process and not many questions were asked of or by them to establish their level of understanding with the process. Mrs. Fletcher's questioning during guided and independent practice consisted solely of single answer questions that required very little depth of thought from her second graders. In addition to the lower level questioning there were no real world connections or applications made, students were simply practicing a skill in isolation. While many of the students were successful in the task of drawing a time on an analog clock with minute and hour hands then naming the time digitally, the levels of rigor, challenge, and relevance were low.

*Foldable® Reflections*

A Foldable® Reflection form (see Appendix H) was sent by email to Mrs. Fletcher every two weeks to collect data on Foldable® usage in her classroom. Included on the reflections were questions about the subject areas and standards (TEKS) that were taught using Foldables®, the lesson part during which the Foldable® was used, the types of knowledge that were demonstrated through the Foldable®, as well as open-ended

questions on planning, demonstration of knowledge and an opportunity for general reflection over the Foldables® used in the previous two weeks of teaching.

Mrs. Fletcher completed four Foldable® Reflection forms over the course of the study. Table 4.33 summarizes the closed response data collected using the Foldable® Reflection form. Analysis of short answer responses follows.

Table 4.33

*Mrs. Fletcher's Foldable® Reflection Responses*

| Week | Subject Areas | Lesson Parts[a] | TEKS | Types of Knowledge |
|---|---|---|---|---|
| Week 2 | Science and Spelling | IP and AP | ELA: 2.2D<br>Science: 2.9A | Intellectual and Motor Skills |
| Week 4 | Writing | GA and IP | Writing: 2.17A | Intellectual, Verbal, Cognitive, and Motor Skills |
| Week 6 | Writing, Math, and Spelling | IP and P | Math: 2.9G<br>ELA: 2.23biv<br>Writing: 2.17A | Intellectual, Verbal, Cognitive, and Motor Skills |
| Week 8 | Reading, Science, and Spelling | PS, GP, IP, and P | Reading: 2.7A<br>ELA: 2.2C<br>Science: 2.9C | Intellectual, Verbal, Cognitive, and Motor Skills |

[a] - Gain Attention (GA), State Objectives (SO), Present Stimulus (PS), Guided Practice (GP) Independent Practice (IP), Performance (P), Assess Performance (AP)

*Planning.* When asked to reflect on her planning processes while using Foldables®, Mrs. Fletcher commented that her thought process was not any different than when planning without Foldables®. She was still looking for engaging ways to introduce new concepts and allow for interactive ways for students to practice with those skills. Mrs. Fletcher did highlight several different uses she had found for Foldables® in her reflection on her planning process. In spelling Mrs. Fletcher commented, "I wanted to find a way for my students to practice their spelling words for the week and the Foldable® has been a perfect way to sort words into categories" (Fletcher Foldable®

Reflection, 4/18/2016). In writing she stated, “I wanted to provide an interesting way for the students to plan their stories using Beginning, Middle, and End.” Mrs. Fletcher added, “In writing, the use of a Foldable® was critical to their planning of the story” (Fletcher Foldable® Reflection, 4/4/2016). Foldables® were also used for demonstrating knowledge in math, for gathering information in reading, and for comparing and peer teaching in science.

*Foldables® in writing.* Mrs. Fletcher was able to integrate Foldables® into her writing block several times throughout the study. She found Foldables® to be very helpful for word study practice. She commented,

> My students were able to demonstrate their knowledge of the spelling words by having the specific location for the words to be recorded. They had to think about which pattern each of the words followed . . . [Foldables® are] a fun and interesting way to practice their words. (Fletcher Foldable® Reflection, 4/18/2016)

In addition, Mrs. Fletcher found this Foldable® to be beneficial for students because, “We are able to keep spelling practice in our notebooks also and continually refer back to it as needed” (Fletcher Foldable® Reflection, 4/18/2016).

In writing, Mrs. Fletcher introduced a new organizer for the planning process that broke down the story being told into beginning, middle, and end (BME). She commented,

> I think [the Foldable®] greatly affected them, the use of a Foldable® was critical to their planning of the story . . . it helped them to focus on the beginning, middle, and end separately as they were planning. . . The Foldables® assisted them because they were able to focus on each portion of the learning at one time under that flap of the Foldable®. (Fletcher Foldable® Reflection, 4/18/2016)

In her later reflection over the effectiveness of Foldables®, Mrs. Fletcher again commented that she felt the inclusion of a highly structured organizer such as the BME Foldable® helped her students improve their final writing products.

*Foldables® in other content areas.* In addition to reflections on Foldables® in spelling and writing, Mrs. Fletcher also reflected on the Foldable® applications made in other subjects. She commented that in math, "The students were still demonstrating their knowledge [of digital and analog time] while making the Foldable®, which made them more entertained with the process and therefore more into it" (Fletcher Foldable® Reflection, 4/18/2016).

In science, Foldables® were used for labeling diagrams using content-specific vocabulary, collecting information, and teaching peers using research findings. The first lesson reflected on by Mrs. Fletcher was a multi-tab Foldable® with a picture of a plant on the front. Students were responsible for labeling and defining the job of each part on the tab underneath the visual. Mrs. Fletcher reflected on this particular lesson by saying,

> When planning how to demonstrate the parts of a plant the idea of a Foldable® came about for students to be able to label the parts of a plant and also have a picture of the plant . . . students were able to match the job of each part of the plant to the picture of the part of the plant. (Fletcher Foldable® Reflection, 3/22/2016)

A three-tab Venn diagram was used to compare and contrast characteristics of habitats being researched by the students. Mrs. Fletcher felt that this was an effective way for students to "gather information about different habitats and then to use it as a means for students to teach each other about the habitat they learned about" (Fletcher Foldable® Reflection, 5/9/2016).

In addition to reflections on the planning and perceived effects of Foldables® in the classroom, Mrs. Fletcher also used the Foldable® Reflection form to reflect on the process of using and constructing Foldables® with second graders. In week two she commented, “The thing that becomes most difficult for students is folding and cutting. Over time I assume this will become much easier for them” (Fletcher Foldable® Reflection, 3/22/2016). In week six she stated that, “Some students are still needing to listen to instructions so they know how to complete the Foldable® itself. That is something that takes time.” In her final reflection, Mrs. Fletcher commented, “The use of Foldables® went very well this week. The students were able to accurately use and create the Foldables®. Their work on the assignments was also very good” (Fletcher Foldable® Reflection, 5/9/2016). These particular reflections highlight the struggles that can come from students creating their own products that require skills like folding, cutting, and gluing. The improvement seen over time through Mrs. Fletcher’s reflections also suggests that with more practice and experience students are more able to create Foldables® successfully.

*Final Interview*

The final piece of data collected from each participant in this study was an interview in which the participants were asked to reflect on their planning and teaching processes with Foldables® as well as their perceived benefits for students. Mrs. Fletcher’s final interview was conducted during her conference period on the Friday of week eight of data collection.

First, Mrs. Fletcher was asked to reflect on her thinking about content when Foldables® were involved. She found that the integration of Foldables® into her lessons

caused her to think about categorizing and breaking down her content into more manageable pieces.

> I'm looking for categories or ways to split up the information or comparing and contrasting. I'm trying to find something that I can put onto those Foldables®, so I need sections. . . . It is making me think differently when I'm planning because if I'm trying to use [a Foldable®]. I'm trying to figure out what way I'm going to use it, what way I'm going to implement that with what I'm teaching, and how I'm going to compare what I'm doing or split it up and let them see the different areas that can be involved within something. (Fletcher Final Interview, 5/10/2016)

In addition to clarifying her thoughts about a concept, Mrs. Fletcher found that using Foldables® and breaking content into categories or big ideas was, "helpful for kids because when we focus on something small at a time, they're able to grasp that area, and then we can keep going. . . It helped them to break a more difficult concept into manageable pieces" (Fletcher Final Interview, 5/10/2016).

When asked to think about when she uses Foldables® the most during instruction, Mrs. Fletcher commented that it depended on the content area. "For spelling, it's always guided practice with me because I can't teach them through the Foldable® when they're learning how to spell the words." In math,

> I like the fact that it breaks it apart for them, so they're seeing just a small piece that makes it friendlier than, 'Here's a whole page of questions,' or whatever it might be. If I'm using a Foldable® to answer questions about something, they're only seeing one at a time, and that feels good to them. (Fletcher Final Interview, 5/10/2016)

In writing Foldables® were used to break down the writing process during the planning stages, but also transferred to processes in their reading block.

> I think it's made a really big difference because as we have been writing narratives and we've been separating it out into beginnings, middles, and ends. They're really able to put those other pieces away and focus on just that one section. I think it has really, really helped them. I think that's a

> good thing for them too. I've even talked about when we're summarizing stories, and I think they can visualize this now. (Fletcher Final Interview, 5/10/2016)

In addition to Foldables® being useful in the guided practice portions of spelling, the performance stages of math, and during the planning process of writing, Mrs. Fletcher added,

> [Foldables® are also] a great way to introduce things, and a great way to collect information. It makes it interesting for [the students]. They like being able to create that and to have that tool that they can now use to go back and look at information. (Fletcher Final Interview, 5/10/2016)

Mrs. Fletcher was asked to describe the impact that she felt Foldables® had on her students. Her first response was that Foldables® increased student engagement by adding something fun, interesting, and different into her instruction. She went on to add that Foldables® also helped students to visually represent information and compartmentalize their knowledge when needed. The example Mrs. Fletcher used in her interview was a life cycle from science,

> When you're able to visualize that and realize that they're each their own area, and if I can focus on one, then that's all I have to focus on right now. Then I can focus on this one next. . . . I think in some cases it really does enhance their learning because they are able to split up and look at what they're learning at that moment or separate the way they need to separate it. They can hide the parts that they need to hide, and that's really good for them . . . I think that's helpful. (Fletcher Final Interview, 5/10/2016)

This ability to separate information made complex concepts more manageable and allowed students to take one small piece at a time then combine them all into a bigger picture.

In addition to increasing engagement and helping students to visualize and break down big ideas, Mrs. Fletcher also reflected on the power of having her students create a product when they're learning something new.

> Anytime that they are actually making something and doing something or watching me do it, they're going to have that knowledge better than seeing something pre-printed because that has no context for them. They might glaze over it, but what you hear and what you write, you often more times remember. (Fletcher Final Interview, 5/10/2016)

Mrs. Fletcher's experience with Foldables® was not without its challenges though. There were several times that she commented on the process of teaching and learning how to create Foldables®. She commented, "In the beginning, it became much more centered on how to actually make them." Mrs. Fletcher went on to add, "As I introduce new [Foldables®] it's always challenging when they're not folding it right." Over time though, she found that her students began to own the process of folding more,

> The teaching process of it--teaching them how to use the Foldables®, in which case they can, as we've gone through, now they know how to make it. 'Okay, let's fold, let's do this flap.' That has come easier as we've gone through and done them. They know how to make them now, so it's something that we can do almost on the spot if it needs to be. (Fletcher Final Interview, 5/10/2016)

In addition to her students struggling with the creation of Foldables®, Mrs. Fletcher sometimes struggled with knowing how to create a Foldable® that fits her purposes.

> Sometimes I've wanted to use one, but I've had trouble coming up with what I could do. I want to use it, but I want it to be meaningful, and I want it to be something that they're going to want and enjoy doing. I've had trouble in some instances with finding something to put on the flaps or what to do with that. It's been a little bit challenging for me, personally. (Fletcher Final Interview, 5/10/2016)

Mrs. Fletcher later went on to add,

> I can think of things we've already done where we should have had something for it and ways that we could implement [Foldables®] in the future. It'll change how we do some of our planning next year from the beginning of the year because we'll say, 'Hey, this will be a great way to use this.' I think that, for sure, has changed what we will do. (Fletcher Final Interview, 5/10/2016)

*Case Study Analysis*

The case study analysis section will serve as the synthesis of all of the individual data collected and presented for the case study. This section discusses how each piece of data collected from Mrs. Fletcher over the period of the study contributes to her case as a whole and how the data in this case relate to the study questions: How does the creation of Foldables® affect teacher understanding of standards? How does the use of Foldables® affect the way a teacher plans for instruction? How does the use of Foldables® affect the way a teacher instructs?

*How does the creation of Foldables® affect teacher understanding of standards?* In her lesson plans Mrs. Fletcher referenced specific state standards and identified student objectives for each lesson but both her stated standards and objectives were rated at a *Basic* level using the Weekly Document Observation Rubrics (see Appendix E). Mrs. Fletcher's standards lacked the mention of prerequisite skills needed for success with the current content being taught and connections within and across content areas were lacking. Similarly, her stated objectives were not based on any form of preassessment. As a result, the level of rigor, challenge, and relevance to students could not be established. Ratings of *Basic* were given each of the eight weeks in these two areas. Based on this lesson planning data, no changes in the depth of understanding of the standards can be attributed to Mrs. Fletcher's Foldable® usage.

Questioning data collected during lesson observations also contributed to our knowledge of Mrs. Fletcher's depth of understanding and thinking about the standards being presented. Mrs. Fletcher's depth of questioning varied depending on the content and concepts being presented. In her first lesson, Mrs. Fletcher was instructing students

on the creation of a project fold that would serve as their final product for a research project students had been working on. No new content was delivered during this lesson. It was basically a workday on the creation of their BioBuddies. As a result, the majority of Mrs. Fletcher's questions were single answer (73%). The upper level multiple answer questions 67% were related to the processes involved in the creation and placement of information on the project. In Mrs. Fletcher's second lesson on planning a fictional piece of writing using a beginning, middle, and end (BME) Foldable®, the majority of her questions required her students to make connections by answering multiple-answer questions (75%). During this lesson, Mrs. Fletcher's higher-level questioning required her students to make cognitive (60%), affective (20%), process (13%), and evaluative (7%) connections to the story they were planning. For her third lesson Mrs. Fletcher used single tab Foldables® during independent practice to connect analog and digital times. The questioning during this lesson was limited to lower-level, single-answer questions that did not require students to make connections within or across content areas. There are several possible explanations for this discrepancy. First it may be that Mrs. Fletcher is more confident or comfortable with teaching the writing process because that is the subject she is responsible for planning. It may be that the practice activities and Foldables® created for those activities represent different levels of performance requirements – one calls students to create and justify a story of their own by organizing the sequence of events into beginning, middle, and end parts; the other calls for students to simply label clocks. In either case, questioning data would suggest that Mrs. Fletcher requested a greater depth of knowledge from her students during writing than during math. These differences might suggest that she felt more comfortable with the content

since she created the writing lessons rather than the math lesson, which was created by a team teacher. On the other hand, she might view writing and math processes differently (e.g., writing involves more creativity and math involves teaching procedural knowledge).

The type of fold and creation process may also have an effect on the depth of teacher understanding of standards. Mrs. Fletcher's first fold was a project fold that served as a vehicle on which to deliver research findings. It did not require many new connections to its content. The third set of folds created during Mrs. Fletcher's time lesson were part of a pre-packaged set of time Foldables® purchased through an on-line teacher resource. Mrs. Fletcher did not actually create the fold, which could have resulted in a decrease in its effectiveness. The second fold on the other hand was created by Mrs. Fletcher for the specific lesson over planning a realistic fiction piece by organizing ideas sequentially. In this lesson, there was a much higher level of thinking and productivity, which could be the result of the teacher and students' involvement in the creation and organization of knowledge on its tabs.

Additional depth in the knowledge of standards can also be seen in Mrs. Fletcher's interview data. In her initial interview, Mrs. Fletcher stated that she always began with the district's scope and sequence along with the state standards (TEKS) to decide what content to cover. Mrs. Fletcher would then consider effective lessons and resources from previous years or units that could be modified to fit the team's current needs. In her final interview, Mrs. Fletcher reflected on the effects that integrating Foldables® had on the depth of her understanding of standards. Mrs. Fletcher found that the inclusion of Foldables® in her planning made her more intentional about categorizing

and splitting larger pieces of information into more manageable pieces for her students to process. The thought process was sometimes frustrating to Mrs. Fletcher as she found herself unsure of how to integrate folds into her content delivery but she ultimately found that Foldables® made her think differently about how to break up and organize standards in order to help students visualize processes and take standards one small piece at a time.

*How does the use of Foldables® affect the way a teacher plans for instruction?* The format and contents of Mrs. Fletcher's lesson plans remained consistent throughout the entire data collection period. Specific areas rated as having a *Basic* level of performance were *Standards, Stating Objectives, Guided Practice,* as well as *Performance* and *Assessing Performance.* The *Standards* section lacked prerequisite skills and cross-curricular connections, *Stating Objectives* lacked preassessments to establish rigor and challenge, and *Guided Practice* was missing the systematic use of nonexamples. A rating of *Basic* was given for *Performance* and *Assessing Performance* due to the use of single performance and assessment options. In addition, Mrs. Fletcher received a rating of *Unsatisfactory* in the area of *Providing Feedback* as a result of the lack of specific methods for communicating with students about their progress. The inconsistency and lack of change through the eight weeks of data collection may be a result of team planning and the use of a prescribed format with required lesson parts. As a result, there cannot be any conclusions drawn from submitted lesson plans about changes in Mrs. Fletcher's planning processes over the study as a result of using Foldables®.

Changes in planning processes were seen in the interview and reflection data collected from Mrs. Fletcher. In her Foldable® reflections, Mrs. Fletcher commented that the creation and use of Foldables® for instruction caused her to categorize and break

large standards down into smaller parts so that she could focus on each part before combining them into a bigger picture. In addition, during her final interview Mrs. Fletcher commented that when concepts were broken down into smaller parts in the planning process, she became more organized and intentional about which parts should come first in lesson delivery and how connections could be made between the different pieces or steps in the process. Mrs. Fletcher's planning process was changed because she found herself breaking processes and big ideas into smaller more easily digestible pieces for instruction.

In her reflections Mrs. Fletcher commented that she saw the most growth and improvement in her students' work as a result of Foldables® in writing. There were several weeks during data collection when she included Foldables® into her planning for writing lessons; the majority of which acted as a graphic organizer for the planning and drafting steps of the writing process. All of the Foldables® created for writing instruction were a result of Mrs. Fletcher's planning processes due to the fact that writing was her responsibility to plan. In her final interview, she commented on how important the added structure was for her students. It enabled them to look at one step at a time and compartmentalize the pieces they were working on before combining them into a full composition. This chunking process, where processes are broken down into single steps, was a result of Mrs. Fletcher's intentional thought about the standards and effective planning for instruction.

*How does the use of Foldables® affect the way a teacher instructs?* In her initial interview Mrs. Fletcher commented on the importance of engaging students through instruction and activities. She suggested that when students were engaged that they learn

more easily and are more motivated to perform and apply content. Mrs. Fletcher named several methods for engaging students, the majority of which were technology related, such as BrainPops, StudyJams, YouTube, and SafeShare sites. In her final interview Mrs. Fletcher commented that she found Foldables® to be equally engaging for her students because they were something different than the norm and students began learning and owning different types of folds so she was having to instruct them on construction less and less. The biggest difference that Mrs. Fletcher found with Foldables® is they were easily accessible for review later if needed, whereas students couldn't access web-based resources as readily. Mrs. Fletcher began using Foldables® more regularly when she noticed the ease with which students were able to practice sorting spelling words into different patterns and the impact that increased structure and organization had on her students' writing.

Lesson observations in Mrs. Fletcher's classroom were conducted in three different subject areas and required different processes. Lesson one was a lesson was on the creation of a final product for a research project using a large shutter fold. Lesson two was a writing lesson on using a beginning, middle, and end Foldable® for planning a story sequentially. The final observation was a math lesson practicing telling analog and digital time. Mrs. Fletcher demonstrated varying levels of effectiveness in her questioning, connections, and content delivery throughout the three lessons. This level of inconsistency may be a result of the different levels of thinking required by each of the lessons or could also be due to the differences in content areas. The lack of consistency demonstrated through Mrs. Fletcher's lesson observations makes it difficult to conclude any changes in her lesson delivery as a result of using Foldables®. As mentioned in the

previous section about depth of understanding of standards, the level of teacher involvement in the creation of the Foldable® presented may impact their effectiveness in delivery. The data collected in Mrs. Fletcher's case would suggest that when a teacher is more involved in the design of the Foldable® they are more effective in the flow, delivery, and depth of instruction.

*Themes*

In the analysis and synthesis of the data collected from Mrs. Fletcher during this study several themes emerged including the themes of breaking down standards, student engagement, and the processes involved in folding.

The first theme was the theme of breaking down standards. In her Foldable® reflections and final interview, Mrs. Fletcher described the process of taking individual standards and breaking them down into smaller, more manageable concepts for lesson delivery. Initially, Mrs. Fletcher found this process tedious and sometimes frustrating, trying to fit the content she was teaching into a Foldable® format. Once she became more comfortable with different Foldable® formats and their uses she found that the breaking down of standards helped her students not become overwhelmed. Mrs. Fletcher began looking for patterns and relationships within standards as well as big ideas and processes that could be broken down into smaller concepts and individual steps. Mrs. Fletcher's second observed lesson demonstrated her efforts in breaking down the planning process of writing a fictional piece into sequential steps in her BME Foldable®. Mrs. Fletcher also found that presenting and practicing small steps of the process or focusing on one concept at a time seemed more manageable in her limited teaching and practice time. Once processes and big ideas were broken down into smaller concepts and steps using a

Foldable®, Mrs. Fletcher could zoom out on the Foldable® as a whole to demonstrate the big idea (e.g., life cycles) or to show the full process (e.g., planning, drafting, revising, editing, and publishing).

An additional theme that emerged from Mrs. Fletcher's data was the theme of student engagement. Student engagement was first mentioned in Mrs. Fletcher's initial interview when explaining why she chose to include certain activities or resources in her lesson plans. Activities and resources used to grab student attention in Mrs. Fletcher's lesson plans included BrainPop, YouTube, and StudyJam videos as well as songs, games, and Foldables®. These activities were used during lesson observations in Mrs. Fletcher's class where Foldables®, BrainPop videos, math manipulatives, and class discussions were used to engage and involve students in the learning activities. In Mrs. Fletcher's final interview and Foldable® reflections, she commented that her students seemed to be more engaged and having more fun when a Foldable® was involved rather than a worksheet or assignment out of a book.

The third theme that emerged from Mrs. Fletcher's data was the idea of the mechanics involved in using Foldables®. In her Foldable® reflections, Mrs. Fletcher mentioned on two occasions having difficulty with students creating the Foldables® incorrectly or not following directions on how to complete the Foldable®. In her final interview she mentioned that in the beginning, there was a lot of time spent teaching the students how to *make* the Foldable® rather than actually delivering content. Introducing new or unfamiliar folds to students also proved challenging as the study continued. The time it takes to develop a common language and shared experiences with Foldables® is sometimes hard to justify but by the end of the study Mrs. Fletcher commented that

students were able to accurately use and create their Foldables® and the process of teaching students to fold had become more natural.

The final theme found in Mrs. Fletcher's data was the theme of lower level thinking and lack of differentiation. Mrs. Fletcher demonstrated a general level of proficiency in her lesson planning, instructional delivery, and Foldable® construction and use but across the data there was a lack of upper level thinking and challenge through differentiation based on individual performance on preassessments. Lower levels of thought can be seen in Mrs. Fletcher's choice of Foldable® activities for her observed lessons. The Foldable® created by Mrs. Fletcher in her first lesson was the BioBuddy project fold that served as the final product for an on-going research project. This activity did not introduce any new content, it simply asked students to label, name, and organize their research findings onto the planes of a shutter fold, which were knowledge or remembering level assignments. Mrs. Fletcher's BME writing Foldable® was one of the more powerful examples observed during the study and received positive feedback from teammates in weekly reflections, but even the open-ended planning Foldable® was at the Intellectual level of Gagné and Driskoll's (1988) Learning Outcomes, where students are asked to apply a strategy to their writing. Mrs. Fletcher's final lesson over time conversions required students to create an analog time and rewrite that time in digital form; this labeling and naming of a single correct answer is an example of a verbal (Gagné & Driskoll, 1988) or declarative (Feldhusen, 2006) level application. In addition to the levels of thinking required for the Foldables® created, Mrs. Fletcher's questioning techniques also demonstrated lower levels of thinking. Only in her BME writing lesson did Mrs. Fletcher ask more open-ended, multiple-answer questions requiring upper-level

thinking and connections from her students. In her first lesson, 73% of her questions required a single correct response and in her final lesson over time 100% of her questions were single answer. Lower levels of thinking demonstrated on Foldables® as well as questioning paired with the lack of preassessments and differentiation throughout Mrs. Fletcher's case data suggest that levels of thinking and the inclusion of preassessments and differentiation are areas for growth.

In conclusion, data collected from Mrs. Fletcher during this study suggest that Foldables® had an impact on her understanding of state standards as well as her planning and instruction. Foldables® influenced Mrs. Fletcher in breaking down standards into smaller parts and more manageable pieces by considering the patterns and relationships present in the content and processes being taught. This increased understanding influenced Mrs. Fletcher to be more focused on the smaller concepts that make up the big ideas being taught, which she believed allowed her to deliver instruction in a way that was more manageable and less overwhelming to the students in her classroom.

### *Cross-Case Analysis*

Three teachers, each representing a case, were studied in detail separately. Comparisons of the individual analyses allowed for a study across cases using data collected by the instruments developed and used for this study as well as individual interview and reflection responses. Themes within the cases were compared to themes in other cases (Stake, 1994) for the following cross-case analysis.

*Comparisons Across Lesson Planning Ratings*

The three teacher participants submitted weekly lesson plans throughout the duration of the study. Lesson plans were submitted by each teacher for their assigned subject area. Following the established campus-required format, Mrs. Wells submitted math lessons, Ms. Moser submitted reading lessons, and Mrs. Fletcher submitted writing lessons for their entire grade level team. Weekly lessons were evaluated using the Weekly Document Observation Rubrics (see Appendix E) based on Gagné's (1985) instructional framework. Table 4.34 indicates ratings for each participant across all eight weeks of the study and Table 4.35 serves as a summary of the ratings.

Overall, teachers were similar in demonstrating proficiency, or even distinguished performance (see Fletcher), in their lesson plans in the areas of gaining attention, stimulating recall, presenting a stimulus, and offering opportunities for independent practice. Two of the three teachers' lesson plans were also proficient in enhancing retention and transfer (see Wells and Fletcher), assessing performance (see Wells and Moser), and Performance (see Wells and Moser). Basic ratings were more often than not a result of a single performance option for students, most often in writing when a single genre was covered each week. The lack of performance and assessment options limited opportunities for student choice and demonstrating understanding in various ways.

The cross-case comparison revealed several areas in lesson planning where the teachers showed only basic levels of performance in their plans. Across all eight weeks, all of the teachers received *Basic* ratings in the area of standards due to not mentioning prerequisite skills and cross-curricular connections. Another area where teachers

Table 4.34

*Combined Lesson Planning Ratings*

| | Wells | | | | | | | | Moser | | | | | | | | Fletcher | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 |
| Standards | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B |
| Gain Attention | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | D | P | D | P | P |
| State Objectives | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B |
| Stimulate Recall | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Present Stimulus | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | D | P | P |
| Guided Practice | B | B | B | B | B | B | B | B | B | B | P | P | B | B | B | P | B | B | B | B | B | B | B | B |
| Independent Practice | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Performance | P | P | B | P | P | P | P | P | P | P | P | P | P | P | P | P | B | B | B | B | B | B | B | B |
| Provide Feedback | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | B | D | U | U | D | U | B | B |
| Assess Performance | P | P | B | P | B | P | P | P | P | P | P | P | P | P | P | P | B | B | B | B | B | B | B | B |
| Enhance Retention and Transfer | P | P | U | P | P | P | P | P | B | B | U | P | P | P | B | P | P | P | P | P | P | P | P | P |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

Table 4.35

*Summary of Lesson Plan Ratings Across Study*

| Indicator | Wells | Moser | Fletcher |
|---|---|---|---|
| Standards | Basic – 100% | Basic-100% | Basic-100% |
| Gain Attention | Proficient – 100% | Proficient – 100% | Proficient -75%<br>Distinguished – 25% |
| State Objectives | Basic – 100% | Basic – 100% | Basic – 100% |
| Stimulate Recall | Proficient – 100% | Proficient – 100% | Proficient – 100% |
| Present Stimulus | Proficient – 100% | Proficient – 100% | Proficient – 100% |
| Guided Practice | Basic – 100% | Basic – 62.5%<br>Proficient – 37.5% | Basic-100% |
| Independent Practice | Proficient – 100% | Proficient – 100% | Proficient – 100% |
| Performance | Basic – 12.5%<br>Proficient – 87.5% | Proficient – 100% | Basic-100% |
| Provide Feedback | Unsatisfactory-100% | Unsatisfactory-100% | Unsatisfactory-37.5%<br>Basic – 37.5%<br>Distinguished-25% |
| Assess Performance | Basic – 25%<br>Proficient – 75% | Proficient – 100% | Basic-100% |
| Enhance Retention and Transfer | Unsatisfactory – 12.5%<br>Proficient – 87.5% | Unsatisfactory- 25%<br>Basic – 37.5% | Proficient – 100% |

consistently demonstrated a basic level of performance was in stating objectives. Teachers' lesson plans mentioned preassessment as a method for differentiation but never included their use in establishing objectives for specific lessons. As a result of limited preassessments, the level of rigor and challenge in the lessons cannot be established for students. While Moser did provide nonexamples in two lessons, most of the teachers did not provide explicit and systematic nonexamples in guided practice activities, which resulted in ratings of *Basic* in the area of guided practice as well.

Specific methods for providing feedback to students were missing in the majority of lesson plans submitted by teachers during this study. As a result the majority of ratings received in this area of the instructional framework were unsatisfactory.

*Comparisons Across Lesson Delivery Ratings*

Three lesson observations were conducted in each of the three participants' classrooms. Observed lessons were recorded and field notes were taken using the Classroom Observation Form (see Appendix F). Lessons were then evaluated using the Data Analysis Rubric (see Appendix J) taking into account each lesson part included in Gagné's (1985) instructional framework. Table 4.36 summarizes the ratings received on the Data Analysis Rubrics for the observations conducted in each participant's classroom and Table 4.37 serves as a summary of the ratings.

Across all observed lessons, participants received *Proficient* or *Distinguished* ratings in providing feedback, presenting stimuli, and in demonstrating knowledge of content and pedagogy through the use of varied teaching strategies and instructional methods. Participants also received *Proficient* ratings across all observed lessons in stimulating recall and offering students opportunities to practice independently. Two of the three teachers also received *Proficient or Distinguished* ratings in gaining attention of the students and in enhancing retention and transfer. Mrs. Wells received *Basic* ratings in gaining attention for two of her lessons because she began both lessons by reviewing carpet expectations and then moving straight into stating objectives and stimulating recall. In the area of enhancing retention and transfer Mrs. Wells received no ratings because this portion of the lesson cycle was not observed in the classroom.

Table 4.36

*Combined Lesson Delivery Ratings*

| Indicators | Wells | | | Moser | | | Fletcher | | |
|---|---|---|---|---|---|---|---|---|---|
| | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 |
| Planning and Preparation | | | | | | | | | |
| Demonstrating Knowledge of Content and Pedagogy | P | P | P | P | P | D | P | D | P |
| Designing Coherent Instruction | B | B | B | B | B | B | B | P | B |
| Lesson Parts and Learning Outcomes | | | | | | | | | |
| Gain Attention | D | B | B | P | D | P | D | P | P |
| State Objectives | B/P | B/P | B/P | B/P | B/P | B/P | B/P | B/P | B/P |
| Stimulate Recall | P | P | P | P | P | P | P | P | P |
| Present Stimulus | P | P | P | P | D | P | P | D | P |
| Guided Practice | B | B | P | P | P | P | B | B | U |
| Independent Practice | P | P | - | P | P | P | P | P | P |
| Performance | B | B | - | P | B | B | B | B | B |
| Provide Feedback | P | P | P | P | P | P | P | D | P |
| Assess Performance | B | B | - | B | U | B | B | B | B |
| Enhance Retention and Transfer | - | - | - | P | P | - | P | P | B |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

Table 4.37

*Summary of Observation Ratings Across Study*

| | Wells | Moser | Fletcher |
|---|---|---|---|
| Planning and Preparation | | | |
| Demonstrating Knowledge of Content and Pedagogy | Proficient – 100% | Proficient – 66.6%<br>Distinguished-33.3% | Proficient – 66.6%<br>Distinguished-33.3% |
| Designing Coherent Instruction | Basic-100% | Basic-100% | Basic-66.6%<br>Proficient – 33.3% |
| Lesson Parts and Learning Outcomes | | | |
| Standards | Basic – 66.6%<br>Distinguished – 33.3% | Proficient – 66.6%<br>Distinguished – 33.3% | Proficient – 66.6%<br>Distinguished – 33.3% |
| Gain Attention | Basic and Proficient – 100% | Basic and Proficient – 100% | Basic and Proficient – 100% |
| State Objectives | Proficient – 100% | Proficient – 100% | Proficient – 100% |
| Stimulate Recall | Proficient – 100% | Proficient – 66.6%<br>Distinguished – 33.3% | Proficient – 66.6%<br>Distinguished – 33.3% |
| Present Stimulus | Basic – 66.6%<br>Proficient – 33.3% | Proficient – 100% | Unsatisfactory – 33.3%<br>Basic-66.6% |
| Guided Practice | Proficient – 100% | Proficient – 100% | Proficient – 100% |
| Independent Practice | Basic – 100% | Basic – 66.6%<br>Proficient – 33.3% | Basic-100% |
| Performance | Proficient -100% | Proficient -100% | Proficient -66.6%<br>Distinguished-33.3% |
| Provide Feedback | Unsatisfactory-100% | Unsatisfactory- 33.3%<br>Basic– 66.6% | Basic-100% |
| Assess Performance | Basic – 100% | Proficient – 100% | Proficient – 66.6%%<br>Basic – 33.3% |
| Enhance Retention and Transfer | | Proficient – 66.6%<br>Distinguished – 33.3% | Proficient – 66.6%<br>Distinguished – 33.3% |

A mix of *Basic* and *Proficient* ratings were received in the area of stating objectives. While teachers' stated objectives for the learning activities were clear they were not tied to preassessment data. As a result, the level of rigor and challenge of the activities could not be established.

The area of guided practice received a mix of *Unsatisfactory*, *Basic* and *Proficient* ratings across teachers. While one teacher was rated proficient in this area, the others did not provide systematic nonexamples to more clearly define the concept being taught.

Most of the teachers' observed lessons were rated at a *Basic* level of performance in the areas of designing coherent instruction, performance and assessing performance due to the lack of multiple performance and assessment options for students. More often than not students were given a single assignment that would be used as an assessment of their mastery.

There were several lessons in which parts of Gagné's (1985) instructional framework were not observed, these areas were marked with a dash in Table 4.34.

*Comparisons Across Foldable® Ratings*

Each lesson observation completed for this study included the use of a Foldable® during some part of the instructional process. Foldables® used during each of the lessons were rated using the *Foldable® Examples* section of the Weekly Document Observation Rubrics (See Appendix E). Table 4.38 indicates ratings received by each of the participants on their choice of fold, arrangement of information, organization of knowledge, and usage of the Foldable® in each of their three lessons.

Overall, teachers demonstrated proficiency in all four categories measured by the rubric used for this study. In her first observation, Mrs. Wells received a rating of *Basic* in the area of arranging information due to the fact that she could have raised the level of rigor by having students justify their answers in the congruent or similar practice activity in her first observation. Ms. Moser received ratings of *Distinguished* in the arrangement of information and organization of knowledge on both her revising and Venn Diagram

Foldables®, while Mrs. Fletcher received a *Distinguished* rating on her choice of fold for the creation of students' research BioBuddies.

Mrs. Moser's revising Foldable® received a *Distinguished* rating in the area of Arrangement of Information because of the way she broke down the biographies that her students were writing into single sentences relating to important life events on each tab.

Table 4.38

*Combined Foldable® Ratings*

| | Wells | | | Moser | | | Fletcher | | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 |
| Choice of Fold | P | P | P | P | P | P | D | P | P |
| Arrangement of Information | B | P | P | D | P | D | P | P | P |
| Organization of Knowledge | P | P | P | D | P | D | P | P | P |
| Usage | P | P | P | P | P | P | P | P | P |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

The *Distinguished* rating in Organization of Knowledge was given for this product because of the use of the different planes on the Foldable®. The drawing on the outside created a visual connection for the students, which helped with the writing of the original sentence under the tab, students could then revise their individual sentences and have a place for their clean correct sentences on the facing tab. Similarly, Mrs. Moser received a rating of *Distinguished* on the Arrangement of Information for her Venn by providing a visual of the interlocking ovals on the outside cover of the Foldable® that

could then be cut into independently moving tabs that served as defined spaces for similarities and differences between the habitats being compared. A rating of *Distinguished* was also given in the area of Organization of Knowledge for Mrs. Moser's Venn diagram due to the intentional division of information (i.e., similarities and differences) as well as the use of space, students were given larger more defined areas to record their data using a Foldable® than is provided in a traditional Venn layout.

Mrs. Fletcher received a *Distinguished* rating for her choice of the shutter project fold in her BioBuddy lesson. This particular choice of fold was ideal for her purpose of creating a final research product to be used in a living museum. Students were able to use large pieces of construction paper to create a product with many different planes to house their research artifacts while also serving as the body of their chosen historical figure. Students glued information on the outside, inside, and back planes of the shutter fold that would serve as their guide during the living museum experience.

*Comparisons Across Questioning Data*

Questioning data were collected during each lesson observation completed for this study using the *Questioning* portion of the Observation Scales (see Appendix G). Questions asked during the observed lessons were then coded as single answer questions, which generally required lower levels of thinking, or multiple answer questions, which required higher level thinking skills to answer. Multiple answer questions were then further coded to reflect the connections made whether cognitive, affective, process, or evaluation/implications. Table 4.39 summarizes the questioning data collected during each of the classroom observations for this study.

Table 4.39

*Combined Questioning Data in Percentages*

| | Wells | | | Moser | | | Fletcher | | |
|---|---|---|---|---|---|---|---|---|---|
| Question Type | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 | Observation 1 | Observation 2 | Observation 3 |
| Single Answer | 60 | 100 | 88 | 67 | 68 | 68 | 73 | 25 | 100 |
| Multiple Answer | 40 | 0 | 12 | 33 | 32 | 32 | 27 | 75 | 0 |
| Cognitive Connections | 50 | 0 | 50 | 50 | 100 | 56 | 33 | 60 | 0 |
| Affective Connections | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| Process Connections | 0 | 0 | 50 | 50 | 0 | 11 | 67 | 13 | 0 |
| Evaluation/Implication | 50 | 0 | 0 | 0 | 0 | 33 | 0 | 7 | 0 |

Questioning data showed that the majority of questioning used during instruction was lower level, requiring a single correct response. Of the upper level questions posed by participants, the majority required cognitive and process-related connections. Questions that require cognitive connections ask students to relate to other disciplines and concepts including past or future learning. Process related questions ask the students to describe the method or way they derived the answer, to reflect on their process. Connections made least frequently during classroom observations were affective and questions that required evaluation or reflection on implications. Affective questions ask students to relate the current content to his or her own personal experiences while evaluation/implication questions require students to evaluate or discuss implications and give reasons for choices. These data suggest that content being discussed during observed lessons lacked personal connections to the real world and didn’t require students to

answer *why* these things were important or applicable. Overall, questioning data demonstrated a lack of depth in thinking during observed lessons.

In only one of Mrs. Fletcher's lessons (i.e., the second observation of her using the Beginning, Middle, and End Foldable®) was there more multiple answer open-ended questioning. This was most likely due to the fact that the majority of Mrs. Fletcher's questioning took place during the workshop portion of the lesson when she was conferencing with individuals about their specific pieces of writing. This type of one-on-one situation allowed for more open-ended and probing questions related to the choices students are making during the writing process.

*Comparisons Across Case Study Themes*

Within each individual case there were themes that emerged through the interview and reflection responses submitted by each participant. Themes were coded using a constant comparative method (Strauss & Corbin, 1990) where open coding was used to break down, examine, compare, and categorize data into common ideas or themes. Four themes were identified in each individual case study. Specific themes are listed in Table 4.40.

Student engagement is a theme that was present in the data from all three case studies. All three teacher participants mentioned engaging students as being an important part of their planning process, all were thoughtful of their students' preferences and ability to attend to information when initially planning. As a result, their lesson plans often included a variety of methods for gaining student attention including technology resources such as BrainPop and YouTube videos as well as interactive Promethean activities. Teachers also made an effort to include experiences that involved multiple

modalities including the use of songs, movement, manipulatives, and Foldables®. Mrs. Wells felt that when she was able to increase her students' engagement during lessons they were more likely to retain the information being taught. She also commented that engaging activities, in this particular case a Foldable® being used in research, increased her students' motivation and task commitment. Both Ms. Moser and Mrs. Fletcher commented that their students were more excited and motivated by Foldables® than by typical worksheets or workbook-based assignments. Similarly, Mrs. Wells stated in one of her Foldable® reflections,

> Students were more willing to include their [research] information in this particular way, rather than simply writing down facts or sentences in their notebook. It was quite interesting to see how much pride and patience they put in to their work when it was in this format. (Wells Foldable® Reflection, 4/5/2016)

Table 4.40

*Summary of Case Study Themes*

| Theme | Wells | Teacher Moser | Fletcher |
|---|---|---|---|
| Student Engagement | X | X | X |
| Creation of a Product | X | | X |
| Foldables® as a Reference | X | X | |
| Breaking Down Standards | | X | X |
| Process of Using Foldables® | X | | X |
| Lower Levels of Thinking | X | | X |

In addition to the theme of student engagement, the theme of lower levels of thinking was present in two of the individual case studies conducted. This theme is not only apparent in the lower level questioning techniques used by teachers during instruction, it was also seen in the Foldables® produced during classroom observations. Six of the nine Foldables® created during lesson observations were at the verbal or

declarative levels, where students are simply asked to define, label, and name examples. One Foldable®, the Venn Diagram created in Ms. Moser's third lesson, was at the cognitive or associational level of thinking because students were asked to classify, compare, and contrast the information they had collected on their particular environment. Two lessons required application of the content being discussed; Ms. Moser's revising lesson and Mrs. Fletcher's Beginning, Middle, and End Foldable® both involved the writing process and required students to identify and even modify pieces of information in response to the lessons being taught. The four Foldables® observed during math instruction were used during the guided or independent practice portions of the lesson and required a single correct answer. The two reading lessons in which Foldables® were used involved the creation of a project fold and the naming and defining of features of poetry. The theme of lower levels of thinking is one that Mrs. Wells even commented on in one of her weekly reflections when she stated,

> I feel like [the Foldable®] was adequate, but too simplistic for my higher students . . . [I] would like to brainstorm ways in which I can help [my students] think on a higher level rather than simply stating whether the shape fit into a particular category or not. (Wells Foldable® Reflection, 3/21/2016)

The use of Foldables® as reference tools, specifically in conjunction with content-specific notebooks, was an additional theme present in two of the case studies. Mrs. Wells and Ms. Moser both found Foldables® to be helpful when reviewing vocabulary and concepts from previous lessons. Mrs. Wells even took the time to model referring back to previous Foldables® and notebook entries during her lesson on time (Wells Observation Two, 4/14/2016). Ms. Moser found that student-created Foldables® in notebooks were more powerful, more permanent, and more easily referenced

throughout the year than the anchor charts she would make and hang around the room (Moser Final Interview, 5/5/2016).

An additional theme that was present in multiple case studies was the idea of breaking down standards and concepts into smaller more manageable concepts, something Ms. Moser referred to as *chunking* (Moser Initial Interview, 3/9/2016). Mrs. Fletcher reflected that using Foldables® in her instruction required her to look more carefully for patterns and relationships within the standards during her planning processes (Fletcher Final Interview, 5/10/2016). Ms. Moser commented that the chunking of standards into smaller concepts made her more organized in her lesson delivery (Moser Final Interview, 5/5/2016). Lastly, Mrs. Fletcher found that her students became overwhelmed less frequently when she look the time to break processes down in to individual steps on a Foldable® where they could look at one thing at a time rather than taking on the entire process or trying to understand the complete big picture from the beginning (Fletcher Final Interview, 5/10/2016).

Finally, two participants in the study mentioned concerns about the time involved in the process of making Foldables®. Mrs. Fletcher found that when she first began using Foldables® in her instruction there was a considerable time commitment made to the teaching and learning of different folds. She commented, “In the beginning, it became much more centered on how to actually make [the Foldable®]” (Fletcher Final Interview, 5/10/2016). Mrs. Wells faced the same problem when trying to incorporate Foldables® into her busy math block. In her final interview Mrs. Wells commented, “I’m still not a big fan of how long [Foldables®] take with second graders . . .” (Wells Final Interview, 5/2/2016). Additionally, in one of her reflections Mrs. Wells stated, “Some of the

Foldables® that were included into our notebooks were not our best work because we have such a limited amount of time for our math block" (Wells Foldable® Reflection, 3/21/2016). Mrs. Wells later went on to discuss how she had to intentionally schedule Foldables® on days where her math time was not committed to other activities. Using Foldables® as an instructional tool does take time and effort by both the teacher and students, but that time commitment is often more concentrated at the beginning stages of learning Foldables®. In her final interview, Mrs. Fletcher commented that, "[Making Foldables®] has come more easily as we've gone through and done them and [the students] know how to do them. Now it's something that we can do almost on the spot if it needs to be" (Fletcher Final Interview, 5/10/2016).

*Comparisons Across Study Questions*

Three research questions served as the foundation of the current study. These questions looked specifically at the changes in depth of understanding, planning processes, and instructional practices of teachers when Foldables® were used in their classrooms. The data collected for each case study in the form of interviews, lesson plans, classroom observations, Foldable® examples, and reflections acted as the body of knowledge used to answer the research questions for each individual participant involved in the study. Findings from each case study are combined in this section to create a larger case for the second grade team at Ranger Elementary.

*How does the creation of Foldables® affect teacher understanding of standards?* Depth of understanding of standards is hard to measure, especially when data comes in the form of written lesson plans or single lessons delivered to students. Over the eight-

week data collection period there was little to no change in the reporting of standards in lesson planning documents and no changes were seen across classroom observations in the stating of objectives. The data that contributed most to our knowledge about the teachers' depth of knowledge of the standards were their interviews and reflection responses. Ms. Moser commented that she had an overall better awareness of the content and processes present in the standards when applying them to Foldables® (Moser Final Interview, 5/5/2016). All three participants reported paying closer attention to necessary vocabulary within the standards and creating visual representations of concepts to more effectively teach concepts using Foldables®. Mrs. Fletcher and Ms. Moser also found themselves intentionally breaking standards down into smaller more manageable concepts and processes when using Foldables®. This *chunking* of information increased their awareness of the standards and how the smaller concepts or steps in a process combine to create a larger picture (Fletcher Final Interview, 5/10/2016; Moser Final Interview, 5/5/2016).

*How does the use of Foldables® affect the way a teacher plans for instruction?* Teacher planning processes are affected by the depth of teacher knowledge of standards and have a direct impact on the delivery of information, but much like depth of understanding can be difficult to measure and define when looking at the lesson plans produced by the process. This was especially true for the lesson plans analyzed for this study. Ranger Elementary used an established format for lesson planning that was followed by the second grade team where each individual was responsible for planning a single subject area for the entire team. For this reason there were no changes seen in the

form or function of the lesson planning documents collected over the eight-week data collection period.

In an attempt to capture data on the transfer of lesson planning to delivery, lesson plans submitted for the study were compared with the actual implementation through the lesson delivery observations completed for each participant. Tables 4.41, 4.42, and 4.43 compare ratings received on lesson plans using the Weekly Document Observation Rubrics (Appendix E) compared with the ratings received during observations using the Data Analysis Rubric (Appendix J) for each study participant. Discussion follows each table.

Table 4.41

*Comparison of Lesson Planning and Delivery: Mrs. Wells*

| | Lesson 1 | | Lesson 2 | | Lesson 3 | |
|---|---|---|---|---|---|---|
| Indicator | Plan | Delivery | Plan | Delivery | Plan | Delivery |
| Gain Attention | P | D | P | B | P | B |
| State Objectives | B | B/P | B | B/P | B | B/P |
| Stimulate Recall | P | P | P | P | P | P |
| Present Stimulus | P | P | P | P | P | P |
| Guided Practice | B | B | B | B | B | P |
| Independent Practice | P | P | P | P | P | - |
| Performance | P | B | P | B | P | - |
| Provide Feedback | U | P | U | P | U | P |
| Assess Performance | P | B | B | B | P | - |
| Enhance Retention and Transfer | P | - | P | - | P | - |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

Mrs. Wells's lesson planning and delivery comparison data suggest that, while similar in many areas, the delivery of content can differ from the original plan written for the lesson. Mrs. Wells demonstrated proficiency in gaining attention in her lesson plans but in two of her lesson observations she was rated *Basic* in this area because she began

her lesson with expectations and left out her original attention grabbing plan. This is seen again in the areas of performance and assessment where she demonstrated proficiency in lesson planning but was rated as *Basic* in two of her lessons due to the lack of multiple methods for demonstrating mastery of content. On the other hand, Mrs. Wells's practice exceeded her planning in the area of providing feedback. In this area of her weekly lesson plans Mrs. Wells regularly received ratings of *Unacceptable* due to the fact that there was no mention of feedback strategies, but in observations she demonstrated a level of *Proficient* in the practice of providing her students with feedback during learning activities.

Table 4.42

*Comparison of Lesson Planning and Delivery: Ms. Moser*

| | Lesson 1 | | Lesson 2 | | Lesson 3 | |
|---|---|---|---|---|---|---|
| Indicator | Plan | Delivery | Plan | Delivery | Plan | Delivery |
| Gain Attention | P | P | P | D | P | P |
| State Objectives | B | B/P | B | B/P | B | B/P |
| Stimulate Recall | P | P | P | P | P | P |
| Present Stimulus | P | P | P | D | P | P |
| Guided Practice | B | P | P | B | P | P |
| Independent Practice | P | P | P | P | P | P |
| Performance | P | P | P | B | P | B |
| Provide Feedback | U | P | U | P | U | P |
| Assess Performance | P | B | P | U | P | B |
| Enhance Retention and Transfer | B | P | P | P | P | - |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

Similar to Mrs. Wells's planning and delivery comparison data, Ms. Moser's data demonstrate some discrepancies. There were several areas in which Ms. Moser performed at a level lower than demonstrated by her plans, these areas include performance and assessment due to the fact that only a single performance option was

presented in two of her lessons. The same was true for Ms. Moser in the area of assessment where in all three lessons a single performance option was assessed. In her first observed lesson Ms. Moser outperformed her lesson rating of *Basic* in the area of guided practice and in her second lesson, Ms. Moser exceeded her planning ratings in the areas of gaining attention and presenting a lesson stimulus. Additionally, Ms. Moser demonstrated proficiency in the area of providing feedback during lesson delivery, an area that was rated as *Unacceptable* in her plans due to the lack of explicit strategies for providing feedback.

Table 4.43

*Comparison of Lesson Planning and Delivery: Mrs. Fletcher*

| | Lesson 1 | | Lesson 2 | | Lesson 3 | |
|---|---|---|---|---|---|---|
| Indicator | Plan | Delivery | Plan | Delivery | Plan | Delivery |
| Gain Attention | P | D | D | P | P | P |
| State Objectives | B | B/P | B | B/P | B | B/P |
| Stimulate Recall | P | P | P | P | P | P |
| Present Stimulus | P | P | P | D | P | P |
| Guided Practice | B | B | B | B | P | U |
| Independent Practice | P | P | P | P | P | P |
| Performance | B | B | B | B | P | B |
| Provide Feedback | U | P | U | D | U | P |
| Assess Performance | B | B | B | B | P | B |
| Enhance Retention and Transfer | P | P | P | P | P | B |

*Note.* U=Unsatisfactory, B=Basic, P=Proficient, D=Distinguished

As with Mrs. Wells and Ms. Moser's planning and delivery rating comparisons there were some discrepancies between lesson plan and observation ratings for Mrs. Fletcher. Lesson three, Mrs. Fletcher's time lesson, had the most negative dissimilarities between plan and instructional ratings. While the plan for this lesson received ratings of *Proficient* in the areas of guided practice, performance, assessment, and enhancing

retention and transfer, Mrs. Fletcher received ratings of *Basic* or *Unsatisfactory* in each of these areas due to a lack of student input and the absence of varied performance and assessment options. On the other hand, Mrs. Moser received *Distinguished* ratings in gaining attention and presenting stimulus in her first and second lessons respectively, while her plans in these areas were rated as *Proficient*. In addition, Mrs. Fletcher demonstrated proficient and distinguished performances in the area of providing feedback in all three of her observed lessons while her plans received ratings of *Unacceptable* due to the fact that feedback strategies were not included in her plans.

The lesson plans and delivery comparison data suggests that lesson plans, while helpful in giving teachers direction and guiding activities, are not always an accurate representation of the quality of lessons delivered in the classroom.

Interviews and reflection responses offered the most insight into changes in planning processes that occurred as a result of incorporating Foldables® into regular classroom instruction. Mrs. Wells and Ms. Moser both commented on an increased awareness and attention to content-specific vocabulary during their planning processes as a result of including those vocabulary, definitions, and examples on the tabs of Foldables® (Moser Initial Interview, 3/9/2016; Wells Final Interview, 5/2/2016). Ms. Moser and Mrs. Fletcher found themselves taking time during their planning periods to consider more carefully categorizations and relationships between concepts and how those could be demonstrated by a Foldable® (Fletcher Final Interview, 5/10/2016; Moser Final Interview, 5/5/2016). Mrs. Fletcher and Mrs. Wells both commented on their increase in planning for the use of Foldables® as the study went on, Mrs. Wells found the increase in student engagement motivating (Wells Foldable® Reflection, 4/5/2016) and

Mrs. Fletcher saw the importance of using Foldables® to add structure to abstract concepts or processes (Fletcher Foldable® Reflection, 5/9/2016). Lastly, Ms. Moser found that the integration of Foldables® into her lesson planning increased the organization of her thoughts (Moser Final Interview, 5/5/2016).

One of the most exciting discussions that arose from the data collection and debriefing processes in this study for me as a researcher was the importance of teacher creation of the Foldables® that are used during instruction. There are many on-line resources, blogs, and websites that provide Foldable® ideas and even entire units of study for teacher purchase and classroom use. These materials are often full of attractive fonts and cute illustrations but, in my experience with using Foldbles®, don't always translate into higher levels of teacher understanding and student learning. Many of the Foldables® used in observations early in the study were purchased on-line as a package of activities centered around specific concepts. Participants found these Foldables® easy to use but often lacking in substance. Several weeks into the study participants began creating their own Foldables® using what they knew about Foldables®, the standards being taught, their own student populations, as well as pieces from units they found on-line. This more generative process of Foldable® creation resulted in lessons and products that were more closely tied to standards and specific student needs as well as increased confidence in teacher delivery because they were more closely involved in the processing of information for the Foldable® during their planning periods.

*How does the use of Foldables® affect the way a teacher instructs?* Three classroom observations, each including the integration of a Foldable®, were conducted over the duration of the study. Observation field notes, recordings, rubrics, questioning

data, and Foldable® examples were collected for each of the classroom observations in an attempt to paint a complete picture of the instruction observed but true changes in instructional practices can be difficult to measure using only observation data. As a result interview and reflection responses also served as important data for answering this research question.

In all three classrooms one of the biggest instructional changes that came about as a result of using Foldables® was the integration of those products into content-specific notebooks. All three teachers commented on the usefulness of having artifacts from previous lessons in the form of vocabulary and practice examples available for reference in student notebooks. In the cases of Mrs. Wells and Ms. Moser student notebooks served as a vehicle for students to create and store their own anchor charts rather than relying on the teacher created ones that would hang around the room (Moser Final Interview, 5/5/2016; Wells Final Interview, 5/2/2016).

Data collected through interviews and reflections suggest that the use and creation of Foldables® helped teachers organize their thoughts during instruction. In one of her weekly reflections, Ms. Moser commented that "[Foldables®] make it so much easier to stay organized in our thoughts when writing" (Moser Foldable® Reflection, 3/22/2016). Mrs. Fletcher and Ms. Moser also found that Foldables® guided their instruction and helped to make their thinking more visible to students, Mrs. Fletcher commented "my students seemed to understand my thinking process more when I could organize it for them in a Foldable®" (Fletcher Final Interview, 5/10/2016). Similarly, Ms. Moser found that Foldables® helped her to analyze the concepts and processes that she was teaching. She stated that,

> [Foldables® have] changed the way that I teach because instead of giving it to them all at once, which I may have done before, I'm aware that I need it broken down. We're going to lay it out in a Foldable® where it's broken down for them. (Moser Final Interview, 5/5/2016)

Mrs. Wells added that knowing the purpose of the Foldable® and how her students would benefit from it made her instruction more purposeful and guided her thinking (Wells Final Interview, 5/2/2016).

Foldables® also seemed to aid in focusing students' attention on the content being covered. In word study, Ms. Moser reflected that "placing digraphs individually on each flap helped the students to just focus on that part of the word . . . then they were able to come up with examples" (Moser Foldable® Reflection, 4/26/2016). Mrs. Wells used Foldables® in her math class to help students with the acquisition of content-specific vocabulary by including concrete examples such as drawings and pictures with words to help her students focus on the distinguishing characteristics of the concepts being discussed (Wells Observation One, 3/7/2016). In spelling and word work activities, Mrs. Fletcher found that using Foldables® helped her students sort and organize their words into different categories: "My students became more aware of patterns in their words and were able to name patterns more easily when they used a Foldable® for sorting throughout the week" (Fletcher Foldable® Reflection, 4/18/2016).

In addition to increased organization and ability to focus students' attention, Foldables® offered teachers an opportunity to involve their students in the process of constructing products demonstrating their own learning. Foldables® carry with them a novelty that worksheets generally do not. Ms. Moser commented that her students seemed more committed and owned their learning more when Foldables® were used. "They're creating something that's theirs, so they have ownership in it and it's just more

special than a worksheet" (Moser Final Interview, 5/5/2016). Foldables® served as final products for presenting research multiple times during the data collection process for this study. Mrs. Fletcher used a shutter project fold to help her students organize and present their research on famous historical figures (Fletcher Observation One, 3/23/2016) and Mrs. Wells used a similar fold to help her students organize their findings while researching animal habitats (Wells Foldable® Reflection, 4/5/2016). In both projects teachers reflected that the inclusion of a Foldable® for organization and as a final product increased their students' level of engagement as well as their commitment to the assignment. Mrs. Wells found that Foldables® enabled her students to "present their knowledge in a nice orderly fashion in which they were proud." She added that "students were more willing to include their information in [a Foldable®]," (Wells Foldable® Reflection, 4/5/2016) which made her more likely to integrate Foldables® as an instructional tool into her lessons.

Foldables® were most often used in the delivery of declarative knowledge and appeared most helpful to lower level and struggling students in the classrooms involved in this study. Mrs. Wells and Ms. Moser both commented on the usefulness of Foldables® as reference materials as well as a source for review and reteaching when needed (Moser Final Interview, 5/5/2016; Wells Foldable® Reflection, 4/5/2016). Mrs. Wells found that the experience of working with concrete examples, the opportunity for repeated review, and students creating their own products in Foldables® helped her struggling students retain more of the math content presented in her lessons (Wells Final Interview, 5/2/2016). Similarly, Mrs. Moser found that her students who needed additional support with challenging concepts would often refer back to their notebooks

and Foldables® for examples, definitions, and reminders both independently and in small group settings (Moser Final Interview, 5/5/2016). Foldables® also seemed helpful for struggling learners because they often broke tasks down into smaller components (task analysis), which in turn shortened the task itself. Mrs. Fletcher reflected on this when she stated,

> I like the fact that [Foldables®] break it apart for them, so they're seeing just a small piece that makes it friendlier than, 'Here's a whole page of questions,' or whatever it might be. If I'm using a Foldable® to answer questions about something, they're only seeing one at a time, and that feels good to them. (Fletcher Final Interview, 5/10/2016)

Mrs. Wells and Mrs. Fletcher created new Foldables® each time they were observed in the classroom whereas in two of Ms. Moser's lessons the students had already created and begun using their Foldables® during previous lessons. In the lessons where direct instructions were given on the folding, cutting, and gluing of Foldables® teacher directions became more clear and concise with each following observation. All three teachers used modeling effectively to show their students precisely how to fold and cut their Foldables® as well as where information would go.

In addition to becoming more proficient in the construction of Foldables®, all three teachers also commented that they felt more confident in their ability to create their own Foldables® rather than depending on purchased packages of activities that included Foldables®. Of the nine Foldables® created for lessons during this study, five were teacher created rather than purchased from on-line resources. In addition to an increase in confidence with Foldable® usage and the creation of new Foldables®, Mrs. Fletcher and Ms. Moser also reflected on an increase in organization in their lesson delivery when using Foldables®. Ms. Moser stated that the Foldable® reminded her of the concepts

being covered and what order she planned to present them in, almost like a guide map for her lesson delivery (Moser Final Interview, 5/5/2016).

*Summary*

Data in the form of individual interviews, lesson planning documents, classroom observations, Foldable® examples, and teacher reflections over the use of Foldables® were collected over an eight week period from three second grade teachers at Ranger Elementary. Data was collected and analyzed using various protocol developed specifically for this study using Gagné's (1985) *Conditions of Learning*, Bruner's (1960, 1961) *Concept Learning*, and Gagné and Driskoll's (1988) *Learning Outcomes* as a guide. Individual participant's data were analyzed and discussed in a case study format, establishing a clear picture of the environment and instructional practices observed. Additional analyses were conducted across case studies to identify common themes and patterns within the data.

Results of this study suggest that the use of Foldables® in the classroom may affect teachers' depth of knowledge of the standards they are teaching by increasing their awareness of content-specific vocabulary and recognizing relationships within and between concepts being taught. Foldables® also appeared to impact teachers' lesson planning processes by requiring participants to break standards into smaller *chunks* of information that could be more easily delivered and understood by students. Teachers would then take those units of knowledge and organize them into a format that provided a high level of structure for students who needed it. In addition, teachers reported that Foldables® effected their planning and instruction by making them more organized and

aware of the need to explicitly define relationships and processes present in their content areas.

Themes that emerged from the analysis of data for this study include the idea of breaking content into smaller, more manageable units, and creating products that demonstrate learning and can later be used as reference. Interview and reflection responses from multiple participants suggested that there was a learning curve when teaching and learning different folds with younger students. Participants voiced concerns and frustration with the instructional time commitment needed for the creation of Foldables®, especially in the beginning weeks of the study. However, perceived increases in student engagement were reported by each participant when Foldables® were included in lesson delivery, suggesting that the time needed for Foldable® instruction was a worthwhile investment if increased task commitment was an additional outcome.

# CHAPTER FIVE

## Discussion

Teachers are continuously seeking effective methods for presenting, processing and practicing concepts that they are responsible for teaching. Note taking and graphic organizers, in many forms, are common instructional tools used in the classroom for the delivery of new information. Research suggests that presenting information in a more structured or pictorial form helps students focus more on key ideas, easily access information, and stimulate learning (Armbruster & Brown, 1984; Bos & Anders, 1992; Mayer, 1989; Ritchie & Volkl, 2000).

Previous research on note taking suggests that students who use note-taking strategies are more likely to remember a higher number of important pieces of information (Einstein, Morris, & Smith, 1985). Note taking also allowed students to make more connections between information presented (Eskritt & Lee, 2002; Kiewra, 1989; Peper & Mayer, 1986; William & Eggert, 2002). In addition to higher recall and connections, students who were effective note takers demonstrated increased attention (Peper & Mayer, 1978; Piolat, Olive, & Kellogg, 2005) as well as increased organizational skills (Barnett, DiVesta, & Rogozinski, 1981; Castello & Monereo, 2005; Eskritt & Lee, 2002; Hidi & Klaiman, 1983; Spires, 1993). Furthermore, students who were taught note-taking strategies explicitly demonstrated increased abilities to encode and store knowledge (Austin et al., 2002; Austin, Lee, & Carr, 2004; Neef, McCord, & Ferreri, 2006).

Previous research on graphic organizers has produced many of the same positive results for students. Findings in other studies have found that students using graphic organizers are more able to deconstruct topics and demonstrate relationships between concepts (DiCecco & Gleason, 2002; Eagan, 1999; Galavan & Kottler, 2007; Mayer, 1989; Robinson & Schraw, 1994; Rock, 2004). In addition, students using graphic organizers were more able to transfer learning to new situations (Griffin, Malone, & Kameenui, 1995; Ives, 2007), demonstrated increased performance on assessments (Bean, Singer, Sorter, & Frazeem 1986; Hawk, 1986; Robinson & Kiewra, 1995), and increased efficacy and more positive attitudes toward learning (Casteel & Narkawicz, 2007; Hawk, 1986). Furthermore, students who were explicitly taught graphic organizer strategies demonstrated an increased ability to retain concepts and generalize organizational skills to novel situations (Anderson, 1980; Eskritt & McCleod, 2008; Griffin, Malone, & Kameenui, 1995; Stull & Mayer, 2007).

The specific instructional strategy studied in this research is called a Foldable®, which is a three-dimensional tool that combines note taking and graphic organizer strategies with a kinesthetic integration. Foldables® are created through the purposeful folding and cutting of paper to fit the structure of the content being taught. Only one previous study using Foldables® is present in the literature. Casteel and Narkawicz (2007) found that the use of Foldables® significantly increased students' engagement, ease of use when integrating Foldables®, and affect towards learning but showed no significant effect on student academic achievement.

The majority of research on the effects of note taking and graphic organizers has involved the use of traditional outline notes and two-dimensional graphic organizer

formats. While the use of Foldables® has been described as beneficial for students there is no empirical research examining the influences of Foldables® on teachers' organization of knowledge and instruction. This study is an attempt to begin to fill the gap in the literature concerning how three-dimensional graphic organizers influence teachers. This study examined three questions related to Foldables®:

1. How does the creation of Foldables® affect the depth of teachers' understanding of standards?
2. How does the use of Foldables® affect the way a teacher plans instruction?
3. How does the use of Foldables® affect the way a teacher instructs?

An instrumental case study design was used to examine the effects of Foldables®. This specific design was used because rather than having research questions about specific teachers on a specific campus, I sought to use the case studies as an instrument to better understand a phenomena, in this case the effects of Foldables® at a teacher level. Specifically, it looked at how three second grade classroom teachers integrated Foldables® into their instruction. Participants for the study were chosen using purposive sampling, all three met the criteria of teaching in a self-contained classroom and had attended summer professional development sessions on the creation and use of Foldables®.

Observation instruments and rubrics were developed for this study using Gagné's (1985) *Conditions of Learning* and Bruner's (1960) *Concept Learning* as theoretical frameworks to guide and operationalize the data collection processes. Instruments and rubrics created for data collection in this study include a semi-structured Interview Protocol (Appendix I), Weekly Document Observation Rubrics (Appendix E), Classroom

Observation Forms (Appendix F), and a Foldable® Reflection Form (Appendix H). After data were collected, the Data Analysis Rubric (Appendix J) was used as a guide to combine the data into a format better suited for constant comparative analysis. Data collection for this study spanned eight weeks during the spring semester in which teachers participated in two interviews (initial and final), submitted weekly lesson plans and Foldable® examples, participated in three classroom observations, and completed Foldable® reflections every other week. Following data collection, individual case study and cross-case study analyses were conducted to determine the effects of Foldables® on the teachers' practice.

This chapter is organized around results and themes that emerged from the data. The chapter will conclude with limitations, implications for practice, and recommendations for future research.

*Themes*

A number of themes emerged from the data collected for the current study. Data in the form of interviews, reflections, lesson plans, and lesson observations were coded and triangulated to identify common ideas that existed between each of the participants' data sets.

Analysis of the data collected in this study suggests that Foldables® are effective for breaking down big ideas or multi-step processes into smaller, more manageable parts that can be taught, discussed, and practiced individually before being combined into larger concepts. Teachers felt that this process of *chunking* information was beneficial to them in the planning and delivery processes of instruction, but also found that their

students became less overwhelmed when information was broken down into smaller units.

Using Foldables® as reference materials in the classroom was another theme that emerged from the data. Several of the participants found that the use of Foldables® helped their students access previous learning during periods of review or when they had misconceptions about concepts. Including Foldables® in content-specific notebooks provided students and teachers with a record of vocabulary, definitions, examples, and practice opportunities that could be used throughout the year.

Participants in the study perceived increases in student engagement as well as their own when Foldables® were used in lessons. Teachers reported feeling more organized and prepared to deliver content after planning and designing Foldables® that demonstrated the concepts they were teaching. In addition, teachers reported that students seemed more engaged and interested in lessons that included the creation or use of Foldables® rather than typical worksheet or workbook activities.

While engaging, teachers found teaching with Foldables® to be a process that required a larger time commitment than they had expected. Multiple participants commented on the time that it took, especially at the beginning of the study, to teach students the different formats and folds being used during instruction. While both participants reported increases in student proficiency and speed at creating Foldables® there was still some concern and frustration over the instructional time lost to the process of creating Foldables®.

The final theme that emerged in the data analysis process was the theme of lower levels of thinking. The majority of Foldables® created during lesson observations for this

study were lower level naming and identifying activities that required very little analysis or idea generation by the students themselves. While there were a few exceptions to this rule, most of the Foldable® applications were very declarative or close-ended in nature.

*How does the creation of Foldables® affect teacher understanding of standards?*

Analysis of the data collected for this study suggests that Foldables® are beneficial to teachers by increasing their depth of knowledge about the standards. Specifically, the use of Foldables® made teachers more aware of the content and process portions of the standards when applying them to Foldables® because participants found themselves paying closer attention to necessary vocabulary within the standards as well as creating visual representations of concepts to use on the graphic organizers. Depth of understanding, however, was assessed using the participants' reflections and reports during the course of the study and may not accurately reflect the influences of Foldables® over time.

*How does the use of Foldables® affect the way a teacher plans instruction?*

Data from this study also suggest that teachers' planning processes are affected by the integration of Foldables® into their lessons. Multiple participants reported an increased awareness and attention to content-specific vocabulary during their planning process as a result of including those vocabulary, definitions, and examples on the tabs of Foldables®. Teachers also commented that integrating Foldables® into their instruction influenced their careful consideration of categorizations and relationships between concepts and how those could be demonstrated using a Foldable®. For some participants, these changes in the planning process led to more organized thinking about content and

planning for lesson delivery. Furthermore, teachers reported using Foldables® more frequently in their instruction as the study progressed in response to increased student engagement and the need for additional support with presenting abstract concepts.

It should be noted that participants used team planning in which each team member was responsible for planning a single subject area each week and sharing those plans with their teammates. This planning method may have resulted in differences between the implementation of lessons planned the teacher herself and by others (e.g., the teacher may have felt more comfortable implement her lessons rather than her team teachers' lessons). In addition to implementation discrepancies created by team planning, the prescribed format of lesson plans for the grade level also may have limited the type of the data collected and analyzed for this study. For example, the observation and analysis instruments used in this study were based on Gagné's (1985) *Conditions of Learning*, which defined nine events important to the learning process including gaining students' attention, informing learners of the objectives, stimulating recall of background knowledge, presenting a stimulus, providing guidance, eliciting performance, providing feedback, assessing performance, and enhancing retention and transfer. On the other hand, lesson plan formats for King Elementary were only required to include standards, objectives, and activities for each content area. While many of Gagné's (1985) criteria could be identified within the school's required format, teachers were less intentional about the inclusion of each criterion such as specific feedback strategies.

*How does the use of Foldables® affect the way a teacher instructs?*

Several effects of Foldables® were noted at the instructional level. Teachers reported feeling more organized during instruction when using Foldables® due to the

high level of structure and the breaking down, or task analysis, of standards required when creating Foldables®. Teachers also perceived an increase in their ability to focus students' attention on important characteristics and distinguishing features of the concepts being taught. This ability to simplify complex concepts and processes seemed to benefit students who typically struggled in the classroom. Participants reported that their lower level learners were better able to understand and apply their learning as a result of using Foldables® as a part of their instruction. In addition, all of the participants in this study began using content-specific notebooks to collect learning artifacts throughout the year, these notebooks served as a repository of student work that could be referenced as needed throughout the school year and allowed the students an opportunity to construct their own products to demonstrate learning.

Observations of instruction, however, indicated that teachers did not necessarily follow their lesson plans. In some cases, lessons presented in the classroom were much more thorough and student-directed than what appeared in the weekly lesson planning documents, while other lessons lacked parts that were present in the planning documents. While lesson plans give a good picture of the planned route to learning they are often not reflective of the instructional journey.

### *Findings in Relation to Existing Literature Base*

Bruner's (1960, 1961) theory of *Concept Learning* suggests that students construct knowledge based on the organization and categorization of experiences. Teachers facilitate student thinking and problem solving by providing examples and non-examples of concepts in an attempt to create a complete case that can be used to accurately and thoroughly define a concept, which increases transfer to new and different

situations. Teachers perceived increases in student task commitment as well as understanding of content as a result of instruction involving Foldables®. Bartlett (1932) suggested that learning and concept development was a result of the process of constructing and organizing units of knowledge called schema. Teachers participating in the current study reported an increase in their ability to understand as well as effectively organize and deliver content to their students by using Foldables® as a planning and instructional tool.

Gagné (1985) suggested that learning takes place when certain external and internal conditions are present. In his *Conditions of Learning*, Gagné established a set of nine conditions or steps present when effective learning takes place. These nine conditions include gaining attention, informing learners of objectives, stimulating recall of prior knowledge, presenting stimulus, providing learning guidance, eliciting performance, providing feedback, assessing performance, and enhancing retention and transfer (Gagné, 1985). These external events served as the framework for the current study as well as the foundation for the development of data collection and analysis protocol. Data from study participants suggest that while teachers may not always include each step of this process in their written plans that their delivery generally follows this progression when time allows. Foldables® were most often used during the practice steps where teachers modeled and guided student practice activities and students practiced on their own independently. In addition to using Foldables® for practice of new content, participants in this study also implemented Foldables® as products when measuring performance and mastery of content.

Research in the area of note taking and graphic organizers has historically focused on student effects. While the current study focused on teacher effects and perceptions of a specific graphic note-taking tool called a Foldable®, findings are similar and consistent with those of previous studies. Studies conducted by Hawk (1986) and Casteel and Narkawicz (2007) found that the creation of graphic organizers increased teacher understanding of content and relationships across content areas. Participants in the current study reported the same results when using Foldables®. In addition to depth of understanding as a result of graphic organizers, studies by Moore and Readence (1984) and Casteel and Narkawicz (2007) also reported increases in teacher confidence, effectiveness, and control of learning, which were also reported by participants using Foldables® in the current study.

Studies involving note taking and its effects on student participants have reported increases in student attention (Peper & Mayer, 1978; Piolat, Olive, & Kellogg, 2005) and increased organizational skills (Barnett, DiVesta, & Rogozinski, 1981; Castello & Monero, 2005; Eskritt & Lee, 2002; Hidi & Klaiman, 1983; Spires, 1993). Data from the current study suggests the same increases for teachers. Teacher participants in the current study reported increases in their own ability to focus and organize content for delivery when using Foldables®.

In addition, studies involving the use of graphic organizers suggest that graphic organizers increase students' ability to demonstrate relationships between similar concepts as well as across content areas (DiCecco & Gleason, 2002; Eagan, 1999; Galvan & Kottler, 2007; Mayer, 1989; Robinson & Schraw, 1994; Rock, 2004). Data from the current study suggest that Foldables® may have the same effect on teachers. When using

Foldables® in instruction, participants reported feeling more confident and aware of connections between concepts that they were teaching as well as better able to demonstrate those relationships visually to their students.

Lastly, in their study using Foldables® with students in the social studies classroom, Casteel and Narkawicz (2007) found that students reported increased enjoyment and affect towards learning during units where Foldables® were used as an instructional tool. Data from the current study suggest the same effect of Foldables® on second graders across content areas. Teachers commented and reflected on the fact that their students seemed more willing and committed to tasks when they involved Foldables®.

### *Limitations*

Qualitative data analysis is defined by Bogdan and Biklen (2006) as

> Working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others. (p. 145)

In this case study, a constant comparison data analysis model was used to analyze data, being careful to look at cases individually as well as across all three cases for patterns and themes.

In qualitative research there are often limitations that impact the reliability and validity of findings. Challenges specific to the case study approach include bias and credibility of the research, lack of clearly defined concepts and terms, difficulty of obtaining accurate information from participants, and a lack of alignment of representation between the sample and the population (Merriam, 1998; Mykut & Morehouse, 1994; Patton, 2002). Yin (2013) suggests improving the quality of the

research design and minimizing these limitations by considering the validity and reliability of data.

*Validity*

Validity can be separated into three types – construct, internal, and external.

*Construct validity.* Yin (1994) defines construct validity as "establishing correct operational measures for the concepts being studied" (p. 33). In this study, the researcher operationally defined terminology and concepts being used for the study in a glossary section prior to data collection. Multiple data sources were used during data collection to create as clear and complete a case as possible for each participant. Data sources included: (a) initial interviews, (b) weekly lesson plans, (c) Foldable® reflections every two weeks, (d) three classroom lesson observations, (e) questioning data, (f) Foldable® examples, and (g) final interviews.

To ensure construct validity, protocols were developed using well established learning theories and teaching frameworks. Rubrics were developed for this study using the Danielson Framework for Teaching (2013; Appendix B) as a guide for the analysis of data collected in the form of lesson plans and classroom observations. In addition to being modeled after the Danielson (2013) Framework, the rubrics created for this study were written using Gagné's (1985) *Conditions of Learning*, Bruner's (1960, 1961) *Concept Learning*, and Gagné and Driskoll's (1988) *Learning Outcomes* as a guide for content and ratings. Rubrics created for use in this study include the *Classroom Document Observation Protocol* (Appendix E) and the *Data Analysis Rubric* (Appendix J). In order to direct questioning and conversation in the interviews conducted during this

study an interview protocol (Appendix I) was developed which aligned questions and probes to specific study questions as well as Gagné's (1985) *Conditions of Learning.* In addition, a *Classroom Observation Form* (Appendix F) was developed to direct and organize the field notes taken during lesson observations in order to insure thorough collection of needed data as well as alignment with the study's theoretical frameworks and key questions. Each of these data collection tools was specifically developed using the theoretical and research base in order to strengthen the construct validity of the study.

*External validity.* Yin (1994) defines external validity as "establishing the area to which a study's findings can be generalized" (p. 33). Replication of a study is the best way to increase external validity by collecting more and more cases of data to compare to find patterns and themes. In cases where replication is not feasible, Gerring (2006) suggests the use of cross-case analysis as a method for increasing the external validity of a study. The major limitation of the current study is the small sample size that was studied--three teacher participants. Participants in the study were all second grade teachers at the same campus with varying teaching experience and backgrounds. Two of the participants graduated from and were certified through a four-year education program while the third was alternatively certified. As a result of the small sample size and common campus and grade level, current findings cannot be used to generalize across teachers, schools, other grade levels, specific student populations, or different educational settings but can be used to inform future research concerning Foldables®.

The lesson plans analyzed in this study were the result of team planning; each teacher was responsible for planning a single subject for the entire team. Lessons written across content areas by teachers for their particular group of students may have resulted

in different findings. In addition, the team lesson-planning model restricts our ability to generalize findings related to using Foldables® in specific subject areas.

*Internal validity.* Yin (1994) defines internal validity as "establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguishes from spurious relationships" (p. 33). The researcher can use a method of data collection and analysis called triangulation (Merriam, 1998) to obtain a wider and more accurate picture of the environment and circumstances surrounding individual cases.

Three classroom observations were completed with each of the participants over the eight weeks of data collection. While these observations created a robust picture of the learning environment being studied, they were not sufficient to show large amounts of change in practice, a more longitudinal design would be necessary for data to show instructional changes over time. In addition, no observations were conducted before the Foldable® professional development sessions were presented so there were not opportunities to compare observed instructional practices before and after the introduction of Foldables®.

To ensure internal validity in this study data triangulation, member checking, and an external audit were conducted along with clearly defining the role of the researcher at the beginning of the study. Data from interviews, lesson plans, lesson observations, and reflections were combined and triangulated to identify patterns and themes within and across cases. Individual case studies were also sent to the participants for their review to check for accuracy as well as to offer an opportunity for clarification if needed. In

addition, an external audit was conducted by a colleague not involved in the study to reduce researcher bias.

*Reliability*

The term reliability refers to "the extent to which results are consistent over time and an accurate representation of the total population under study" (Joppe, 2000, p.1). To ensure reliability in the current study, the researcher used debriefing, triangulation, member checking, and an inquiry audit was performed in which an external auditor examined both the process and product of the research for consistency (Lincoln & Guba, 1985).

A semi-structured interview protocol was developed for the interview portions of the data collection, this protocol provided consistency by guiding the researcher's questioning and probes where needed. Interviews for this study were conducted, recorded, and transcribed by the researcher. Each interview was scheduled at the convenience of the participants and took place in their classrooms at Ranger Elementary. The interviews were conducted using the semi-structured interview protocol developed for the study. For each initial interview all questions included on the protocol were asked. When needed the developed probes were used to help participants better understand the question or to obtain additional information. Questions not listed on the protocol were used when called for during the interview when clarification or further descriptions were needed.

Classroom observations were conducted in each classroom three times over the period of the study. Teachers decided on the date, time, and subject area to be observed during each visit, the only requirement was that a Foldable® would be used at some point

during the lesson. Lessons in math, reading, writing, and science were observed using the *Classroom Observation Form* (Appendix F), a protocol developed to ensure that data collected during classroom observations were systematic, consistent, and thorough. Field notes were then analyzed using the *Data Analysis Rubric* (Appendix J), which was created using the theories of Gagné (1985), Bruner (1960, 1961), and Gagné and Driskoll (1988) as a theoretical guide. While using systematic, consistent, and thorough measures contributed to the reliability of the data collected, the variety of subjects offered a broad range of content but also made comparisons across observations a challenge, making observations in a single subject area may have been preferable.

In summary, several limitations were present in this study. To minimize these limitations the researcher considered both the validity and reliability of the data collected and took steps to strengthen the quality of the research design.

## *Implications for Practice*

The results of this study have several implications for classroom practice and the use of Foldables®, specifically the benefits of mentorship and modeling of instructional strategies as well as the need for further professional development to strengthen effective practices with Foldables®.

### *Use of Foldables® to Organize Content*

Results from the current study suggest that Foldables® are effective in increasing teacher awareness, understanding, and organization of concepts within the state standards. These changes in depth of understanding effected participants' planning and instructional practices. Participants found themselves focusing their efforts in planning

more on needed vocabulary and demonstrating categories and relationships to make them more visible to students. Instructionally, participants felt more organized and able to focus students' attention on important characteristics of concepts. The changes in understanding, planning, and instruction in this study lead to perceived increases in student understanding of standards and processes, which suggests that both teachers and students could benefit from the use of Foldables® in the classroom.

In order to effectively use Foldables® in the classroom, teachers need to be trained in different Foldable® formats, their uses, and how to effectively and efficiently teach students how to construct them. Professional development in using Foldables® should not be limited to a single session but should include ongoing opportunities for training and mentoring in the process of using Foldables®.

*Use of Foldables® for Differentiation.*

Classrooms are full of diverse students that have different learning preferences and abilities. With those diverse needs and abilities comes the need for differentiated instruction. A theme that emerged out of the data in this study was an over all lack of upper level thinking and differentiation based on student preassessment data. Participants in this study used Foldables® regularly for the delivery of lower level declarative information but expressed uncertainty about how Foldables® could be used in more challenging activities for higher-level learners. This reflection suggests a need for further professional development with using Foldables® in differentiated ways and with more advanced learners.

*Use of Foldables® in Encouraging Higher Level Thinking*

The majority of Foldables® created during lesson observations in the current study required lower levels of thinking from students or merely served as a vehicle for the delivery of simple declarative or procedural knowledge. Professional development opportunities related to using Foldables® for higher level thinking would require teachers to begin to think of Foldables® outside of their typical naming/defining or single answer practice activities and begin to use Foldables® in more analytic ways where students are asked to generate their own examples of concepts.

*Use of Foldables® to Increase Student Engagement*

Increased student engagement was the most consistent theme that developed through the analysis of data for this study. Student engagement was mentioned multiple times in each of the participants' interviews and reflections during the data collection processes. Teachers perceived a higher level of energy and task commitment from their students when using Foldables® than was generally seen during traditional instruction. These findings are similar to the findings of Casteel and Narcawicz (2007) who reported that students who were instructed using Foldables® had increased engagement with the content when compared with peers who were taught using traditional instructional methods. Data from these two studies suggest that teachers looking for instructional methods that will engage students, increase their commitment to assignments, and motivate them to participate more actively in the classroom should consider using a tool such as a Foldable® that combines note-taking strategies and the graphic organization of information into a single product.

*Follow Up Discussions*

Lave and Wenger (1991) suggest that participating in communities of practice enhances learning. The team of participants in this study was an example of such a community of practice. Each week they would meet together to plan and discuss upcoming lessons and units. Each teacher would come with their specific subject area planned and then would model the different Foldables® and activities that they were suggesting for the following week. This time of discussion and modeling offered an opportunity for teammates to ask for clarification or offer suggestions to improve the activities and presentation of skills.

After the data collection period, I was asked by the team to come to one of their planning periods to discuss some of the Foldables® I had observed and to plan future lessons. This time was spent looking through notebooks and discussing strengths and challenges they had experienced in the planning and delivery of certain Foldables®. I was able to serve in the role of a mentor to discuss my own experience with teaching using Foldables® as well as having the opportunity to model how the Foldables® they had created could achieve a higher level in rigor or challenge for their students. Participants commented that this 45 minute planning period not only served as affirmation of the effectiveness of their current practice but also challenged them to take their practice a step further.

In addition to attending and participating in a team meeting, I had the pleasure of presenting a professional development session on Foldables® with one of the participants at her local Alma Mater. In this session she was able to show preservice and current classroom teachers how she had used Foldables® in her own classroom, and I was able to

offer instruction on the construction and use of different formats and folds. This experience served not only as a refresher for Ms. Moser but also as an opportunity for her to mentor others in their development as effective instructors.

Mentorship and modeling has both benefits and drawbacks. When an expert in the field is involved (e.g., the researcher), there are opportunities for developing the expertise of the protégés (e.g., the study participants). However, when novices are working with novices, learning may not always be enhanced by their interactions. The findings of this study suggest that in order to ensure growth and development in a skill, such as using Foldables® in instruction, it is important to pair novices in the field with an expert who can guide thinking and model strategies during planning and reflection periods.

### *Recommendations for Future Research*

Studies involving the use of note taking strategies and graphic organizers have found that these instructional practices are effective for increasing student engagement as well as retention and transfer of information. However, studies that examine the effects of note taking strategies and graphic organizers on teachers are rare. This study focused on a specific graphic organizer, called a Foldable®, that teachers were trained in using during a summer professional development session. Foldables® have been used in classrooms for many years but little to no research exists about their effectiveness as an instructional tool, which provides rich opportunities for additional research studies.

First, it would be interesting to follow the three participants to examine if they continue using Foldables® in their classrooms and to study the changes that occur in their Foldable® use. This examination would provide insight into additional uses of Foldables® as well as needed professional development for others who are using

Foldables® in their classrooms. In addition, longitudinal designs integrating mentorships with teachers centering on Foldable® creation and usage could offer insight into the effects that Foldables® can have on teachers' instructional practices over longer periods of time.

In addition to Foldable® effects on teachers, it is important to examine the effects of Foldables® on students. Studies involving students could include additional qualitative research but may also take more experimental or quasi-experimental approaches to quantifying the effects of Foldables®. Possible research questions for quantitative designs include: Does the use of Foldables® increase student performance in the regular classroom? Does the use of Foldables® affect student performance on standardized tests? Does the use of Foldables® increase retention of information in both short- and long-term settings? It would also be interesting to study student engagement when using Foldables® as compared to instruction without them. In this study all three teacher participants commented on a perceived increase in student attention, but a study to quantify that increase would be helpful.

Qualitative studies including students could address students' perceptions of Foldables® in the learning process. Possible research questions for qualitative designs involving students include: In what ways do Foldables® affect the way students learn? How do Foldables® influence students' retention of information? How do Foldables® influence students' enjoyment of learning? In what ways does the use of Foldables® effect the way students think or learn?

It would also be interesting to study the way different student populations would use Foldables® in their learning and creation of products in the classroom. For example,

how might students demonstrate understanding of a standard through the creation of Foldables®? Are there differences in Foldable® choice or arrangement of information depending on academic ability, level of language acquisition, or grade level?

Future studies could also examine the effectiveness of different Foldable® formats for the delivery of different concepts. For example, is a shutter fold more effective for teaching certain standards than a multi-tab? What variables should be taken into consideration when designing Foldables®? Systematically examining the complex variables present in the creation of Foldables® by both students and teachers as well as the effects of using Foldables® as an instructional tool is necessary to begin bridging the gap in research concerning the use of graphic organizers and note taking strategies in the classroom.

### *Conclusions*

With increases in rigor of standards and high stakes testing throughout our education system, teachers are searching for effective instructional tools that can help them deliver content effectively to increasingly diverse student populations. Research in the areas of note taking and graphic organizers suggest that students benefit from systematic and intentional instruction on the use of these strategies. There is a gap in the extant literature, however, when it comes to more specific instructional tools such as the Foldable®, which is a three-dimensional graphic organizer used in many classrooms.

This instrumental case study examined the use of Foldables® in three second grade classrooms looking specifically at their effects at the teacher level. The researcher sought to create a clear picture of the learning environment through the collection of data in the form of teacher interviews, lesson plans, Foldable® reflections, and classroom

observations. The data collected suggests that teachers benefit from using Foldables® in several ways. First, teachers reported having an increased awareness of standards and were better able to analyze the specific tasks required by the standards by visually representing information using Foldables®. In addition to understanding learning standards more deeply, participants reported changes in their planning processes as a result of Foldables®. Specifically, teachers reported that planning for instruction with Foldables® required them to focus more on content-specific vocabulary as well as categories in and relationships between concepts within the standards. Finally, participants also experienced effects on their instructional practices as a result of using Foldables®. Teachers reported feeling more organized during instructional delivery with Foldables® as well as perceived increases in engagement and their ability to focus students' attention on important information.

In addition to the benefits of using Foldables® in instruction, data from this study suggests some weaknesses as well. Several of the teacher participants commented on the time and effort involved in teaching different folds, especially at the beginning of the study. They voiced concerns about the loss of instructional time and frustration that could sometimes result from the incorrect folding and cutting of products. While these drawbacks lessened over time, it is important to remember that when any new skill or tool is implemented in the classroom that there will be some growing pains and time lost to the learning of the method. Data from classroom observations and teacher reflections also suggested that the majority of the Foldables® used for this study were schematic (Mumford, Blair, & Marcy, 2006), declarative (Feldhusen, 2006), or verbal (Gagné & Driskoll, 1988) in nature. Many of the skills demonstrated in the Foldables® created

during this study demonstrated a simple skill that required little application or problem solving on the part of the students. These data are helpful in making instructors more aware of their levels of thinking and intended learning outcomes in an attempt to ensure higher level learning and synthesis are taking place in their chosen classroom activities.

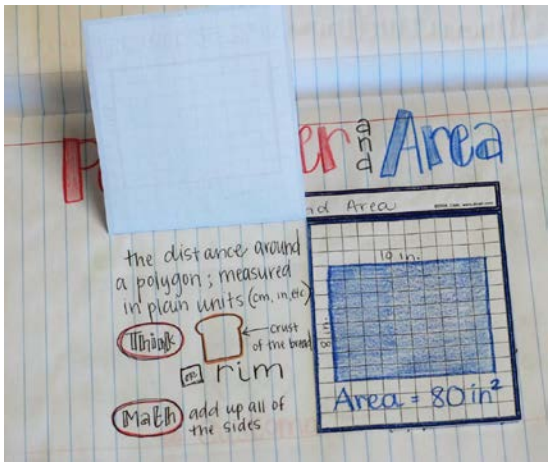
Foldables® are a tool that takes note-taking strategies, combines them with the visual aspects of a graphic organizer, and introduces multiple planes while integrating kinesthetic movement. Using Foldables® as an instructional tool requires teachers to commit both time and energy to their creation throughout the planning process as well as during instruction. While many teachers have experienced success with using Foldables® as an instructional tool in their classroom there is a lack of systematic and empirical studies that demonstrate their effectiveness. It is our job as instructors to begin filling the existing literature gap by examining the effectiveness of the instructional tools and strategies being used in our classrooms. This study serves as a jumping off point for future research into the uses and effectiveness of the three-dimensional graphic organizer known as the Foldable®.

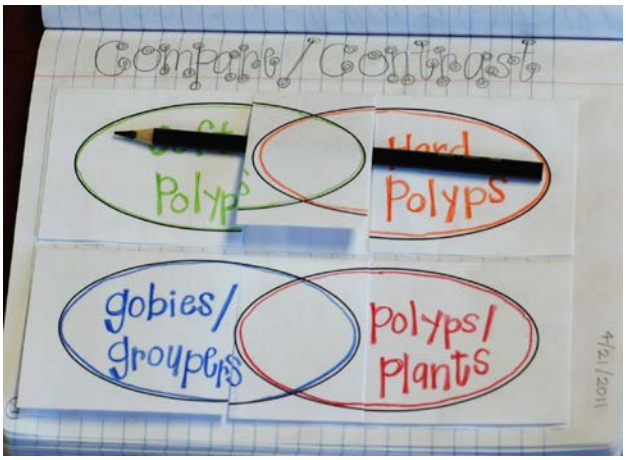
APPENDICES

# APPENDIX A

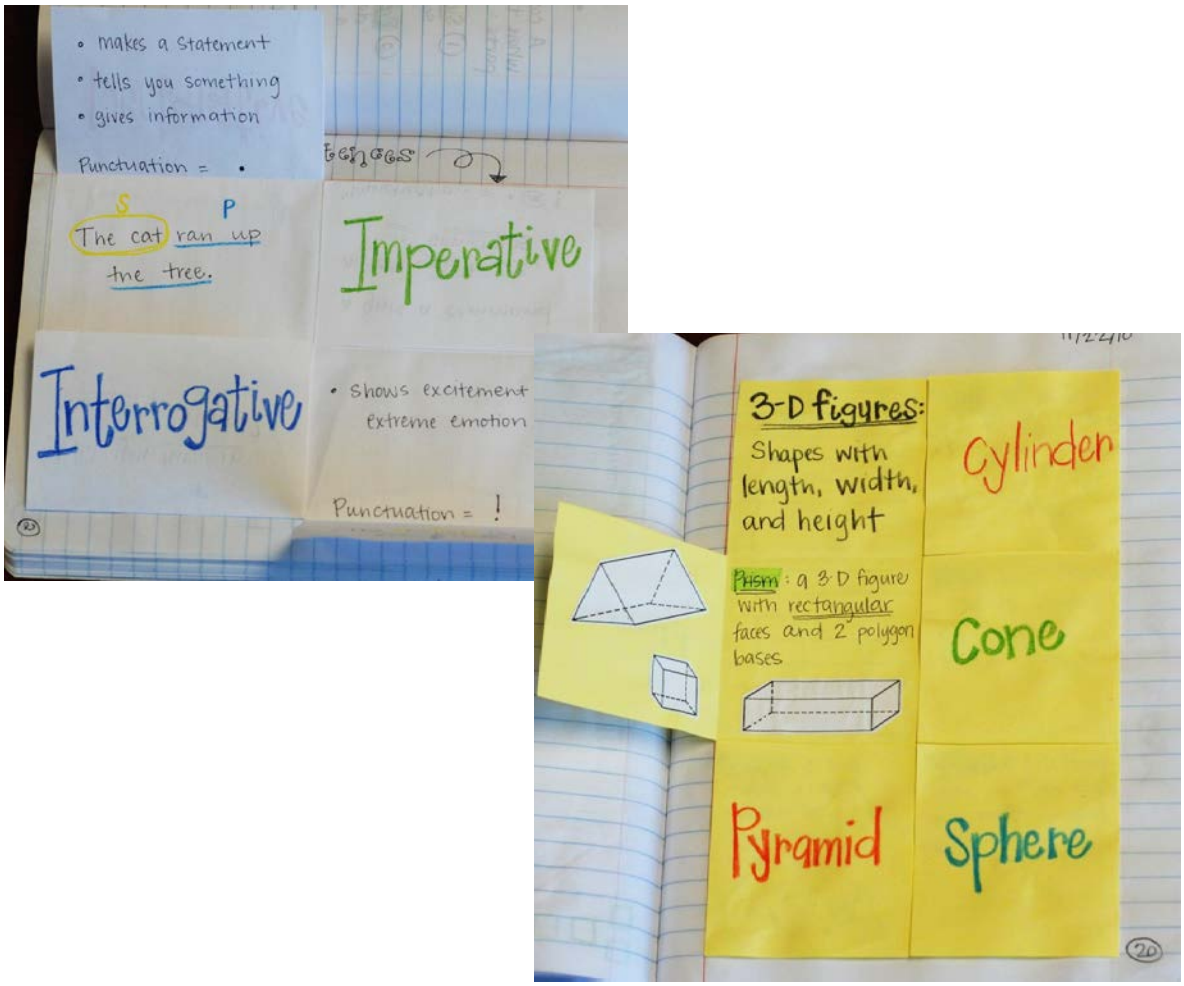
## Foldable® Examples

I. Multi-Tab Examples

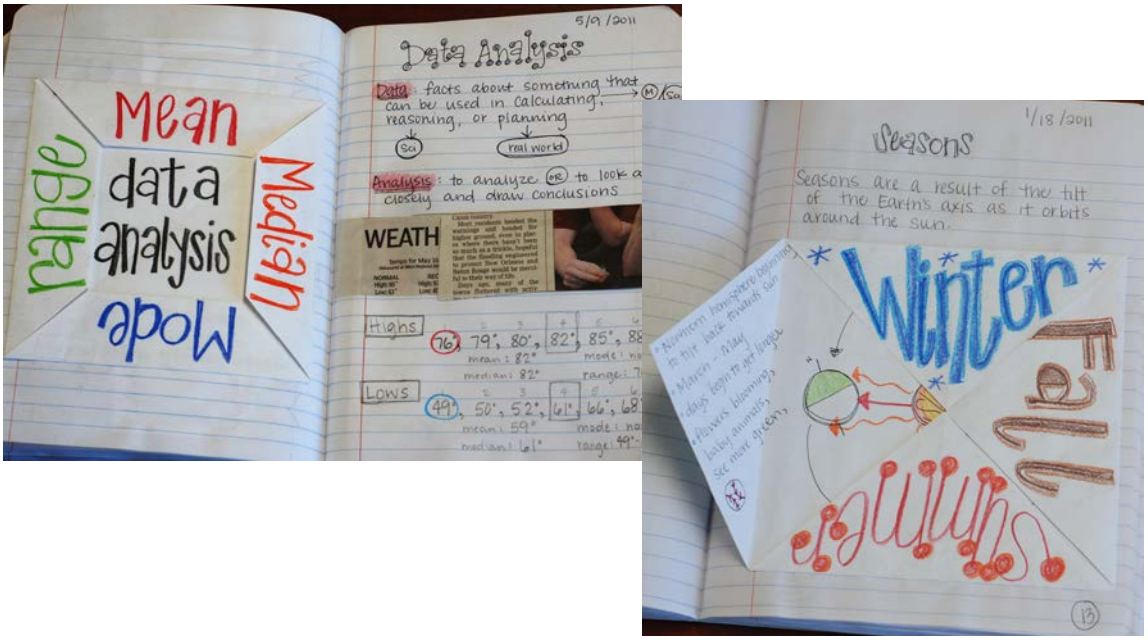


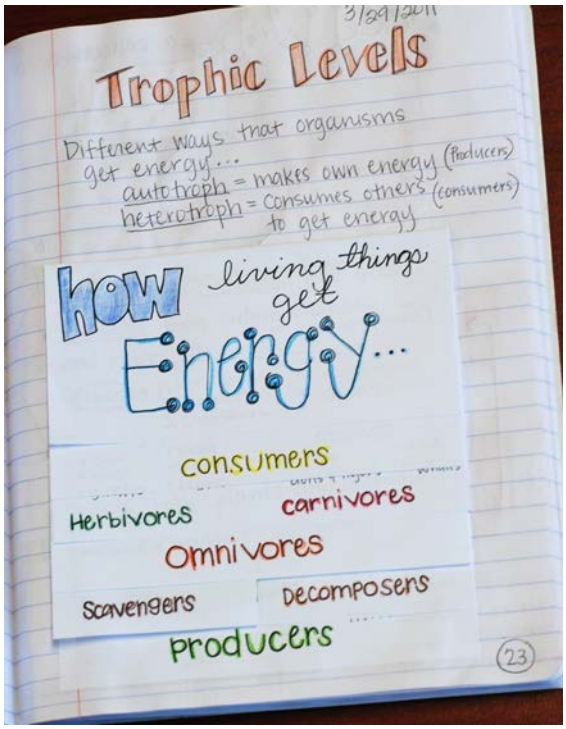

II. Shutter Fold Examples



III. Envelope Fold Examples




IV. Layered Book Example




V. Project Fold Example

# APPENDIX B

## The Danielson Framework for Teaching

# Charlotte Danielson's FRAMEWORK FOR TEACHING

## DOMAIN 1: Planning and Preparation

**1a Demonstrating Knowledge of Content and Pedagogy**
- Content and the structure of the discipline • Prerequisite relationships
- Content-related pedagogy

**1b Demonstrating Knowledge of Students**
- Child and adolescent development • Learning process • Special needs
- Students' skills, knowledge, and language proficiency • Students' interests and cultural heritage

**1c Setting Instructional Outcomes**
- Value, sequence, and alignment • Clarity • Balance • Suitability for diverse learners

**1d Demonstrating Knowledge of Resources**
- For classroom use • To extend content knowledge and pedagogy • Resources for students

**1e Designing Coherent Instruction**
- Learning activities • Instructional materials and resources
- Instructional groups • Lesson and unit structure

**1f Designing Student Assessments**
- Congruence with instructional outcomes • Criteria and standards
- Design of formative assessments • Use for planning

## DOMAIN 2: The Classroom Environment

**2a Creating an Environment of Respect and Rapport**
- Teacher interaction with students, including both words and actions
- Student interaction with students, including both words and actions

**2b Establishing a Culture for Learning**
- Importance of content and of learning
- Expectations for learning and achievement • Student pride in work

**2c Managing Classroom Procedures**
- Instructional groups • Transitions • Materials and supplies
- Performance of classroom routines
- Supervision of volunteers and paraprofessionals

**2d Managing Student Behavior**
- Expectations • Monitoring student behavior
- Response to student misbehavior

**2e Organizing Physical Space**
- Safety and accessibility
- Arrangement of furniture and use of physical resources

## DOMAIN 4: Professional Responsibilities

**4a Reflecting on Teaching**
- Accuracy • Use in future teaching

**4b Maintaining Accurate Records**
- Student completion of assignments • Student progress in learning
- Noninstructional records

**4c Communicating with Families**
- Information about the instructional program • Information about individual students
- Engagement of families in the instructional program

**4d Participating in a Professional Community**
- Relationships with colleagues • Participation in school and district projects
- Involvement in culture of professional inquiry • Service to the school

**4e Growing and Developing Professionally**
- Enhancement of content knowledge and pedagogical skill
- Receptivity to feedback from colleagues • Service to the profession

**4f Showing Professionalism**
- Integrity/ethical conduct • Service to students • Advocacy
- Decision-making • Compliance with school and district regulation

## DOMAIN 3: Instruction

**3a Communicating With Students**
- Expectations for learning • Directions for activities
- Explanations of content
- Use of oral and written language

**3b Using Questioning and Discussion Techniques**
- Quality of questions/prompts • Discussion techniques
- Student participation

**3c Engaging Students in Learning**
- Activities and assignments • Grouping of students
- Instructional materials and resources • Structure and pacing

**3d Using Assessment in Instruction**
- Assessment criteria • Monitoring of student learning
- Feedback to students
- Student self-assessment and monitoring of progress

**3e Demonstrating Flexibility and Responsiveness**
- Lesson adjustment • Response to students
- Persistence



Teacher and Observer training by Danielson Group-endorsed consultants is recommended.

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APPENDIX C

Framework for Teaching: Domain I Rubric

| Domain 1: | Planning and Preparation |
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| *1a: Demonstrating Knowledge of Content and Pedagogy* | In order to guide student learning, teachers must have command of the subjects they teach. They must know which concepts and skills are central to a discipline, and which are peripheral; they must know how the discipline has evolved into the 21st century, incorporating such issues as global awareness and cultural diversity, as appropriate. Accomplished teachers understand the internal relationships within the disciplines they teach, knowing which concepts and skills are prerequisite to the understanding of others. They are also aware of typical student misconceptions in the discipline and work to dispel them. But knowledge of the content is not sufficient; in advancing student understanding, teachers are familiar with the particularly pedagogical approaches best suited to each discipline.<br>The elements of component 1a are:<br><br>Knowledge of content and the structure of the discipline *Every discipline has a dominant structure, with smaller components or strands, central concepts and skills*<br><br>Knowledge of prerequisite relationships *Some disciplines, for example mathematics, have important prerequisites; experienced teachers know what these are and how to use them in designing lessons and units.*<br><br>Knowledge of content-related pedagogy *Different disciplines have "signature pedagogies" that have evolved over time and found to be most effective in teaching.* Indicators include:<br><br>Lesson and unit plans that reflect important concepts in the discipline<br><br>Lesson and unit plans that accommodate prerequisite relationships among concepts and skills<br><br>Clear and accurate classroom explanations<br><br>Accurate answers to student questions<br><br>Feedback to students that furthers learning<br><br>Inter-disciplinary connections in plans and practice |

| | Unsatisfactory | Basic | Proficient | Distinguished |
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| *1a: Demonstrating Knowledge of Content and Pedagogy* | In planning and practice, teacher makes content errors or does not correct errors made by students. Teacher's plans and practice display little understanding of prerequisite relationships important to student learning of the content. Teacher displays little or no understanding of the range of pedagogical approaches suitable to student learning of the content. | Teacher is familiar with the important concepts in the discipline but displays lack of awareness of how these concepts relate to one another. Teacher's plans and practice indicate some awareness of prerequisite relationships, although such knowledge may be inaccurate or incomplete. Teacher's plans and practice reflect a limited range of pedagogical approaches to the discipline or to the students. | Teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. Teacher's plans and practice reflect accurate understanding of prerequisite relationships among topics and concepts. Teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the discipline. | Teacher displays extensive knowledge of the important concepts in the discipline and how these relate both to one another and to other disciplines. Teacher's plans and practice reflect understanding of prerequisite relationships among topics and concepts and a link to necessary cognitive structures by students to ensure understanding. Teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the discipline, anticipating student misconceptions. |
| *Critical Attributes* | *Teacher makes content errors.*<br><br>*Teacher does not consider prerequisite relationships when planning.*<br><br>*Teacher's plans use inappropriate strategies for the discipline.* | *Teacher is familiar with the discipline but does not see conceptual relationships.*<br><br>*Teacher's knowledge of prerequisite relationships is inaccurate or incomplete.*<br><br>*Lesson and unit plans use limited instructional strategies and some are not* | *The teacher can identify important concepts of the discipline, and their relationships to one another.*<br><br>*The teacher consistently provides clear explanations of the content.*<br><br>*The teacher answers student questions accurately and provides feedback that* | *In addition to the characteristics of "proficient,"*<br><br>*Teacher cites intra- and inter- disciplinary content relationships.*<br><br>*Teacher is proactive in uncovering student misconceptions and addressing them before* |

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| | | *be suitable to the content.* | *furthers their learning.*<br><br>*The teacher seeks out content- related professional development.* | *proceeding.* |
| *Possible Examples* | *The teacher says, "The official language of Brazil is Spanish, just like other South American countries."*<br><br>*The teacher says, "I don't understand why the math book has decimals in the same unit as fractions."*<br><br>*The teacher has students copy dictionary definitions each week to help his students learn to spell difficult words.* | *The teacher plans lessons on area and perimeter independently of one another, without linking the concepts together.*<br><br>*The teacher plans to forge ahead with a lesson on addition with re- grouping, even though some students have not fully grasped place value.*<br><br>*The teacher always plans the same routine to study spelling: pre-test on Monday, copy the words 5 times each on Tuesday and Wednesday, test on Friday.* | *The teacher's plan for area and perimeter invites students to determine the shape that will yield the largest area for a given perimeter .*<br><br>*The teacher realized her students are not sure how to use a compass, so she plans to practice that before introducing the activity on angle measurement.*<br><br>*The teacher plans to expand a unit on civics by having students simulate a court trial.* | *In a unit on 19th century literature, the teacher incorporates information about the history of the same period.*<br><br>*Before beginning a unit on the solar system, the teacher surveys the class on their beliefs as to why it is hotter in the summer than in the winter.* |

| Domain 1: | Planning and Preparation |
|---|---|
| 1b: Demonstrating Knowledge of Students | Teachers don't teach content in the abstract; they teach it to *students.* In order to ensure student learning, therefore, teachers must not only know their content and its related pedagogy, but the students to whom they wish to teach that content. In ensuring student learning, teachers must appreciate what recent research in cognitive psychology has confirmed: namely that students learn through active intellectual engagement with content. While there are patterns in cognitive, social, and emotional developmental stages typical of different age groups, students learn in their individual ways and may come with gaps or misconceptions that the teacher needs to uncover in order to plan appropriate learning activities. In addition, |

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| | students have lives beyond school, lives that include athletic and musical pursuits, activities in their neighborhoods, and family and cultural traditions. Students whose first language is not English, as well as students with other special needs must be considered when planning lessons and identifying resources that will ensure their understanding.<br><br>The elements of component 1b are:<br><br>Knowledge of child and adolescent development *Children learn differently at different stages of their lives*<br><br>Knowledge of the learning process *Learning requires active intellectual engagement*<br><br>Knowledge of students' skills, knowledge, and language proficiency *Children's lives beyond school influence their learning*<br><br>Knowledge of students' interest and cultural heritage *Children's backgrounds influence their learning*<br><br>Knowledge of students' special needs *Children develop in a typical fashion* Indicators include:<br><br>Teacher gathers formal and informal information about students for use in planning instruction<br><br>Teacher learns student interests and needs for use in planning<br><br>Teacher participation in community cultural events<br><br>Teacher-designed opportunities for families to share heritage<br><br>Database of students with special needs |

| | Unsatisfactory | Basic | Proficient | Distinguished |
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| *1b:* | Teacher demonstrates little or no understanding of how students learn, and | Teacher indicates the importance of understanding how students | Teacher understands the active nature of student learning, and attains | Teacher actively seeks knowledge of students' levels of development and |

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| *Demonstrating Knowledge of Students* | little knowledge of students' backgrounds, cultures, skills, language proficiency, interests, and special needs, and does not seek such understanding. | learn and the students' backgrounds, cultures, skills, language proficiency, interests, and special needs, and attains this knowledge for the class as a whole. | information about levels of development for groups of students. The teacher also purposefully seeks knowledge from several sources of students' backgrounds, cultures, skills, language proficiency, interests, and special needs, and attains this knowledge for groups of students. | their backgrounds, cultures, skills, language proficiency, interests, and special needs from a variety of sources. This information is acquired for individual students. |
| *Critical Attributes* | *Teacher does not understand child development characteristics and has unrealistic expectations for students.*<br><br>*Teacher does not try to ascertain varied ability levels among students in the class.*<br><br>*Teacher is not aware of student interests or cultural heritages.*<br><br>*Teacher takes no responsibility to learn about students' medical or learning disabilities.* | *Teacher cites developmental theory, but does not seek to integrate it into lesson planning.*<br><br>*Teacher is aware of the different ability levels in the class, but tends to teach to the "whole group."*<br><br>*The teacher recognizes that children have different interests and cultural backgrounds, but rarely draws on their contributions or differentiates materials to accommodate those differences.*<br><br>*The teacher is aware of medical issues and learning disabilities with some students, but does not seek* | *The teacher knows, for groups of students, their levels of cognitive development*<br><br>*The teacher is aware of the different cultural groups in the class.*<br><br>*The teacher has a good idea of the range of interests of students in the class.*<br><br>*The teacher has identified "high," "medium," and "low" groups of students within the class.*<br><br>*The teacher is well-informed about students' cultural heritage and incorporates this knowledge in lesson planning.* | *In addition to the characteristics of "proficient,"*<br><br>*The teacher uses ongoing methods to assess students' skill levels and designs instruction accordingly.*<br><br>*The teacher seeks out information about their cultural heritage from all students.*<br><br>*The teacher maintains a system of updated student records and incorporates medical and/or learning needs into lesson plans.* |

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| | | *to understand the implications of that knowledge.* | *The teacher is aware of the special needs represented by students in the class.* | |
| *Possible Examples* | *The lesson plan includes a teacher presentation for an entire 30 minute period to a group of 7- year olds.*<br><br>*The teacher plans to give her ELL students the same writing assignment she gives the rest of the class.*<br><br>*The teacher plans to teach his class Christmas carols, despite the fact that he has four religions represented amongst his students.* | *The teacher's lesson plan has the same assignment for the entire class, in spite of the fact that one activity is beyond the reach of some students.*<br><br>*In the unit on Mexico, the teacher has not incorporated perspectives from the three Mexican-American children in the class.*<br><br>*Lesson plans make only peripheral reference to students' interests.*<br><br>*The teacher knows that some of her students have IEPs but they're so long, she hasn't read them yet.* | *The teacher creates an assessment of students' levels of cognitive development.*<br><br>*The teacher examines students' previous year's folders to ascertain the proficiency levels of groups of students in the class,*<br><br>*The teacher administers a student interest survey at the beginning of the school year.*<br><br>*The teacher plans activities based on student interests.*<br><br>*The teacher knows that five of her students are in the Garden Club; she plans to have them discuss horticulture as part of the next biology lesson.*<br><br>*The teacher realizes that not all of his students are Christian, so he plans to read a Hanukah story in December.*<br><br>*The teacher plans to ask her Spanish-speaking students to discuss their ancestry as part of their Social Studies unit studying South America.* | *The teacher plans his lesson with three different follow-up activities, designed to meet the varied ability levels of his students.*<br><br>*The teacher plans to provide multiple project options; students will self-select the project that best meets their individual approach to learning.*<br><br>*The teacher encourages students to be aware of their individual reading levels and make independent reading choices that will be challenging, but not too difficult.*<br><br>*The teacher attended the local Mexican heritage day, meeting several of his students' extended family members.*<br><br>*The teacher regularly creates adapted assessment materials for several students with learning disabilities.* |

| Domain 1: | Planning and Preparation |
|---|---|
| *1c: Setting Instructional Outcomes* | Teaching is a purposeful activity; even the most imaginative activities are directed towards certain desired learning. Therefore, establishing instructional outcomes entails identifying exactly what students will be expected to learn; the outcomes do not describe what students will *do*, but what they will *learn*. The instructional outcomes should reflect important learning and must lend themselves to various forms of assessment so that all students are able to demonstrate their understanding of the content. Insofar as the outcomes determine the instructional activities, the resources used, their suitability for diverse learners, and the methods of assessment employed, they hold a central place in Domain 1.<br><br>Learning outcomes are of a number of different types: factual and procedural knowledge, conceptual understanding, thinking and reasoning skills, and collaborative and communication strategies. In addition, some learning outcomes refer to dispositions; it's important not only for students to learn to read, but educators also hope that they will *like* to read. In addition, experienced teachers are able to link their learning outcomes with others both within their discipline and in other disciplines.<br><br>The elements of component 1c are:<br><br>V alue, sequence, and alignment *Students must be able to build their understanding of important ideas from concept to concept*<br><br>Clarity *Outcomes must refer to what students will learn, not what they will do, and must permit viable methods of assessment*<br><br>Balance *Outcomes should reflect different types of learning: such as knowledge, conceptual understanding, and thinking skills*<br><br>Suitability for diverse students *Outcomes must be appropriate for all students in the class* Indicators include:<br><br>Outcomes of a challenging cognitive level<br><br>Statements of student learning, not student activity<br><br>Outcomes central to the discipline and related to those in other disciplines |

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| | Permit assessment of student attainment<br><br>Differentiated for students of varied ability |

| | Unsatisfactory | Basic | Proficient | Distinguished |
|---|---|---|---|---|
| *1c: Setting Instructional Outcomes* | Outcomes represent low expectations for students and lack of rigor, nor do they all reflect important learning in the discipline. Outcomes are stated as activities, rather than as student learning. Outcomes reflect only one type of learning and only one discipline or strand, and are suitable for only some students. | Outcomes represent moderately high expectations and rigor. Some reflect important learning in the discipline, and consist of a combination of outcomes and activities. Outcomes reflect several types of learning, but teacher has made no attempt at coordination or integration. Most of the outcomes are suitable for most of the students in the class based on global assessments of student learning. | Most outcomes represent rigorous and important learning in the discipline. All the instructional outcomes are clear, written in the form of student learning, and suggest viable methods of assessment. Outcomes reflect several different types of learning and opportunities for coordination. Outcomes take into account the varying needs of groups of students. | All outcomes represent rigorous and important learning in the discipline. The outcomes are clear, written in the form of student learning, and permit viable methods of assessment. Outcomes reflect several different types of learning and, where appropriate, represent opportunities for both coordination and integration. Outcomes take into account the varying needs of individual students. |
| *Critical Attributes* | *Outcomes lack rigor.*<br><br>*Outcomes do not represent important learning in the discipline.*<br><br>*Outcomes are not clear or are stated as activities.*<br><br>*Outcomes are not suitable* | *Outcomes represent a mixture of low expectations and rigor.*<br><br>*Some outcomes reflect important learning in the discipline.*<br><br>*Outcomes are suitable for* | *Outcomes represent high expectations and rigor.*<br><br>*Outcomes are related to "big ideas" of the discipline.*<br><br>*Outcomes are written in terms of what students will learn rather than do.* | *In addition to the characteristics of "proficient,"*<br><br>*Teacher plans reference curricular frameworks or blueprints to ensure accurate sequencing.* |

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| | *for many students in the class.* | *most of the class.* | *Outcomes represent a range of outcomes: factual, conceptual understanding, reasoning, social, management, communication.*<br><br>*Outcomes are suitable to groups of students in the class, differentiated where necessary.* | *Teacher connects outcomes to previous and future learning*<br><br>*Outcomes are differentiated to encourage individual students to take educational risks.* |
| *Possible Examples* | *A learning outcome for a fourth grade class is to make a poster illustrating a poem.*<br><br>*All the outcomes for a ninth grade history class are factual knowledge.*<br><br>*The topic of the social studies unit involves the concept of "revolutions" but the teacher only expects his students to remember the important dates of battles.*<br><br>*Despite having a number of ELL students in the class, the outcomes state that all writing must be grammatically correct* | *Outcomes consist of understanding the relationship between addition and multiplication and memorizing facts.*<br><br>*The outcomes are written with the needs of the "middle" group in mind; however, the advanced students are bored, and some lower- level students struggle.* | *One of the learning outcomes is for students to "appreciate the aesthetics of 18th century English poetry."*<br><br>*The outcomes for the history unit include some factual information, as well as a comparison of the perspectives of different groups in the run-up to the Revolutionary War.*<br><br>*The teacher reviews the project expectations and modifies some goals to be in line with students' IEP objectives.* | *The teacher encourages his students to set their own goals; he provides them a taxonomy of challenge verbs to help them strive for higher expectations.*<br><br>*Students will develop a concept map that links previous learning goals to those they are currently working on.*<br><br>*Some students identify additional learning .* |

| Domain 1: | Planning and Preparation |
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| *1d: Demonstrating Knowledge of Resources* | Student learning is enhanced by a teacher's skillful use of resources; some of these are provided by the school as "official" materials; others are secured by teachers through their own initiative. Resources fall into several different categories: those used in the classroom by students, those available beyond the classroom walls to enhance student learning, resources for teachers to further their own professional knowledge and skill, and resources that can provide non-instructional assistance to students. Teachers recognize the importance of discretion in the selection of resources, selecting those that align directly with the learning outcomes and which will be of most use to the students. Accomplished teachers also ensure that the selection of materials and resources is appropriately challenging for every student; texts, for example, are available at various reading levels to make sure all students can access the content and successfully demonstrate understanding of the learning outcomes. Furthermore, expert teachers look beyond the school for resources to bring their subjects to life and to assist students who need help in both their academic and non-academic lives.<br><br>The elements of component 1d are:<br><br>Resources for classroom use *Materials that align with learning outcomes*<br><br>Resources to extend content knowledge and pedagogy *Those that can further teachers' professional knowledge*<br><br>Resources for students: *Materials that are appropriately challenging* Indicators include:<br><br>District provided materials<br><br>Range of texts<br><br>Guest speakers<br><br>Internet resources<br><br>Materials provided by professional organizations<br><br>Teacher continuing professional education courses or professional groups |

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| | Community resources |

| | Unsatisfactory | Basic | Proficient | Distinguished |
|---|---|---|---|---|
| *1d: Demonstrating Knowledge of Resources* | Teacher is unaware of resources for classroom use, for expanding one's own knowledge, or for students available through the school or district. | Teacher displays basic awareness of resources available for classroom use, for expanding one's own knowledge, and for students through the school, but no knowledge of resources available more broadly. | Teacher displays awareness of resources available for classroom use, for expanding one's own knowledge, and for students through the school or district and external to the school and on the Internet. | Teacher's knowledge of resources for classroom use, for expanding one's own knowledge, and for students is extensive, including those available through the school or district, in the community, through professional organizations and universities, and on the Internet. |

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| *Critical Attributes* | *The teacher only uses district- provided materials, even when more variety would assist some students.*<br><br>*The teacher does not seek out resources available to expand his/her own skill.*<br><br>*Although aware of some student needs, the teacher does not inquire about possible resources.* | *The teacher uses materials in the school library, but does not search beyond the school for resources.*<br><br>*The teacher participates in content- area workshops offered by the school, but does not pursue other professional development.*<br><br>*The teacher locates materials and resources for students that are available through the school, but does not pursue any other avenues.* | *Texts are at varied levels.*<br><br>*Texts are supplemented by guest speakers and field experiences.*<br><br>*Teacher facilitates Internet resources.*<br><br>*Resources are multi-disciplinary.*<br><br>*Teacher expands knowledge with professional learning groups and organizations.*<br><br>*Teacher pursues options offered by universities.*<br><br>*Teacher provides lists of resources outside the class for students to draw on.* | *In addition to the characteristics of "proficient,"*<br><br>*Texts are matched to student skill level.*<br><br>*The teacher has ongoing relationship with colleges and universities that support student learning.*<br><br>*The teacher maintains log of resources for student reference.*<br><br>*The teacher pursues apprenticeships to increase discipline knowledge.*<br><br>*The teacher facilitates student contact with resources outside the classroom.* |
| *Possible Examples* | *For their unit on China, the students accessed all of their information from the district- supplied textbook.*<br><br>*Mr. J is not sure how to teach fractions, but doesn't know how he's expected to learn it by* | *For a unit on ocean life; the teacher really needs more books, but the school library only has three for him to borrow.*<br><br>*The teacher knows she should learn more about teaching literacy, but the school only offered one professional development* | *The teacher provides her 5th graders a range of non-fiction texts about the American Revolution; no matter their reading level, all students can participate in the discussion of important concepts.*<br><br>*The teacher took an online course on Literature to* | *The teacher is not happy with the out-of-date textbook; his students will critique it and write their own text for social studies.*<br><br>*The teacher spends the summer at Dow Chemical learning more about current research so she can expand her knowledge base for* |

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| | *himself.*<br><br>*A student says, "It's too bad we can't go to the nature center when we're doing our unit on the environment."* | *day last year .*<br><br>*The teacher thinks his students would benefit from hearing about health safety from a professional; he contacts the school nurse to visit his classroom.* | *expand her knowledge of great American writers.*<br><br>*The teacher distributes a list of summer reading materials that would help prepare his 8th graders' transition to high school.* | *teaching Chemistry.*<br><br>*The teacher matches students in her Family and Consumer Science class with local businesses; the students spend time shadowing employees to understand how their classroom skills might be used on the job* |

| Domain 1: | Planning and Preparation |
|---|---|
| *1e: Designing Coherent Instruction* | Designing coherent instruction is the heart of planning, reflecting the teacher's knowledge of content and the students in the class, the intended outcomes of instruction, and the available resources. Such planning requires that educators have a clear understanding of the state, district, and school expectations for student learning, and the skill to translate these into a coherent plan. It also requires that teachers understand the characteristics of the students they teach and the active nature of student learning. Educators must determine how best to sequence instruction in a way that will advance student learning through the required content. It requires the thoughtful construction of lessons that contain cognitively engaging learning activities, the incorporation of appropriate resources and materials, and the intentional grouping of students. Proficient practice in this component recognizes that a well-designed instruction plan addresses the learning needs of various groups of students; one size does not fit all. At the distinguished level the teacher plans instruction that takes into account the specific learning needs of each student and solicits ideas from students on how best to structure the learning. This plan is then implemented in Domain 3.<br><br>The elements of component 1e are:<br><br>Learning activities *Instruction designed to engage students and advance them through the content*<br><br>Instructional materials and resources *Appropriate to the learning needs of the students* |

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| | Instructional groups *Intentionally organized to support student learning*<br>Lesson and unit structure *Clear and sequenced to advance students' learning* Indicators include:<br>Lessons that support instructional outcomes and reflect important concepts<br>Instructional maps that indicate relationships to prior learning<br>Activities that represent high-level thinking<br>Opportunities for student choice<br>The use of varied resources<br>Thoughtfully planned learning groups<br>Structured lesson plan |

| | Unsatisfactory | Basic | Proficient | Distinguished |
|---|---|---|---|---|
| 1e: Designing Coherent Instruction | The series of learning experiences is poorly aligned with the instructional outcomes and does not represent a coherent structure. The activities and are not designed to engage students in active intellectual activity and have unrealistic time allocations. Instructional | Some of the learning activities and materials are suitable to the instructional outcomes, and represent a moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the instructional outcomes, with an effort at providing some variety. The lesson or unit | Teacher coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes and suitable to groups of students. The learning activities have reasonable time allocations; they represent significant cognitive challenge, with some differentiation for different | Plans represent the coordination of in- depth content knowledge, understanding of different students' needs and available resources (including technology), resulting in a series of learning activities designed to engage students in high-level cognitive activity. These are differentiated, as appropriate, |

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| | groups do not support the instructional outcomes and offer no variety. | has a recognizable structure; the progression of activities is uneven, with most time allocations reasonable. | groups of students. The lesson or unit has a clear structure with appropriate and varied use of instructional groups. | for individual learners. Instructional groups are varied as appropriate, with some opportunity for student choice. The lesson's or unit's structure is clear and allows for different pathways according to diverse student needs. |
| *Critical Attributes* | *Learning activities are boring and/or not well aligned to the instructional goals.*<br><br>*Materials are not engaging or do not meet instructional outcomes.*<br><br>*Instructional groups do not support learning.*<br><br>*Lesson plans are not structured or sequenced and are unrealistic in their expectations.* | *Learning activities are moderately challenging.*<br><br>*Learning resources are suitable, but there is limited variety.*<br><br>*Instructional groups are random or only partially support objectives.*<br><br>*Lesson structure is uneven or may be unrealistic in terms of time expectations.* | *Learning activities are matched to instructional outcomes.*<br><br>*Activities provide opportunity for higher-level thinking.*<br><br>*Teacher provides a variety of appropriately challenging materials and resources.*<br><br>*Instructional student groups are organized thoughtfully to maximize learning and build on student strengths.*<br><br>*The plan for the lesson or unit is well structured, with reasonable time allocations.* | *In addition to the characteristics of "proficient,"*<br><br>*Activities permit student choice.*<br><br>*Learning experiences connect to other disciplines.*<br><br>*Teacher provides a variety of appropriately challenging resources that are differentiated for students in the class.*<br><br>*Lesson plans differentiate for individual student needs.* |
| *Possible Examples* | *After memorizing the parts of the microscope, the teacher plans to have his 9th graders color in the worksheet.* | *After the mini-lesson, the teacher plans to have the whole class play a game to reinforce the skill she taught.*<br><br>*The teacher found an atlas* | *The teacher reviews her learning activities with a reference to high level "action verbs" and rewrites some of the activities to increase the* | *The teacher's unit on ecosystems lists a variety of high level activities in a menu; students choose those that suit their approach to* |

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| | *Despite having a textbook that was 15 years old, the teacher plans to use that as the sole resource for his Communism unit.*<br><br>*The teacher organizes her class in rows, seating the students alphabetically; she plans to have students work all year in groups of four based on where they are sitting.*<br><br>*The teacher's lesson plans are written on sticky notes in his grade book; they indicate lecture, activity, or test.* | *to use as a supplemental resource during the geography unit.*<br><br>*The teacher always lets students self-select their working groups because they behave better when they can choose who they want to sit with*<br><br>*The teacher's lesson plans are nicely formatted, but the timing for many activities is too short to actually cover the concepts thoroughly.* | *challenge level.*<br><br>*The teacher creates a list of historical fiction titles that will expand her students' knowledge of the age of exploration.*<br><br>*The teacher plans for students to complete projects in small groups; he carefully selects group members based on their ability level and learning style.*<br><br>*The teacher reviews lesson plans with her principal; they are well structured with pacing times and activities clearly indicated.* | *learning.*<br><br>*While completing their projects, the teacher's students will have access to a wide variety of resources that she has coded by reading level so they can make the best selections.*<br><br>*After the cooperative group lesson, students will reflect on their participation and make suggestions for new group arrangements in the future.*<br><br>*The lesson plan clearly indicates the concepts taught in the last few lessons; the teacher plans for his students to link the current lesson outcomes to those they previously learned.* |

| Domain 1: | Planning and Preparation |
|---|---|
| *1f: Designing Student Assessments* | Good teaching requires both assessment *of* learning and assessment *for* learning. Assessments *of* learning ensure that teachers know that students have learned the intended outcomes. These assessments must be designed in such a manner that they provide evidence of the full range of learning outcomes; that is, different methods are needed to assess reasoning skills than for factual knowledge. Furthermore, such assessments may need to be adapted to the particular needs of individual students; an ESL student, for example, may need an alternative method of assessment to allow demonstration of understanding. Assessment *for* learning enables a teacher to incorporate assessments directly into the instructional process, and to modify or adapt instruction as needed to ensure student understanding. Such assessments, although used during |

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| | instruction, must be designed as part of the planning process. Such formative assessment strategies are ongoing and may be used by both teachers and students to monitor progress towards the understanding the learning outcomes.<br><br>The elements of component 1e are:<br><br>Congruence with instructional outcomes *Assessments must match learning expectations*<br><br>Criteria and standards *Expectations must be clearly defined*<br><br>Design of formative assessments *Assessments for learning must be planned as part of the instructional process*<br><br>Use for planning *Results of assessment guide future planning* Indicators include:<br><br>Lesson plans indicate correspondence between assessments and instructional outcomes<br><br>Assessment types are suitable to the style of outcome<br><br>Variety of performance opportunities for students<br><br>Modified assessments are available for individual students as needed<br><br>Expectations clearly written with descriptors for each level of performance<br><br>Formative assessments are designed to inform minute-to-minute decision-making by the teacher during instruction |

| | Unsatisfactory | Basic | Proficient | Distinguished |
|---|---|---|---|---|
| *1f: Designing Student* | Assessment procedures are not congruent with instructional outcomes; the proposed approach contains no criteria or standards. | Some of the instructional outcomes are assessed through the proposed approach, but others are not. Assessment criteria and | Teacher's plan for student assessment is aligned with the instructional outcomes; assessment methodologies may have been adapted for | Teacher's plan for student assessment is fully aligned with the instructional outcomes, with clear criteria and standards that show |

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| *Assessments* | Teacher has no plan to incorporate formative assessment in the lesson or unit, nor any plans to use assessment results in designing future instruction. | standards have been developed, but they are not clear. Approach to the use of formative assessment is rudimentary, including only some of the instructional outcomes. Teacher intends to use assessment results to plan for future instruction for the class as a whole. | groups of students. Assessment criteria and standards are clear. Teacher has a well-developed strategy for using formative assessment and has designed particular approaches to be used. Teacher intends to use assessment results to plan for future instruction for groups of students. | evidence of student contribution to their development. Assessment methodologies have been adapted for individual students, as needed. The approach to using formative assessment is well designed and includes student as well as teacher use of the assessment information. Teacher intends to use assessment results to plan future instruction for individual students |
| *Critical Attributes* | *Assessments do not match instructional outcomes.*<br><br>*Assessments have no criteria.*<br><br>*No formative assessments have been designed.*<br><br>*Assessment results do not affect future plans.* | *Only some of the instructional outcomes are addressed in the planned assessments.*<br><br>*Assessment criteria are vague.*<br><br>*Plans refer to the use of formative assessments, but they are not fully developed.*<br><br>*Assessment results are used to design lesson plans for the whole class, not individual students.* | *All the learning outcomes have a method for assessment.*<br><br>*Assessment types match learning expectations.*<br><br>*Plans indicate modified assessments for some students as needed.*<br><br>*Assessment criteria are clearly written.*<br><br>*Plans include formative assessments to use during instruction.*<br><br>*Lesson plans indicate possible adjustments based* | *In addition to the characteristics of "proficient,"*<br><br>*Assessments provide opportunities for student choice.*<br><br>*Students participate in designing assessments for their own work.*<br><br>*Teacher-designed assessments are authentic with real-world application, as appropriate.*<br><br>*Students develop rubrics according to teacher-specified learning* |

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| | | | *on formative assessment data.* | *objectives.*<br><br>*Students are actively involved in collecting information from formative assessments and provide input.* |
| *Possible Examples* | *The teacher marks papers on the foundation of the U.S. constitution based on grammar and punctuation; for every mistake, the grade drops from an A to a B, B to a C, etc.*<br><br>*After the students present their research on Globalization, the teacher tells them their letter grade; when students asked how he arrived at the grade, he responds, "After all these years in education, I just know what grade to give."*<br><br>*The teacher says, "What's the difference between formative assessment and the test I give at the end of the unit?"*<br><br>*The teacher says, "The district gave me this entire curriculum to teach, so I just have to keep moving.* | *The district goal for the Europe unit is for students to understand geo- political relationships; the teacher plans to have the students memorize all the country capitals and rivers.*<br><br>*The teacher's students received their tests back; each one was simply marked with a letter grade at the top.*<br><br>*The plan indicates that the teacher will pause to "check for understanding" but without a clear process of how that will be done.*<br><br>*A student says, "If half the class passed the test, why are we all reviewing the material again?"* | *Mr. K knows that his students will write a persuasive essay on the state assessment; he plans to provide them with experiences developing persuasive writing as preparation.*<br><br>*Ms. M worked on a writing rubric for her research assessment; she drew on multiple sources to be sure the levels of expectation were clearly defined.*<br><br>*Mr. C creates a short questionnaire to distribute to his students at the end of class; based on their responses, he will organize them into different groups during the next lesson's activities.* | *To teach persuasive writing, Ms. H plans to have her class research and write to the principal on an issue that is important to the students: the use of cell phones in class.*<br><br>*Mr. J's students will write a rubric for their final project on the benefits of solar energy; Mr. J has shown them several sample rubrics and they will refer to those as they create a rubric of their own.*<br><br>*After the lesson Mr. L asks students to rate their understanding on a scale of 1 to 5; the students know that their rating will indicate their activity for the next lesson.*<br><br>*Mrs. T has developed a routine for her class; students know that if they are struggling with a math concept, they sit in a small group with the teacher during* |

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| | | | | *workshop time.* |

# APPENDIX D

## Teacher and Classroom Case Study

## Teacher and Classroom Case Study

Name: _____

Ethnicity: _____

Education: _____

Teaching Experience:

_____ years
_____ grade levels
_____ subject areas
_____ campuses

Foldable® Experience:

Campus Resources:

_____ administrators
_____ counselor
_____ grade level chair
_____ diagnostician
_____ ESC staff
_____ university staff
_____ librarian
_____ mentor
_____ SPED/inclusion teachers
_____ team members
_____ other: _____

Student Population:

Number of Students - _____; _____ male/ _____ female

Special Needs –

_____ ADD/ADHD
_____ Developmental Impairment
_____ Emotional Disability
_____ Giftedness
_____ Learning Disability
_____ Physical Disability
_____ 504 Modifications
_____ Multiple Impairments
_____ Other: _____

Demographics –

_____ Asian
_____ African American
_____ Hispanic
_____ White
_____ Two or more

APPENDIX E

Classroom Document Observation Protocol

**Weekly Document Observation Rubrics**

*Lesson Plans*

| | Unsatisfactory | Basic | Proficient | Distinguished | Comments |
|---|---|---|---|---|---|
| **Standards** | Specific standards and/or objectives for the lesson are missing or are not accurately stated in the teacher's plan. | The teacher's plan includes specific standards and/or objectives for the lesson. | The teacher's plan includes specific standards and/or objectives for the lesson. Prerequisite learning will be addressed during the lesson. | The teacher's plan includes specific standards and/or objectives for the lesson. In addition, prerequisite learning and connections/relationships both across content and life applications will be addressed during the lesson. | |

**Specific Lesson Parts:**

| | Unsatisfactory | Basic | Proficient | Distinguished | Comments |
|---|---|---|---|---|---|
| **Gain Attention** | The teacher's plan fails to address how she will gain students' attention. | The teacher's plan defines a stimulus that will be presented to gain students' attention. | The teacher's plan defines a stimulus that will be presented to gain the students' attention. Stimulus is related to concepts being taught. | The teacher's plan defines a stimulus related to the content that focuses the learners' attention on the information being presented. Stimulus requires student response. | |
| **State Objectives** | The teacher's plan fails to intentionally tell students what they will be learning. | The objectives included in the teacher's plan are vague or unclear. Objectives reflect a low level of rigor and are not clearly connected to the performance. | The teacher's plan establishes clear objectives for the learning activity. Objectives reflect rigorous and important learning. | The teacher's plan establishes clear objectives for the learning activity. Objectives reflect rigorous and important learning and allow for different methods of performance. | |

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| **Stimulate Recall** | The teacher's plan makes no connection to previous learning. | The teacher's plan mentions previous lessons relating to concepts but do not involve engage students through questioning or discussion. | The teacher's plan connects current learning to past concepts and begin by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions. | The teacher's plan involves the students in the activation of prior knowledge through questioning and discussion. The plan allows for authentic connections of new learning to previous knowledge, allowing students to make their own connections where appropriate. |
| **Present Stimulus** | The teacher's plan fails to address the presentation of auditory and/or visual stimuli. Lesson is not related to the stated objectives. Prior knowledge is not built upon by lesson. | The teacher's plan uses auditory and/or visual stimuli to present new information. Students are not actively involved in the learning process, rather they are merely listening or following directions. | The teacher's plan uses both auditory and visual stimuli to present new information. Lesson plan is aligned with the stated objectives and builds off of the students' existing knowledge. | The teacher's plan uses both auditory, visual, and tactile stimuli to present new information. Lesson plan is closely aligned with stated objectives as well as outcomes. Lesson plan is explicitly related to existing knowledge, crossing content areas where appropriate. |

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| **Guided Practice** | The teacher's plan uses a limited number of examples. Examples may be unclear or even inaccurate. | The teacher's plan presents numerous accurate examples of the new content. Students will observe but will not be active participants in the process. Nonexamples are not presented during guided practice. | The teacher's plan integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples will be presented first to establish a basic understanding, nonexamples will then be introduced to strengthen knowledge. Students will be actively involved in the processing of examples and nonexamples. | The teacher's plan integrates both accurate examples and challenging nonexamples into the practice portion of the lesson. Examples will be presented first, followed by more complicated nonexamples. The teacher plans to offer differentiated examples and nonexamples based on the specific needs of students. Students will be actively involved in the processing of examples and nonexamples and will be encouraged to begin producing their own to check for understanding. |
| **Independent Practice** | In the teacher's plan students are not given an opportunity to practice using new knowledge independently. | In the teacher's plan students are given an opportunity to practice using new knowledge independently. Support is not explicitly offered. | In the teacher's plan students are given the opportunity to use the terms and examples presented without the direct support of the teacher but may be practicing in groups for support. | In the teacher's plan students are given the opportunity to interact with new learning in a variety of ways, including different group settings and activities based on student needs. |

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| **Performance** | The teacher's plan does not include the opportunity for students to demonstrate mastery through performance.<br><br>Proposed performance assignment does not align to the stated learning objectives. | Teacher plans to assess students individually on their level of mastery of the new content. Only one performance option is planned for and is loosely tied to stated learning objectives. | The teacher plans to assess students individually or in groups on their level of mastery of the new content. Planned performance options are varied and closely tied to the stated learning objectives. Performance options are reflective of the learning outcome (intellectual, verbal, cognitive). | The teacher plans to authentically assess students on their level of mastery of the new content. Planned performance options are varied and allow for student choice. Performances are directly related to the stated learning objectives. Performance options are reflective of the learning outcome (intellectual, verbal, cognitive) and are differentiated to meet the different learning needs of the students. |
| **Provide Feedback** | The teacher's plan does not include methods to provide feedback. | The teacher's plan includes methods for providing specific feedback at the conclusion of lesson. | The teacher's plan includes methods for providing specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions. | The teacher plans to provide feedback opportunities through multiple sources including teacher, peers, and self-reflection. Specific and descriptive feedback in the form of corrections, praise, and guiding questions will be given throughout the learning process. |

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| **Assess Performance** | The teacher's plan does not include a mastery assessment.<br><br>Planned mastery assignment is not related to stated learning outcomes. | The teacher plans to assess students for mastery using a single performance assignment. | The teacher plans to assess students for mastery using varied performance assignments. | The teacher plans to assess students for mastery using a variety of performance assignment options where students are given the opportunity to choose. Performance assignments will be differentiated to address different learning needs of students. |
| **Enhance Retention and Transfer** | The teacher's plan does not include additional practice activities.. | The teacher's plan includes additional opportunities to practice with the new content. | The teacher's plan includes additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning. | The teacher's plan includes practice opportunities that are created by both the students and the teacher. Concepts are spiraled back to when appropriate for further learning. |

*Foldable® Examples*

| | **Unsatisfactory** | **Basic** | **Proficient** | **Distinguished** |
|---|---|---|---|---|
| **Choice of Fold** | The teacher's choice of fold does not fit the content. | The teacher's choice of fold fits the concepts being discussed, but a stronger application was possible. | The teacher was intentional about the fold chosen and matched the layout to the content (e.g., cyclical vs. linear information) | The teacher was intentional about the fold chosen as well as the orientation of information (e.g., moving from left to right or top to bottom). |

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| **Arrangement of Information** | The teacher failed to organize the information in a learner friendly way, big ideas and details are not differentiated on the Foldable®. | The teacher organized the information effectively providing big ideas on the outside and details on the inside of the Foldable®. Different planes of the Foldable® could have been used more effectively. | The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside. | The teacher effectively used the different planes of the Foldable® for the recording of information. Big ideas are presented on the outside, details, definitions, and examples are provided on the inside. The layout of the information is demonstrative of the content being covered. |

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| **Organization of Knowledge** | There is no evidence of the teacher considering the specific learning outcomes when designing the Foldable®. | The teacher considered the specific learning outcomes when designing the Foldable®.<br><br>Teacher provided some –<br><br>Intellectual – examples and nonexamples, with classes of features, objects, and events related to the concept being taught<br>Verbal –names, facts, and principles related to the content<br>Cognitive –problems to solve using the new content learned<br>Motor Skills – opportunity for students to execute organized movements | The teacher considered the specific learning outcomes when designing the Foldable®.<br><br>Teacher provided multiple –<br><br>Intellectual –examples and nonexamples, with classes of features, objects, and events related to the concept being taught<br>Verbal –names, facts, and principles related to the content<br>Cognitive –problems to solve using the new content learned<br>Motor Skills – opportunity for students to execute organized movements | The teacher considered the specific learning outcomes when designing the Foldable®.<br><br>Teacher provided and/or student created multiple–<br><br>Intellectual –examples and nonexamples, with classes of features, objects, and events related to the concept being taught<br>Verbal –names, facts, and principles related to the content<br>Cognitive –problems to solve using the new content learned<br>Motor Skills –opportunity to execute organized movements |

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| **Usage** | Foldables® were created for the students and given to them already filled out. | Students created the Foldable® presented by the teacher but copied the teacher's notes verbatim. | Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's. | Students created the Foldable® presented by the teacher. Examples, definitions, and information included are decided upon by the student and may be different than the teacher's. Students are also given the opportunity to create their own original Foldables® to demonstrate their understanding. |

APPENDIX F

Classroom Observation Form

## Classroom Observation Form

Name: _____ Subject: _____

Date: _____ TEKS: _____

Time: _____

Student Population:
Demographics -

| | |
|---|---|
| African American | _____ |
| Asian | _____ |
| Hispanic | _____ |
| White | _____ |
| Two or More | _____ |
| Total | _____ |

Classroom Environment:
Grouping – *small group? whole group?*

Classroom Arrangement – *rows? groups? where are students working?*

Supplies – *independently accessible?*

Materials – *multiple levels available?*

Lesson Parts: *Describe each lesson part in terms of the teacher and the student.*
Gain Attention – *How did the teacher engage students in the lesson?*

State Objectives – *What are the objectives? How were they presented to the students?*

Stimulate Recall – *How did the teacher relate current content to prior learning? In what ways did students participate?*

Present Stimulus – *What methods were used for presenting new information? In what ways did students participate?*

Guided Practice – *What examples and nonexamples were presented for practice? In what ways did students participate?*

Independent Practice – *In what ways did students interact with new learning? What was the teacher's involvement during this process?*

Performance – *In what ways did students demonstrate understanding of the new content? Were performances aligned with objectives? Were students successful in achieving the learning objectives?*

Providing Feedback – *What types of feedback were offered by the teacher? At what times in the lesson was feedback offered? Was feedback only offered by the teacher to the students?*

Assess Performance – *In what ways did students demonstrate mastery of objectives?*

Transfer – *Were there additional practice opportunities given to students to aid in retention and transfer?*

Learning Objectives: *Give examples of student performance in each learning objective category as well as the lesson part during which it occurred.*

Intellectual - *Students distinguished examples from nonexamples and accurately identified classes of features, objects, and events related to the concept being taught. Students were able to identify and define concepts using accurate terminology.*

Verbal - *Students were able to classify names, facts, and principles related to the content and were able to state in a meaningful sentence what was learned (written or verbal).*

Cognitive - *Students were able to solve problems using the content learned from the Foldable®, students accurately analyze situations and applied concepts to suggest possible solutions*

Motor Skills - *Students were able to accurately execute organized movements (e.g., writing, playing a musical instrument, folding paper) as required for the performance with ease.*

APPENDIX G

Questioning Observation Scale

**Questioning**

Name of Teacher _____

Date of Observation _____ Observer _____

Start and Ending Time of Observation _____

| Teacher Questions | Code | R |
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| Total Number of Teacher Q | | |

Codes (insert number of questions and percent of total number of questions in front of each) :

# (%)_____ Single answer # (%)_____ Multiple answer #( %)_____ CC

# (%)____ AConnections # (%) ____ Process # (%)_____Evaluation/Implications

APPENDIX H

Foldable® Reflection Form

## Foldable® Reflection

Name: _____ Date: _____

In the past two weeks, how many times have you used Foldables® in instruction? _____

In the past two weeks, what subject area(s) have you used Foldables® in? *(check all that apply)*

_____ ELAR
_____ Math
_____ Science
_____ Social Studies
_____ Other: _____

List the TEKS (including subject area) covered by Foldables® in the past two weeks.

In what part of your lesson(s) did you use Foldables®? *(check all that apply)*

_____ **Gain Attention** – *I used Foldables® related to the content to focus my students' attention on the information being presented.*
_____ **State Objectives** – *I used Foldables® to establish objectives for the lesson.*
_____ **Stimulate Recall** – *I used Foldables® to activate prior knowledge through questioning and discussion.*
_____ **Present Stimulus** – *I used Foldables® for presenting new information in my lesson.*
_____ **Guided Practice** – *I used Foldables® for practice opportunities presenting examples and nonexamples to help students categorize and organize their knowledge of the new content..*
_____ **Independent Practice** – *My students used Foldables® when practicing independently or in small group settings.*
_____ **Provide Feedback** – *I used Foldables® to provide specific and descriptive feedback to my students.*
_____ **Performance** – *My students used Foldables® to demonstrate their learning and mastery of the new content.*
_____ **Assess Performance** – *I used Foldables® as a method for:*

_____ *preassessment,(finding out what my students know before lesson delivery)*
_____ *formative assessment (to guide my decision making processes during the lesson)*
_____ *assessing mastery of new content (as a final assessment of my students' learning)*

_____ **Enhance Retention and Transfer** – *I used Foldables® to provide practice opportunities for students that reviewed or accelerated their learning.*

In what ways did your students use Foldables®? *(check all that apply)*

_____ **Intellectually** - *Students distinguished examples from nonexamples and accurately identified classes of features, objects, and events related to the concept being taught. Students were able to identify and define concepts using accurate terminology.*

_____ **Verbally** - *Students were able to classify names, facts, and principles related to the content and were able to state in a meaningful sentence what was learned (written or verbal).*

_____ **Cognitively** - *Students were able to solve problems using the content learned from the Foldable®, students accurately analyze situations and applied concepts to suggest possible solutions*

_____ **Motor Skills** - *Students were able to accurately execute organized movements (e.g., writing, playing a musical instrument, folding paper) as required for the performance with ease.*

If you used Foldables® in the past two weeks, describe your planning process for these lessons. Was your thought process any different than when you're not using Foldables®?

If you used Foldables® in the past two weeks, describe how their use affected your students' ability to demonstrate their knowledge.

Briefly reflect on your use of Foldables® over the past two weeks in terms of planning, instruction, and the learning that has occurred. What went well? What did not? If you did not use Foldables®, why?

APPENDIX I

Interview Protocol

**Interview Protocol**

*Interviews will be semi-structured, meaning that these questions will serve as the overarching structure of the conversations, probing questions may be asked for clarification or in an attempt to gain more specific information about answers or observations.*

Describe the standards you were teaching in this lesson. *(Stating Objectives and Stimulating Recall; Planning and Preparation)*

*What were the specific learning objectives you addressed in this lesson?*
*How do the standards taught in this lesson relate to standards you've already taught or are teaching in the future?*
*How do these standards relate to other content areas?*

What do you consider when you're planning learning activities in your classroom? *(Present Stimulus, Guided Practice, Independent Practice, Performance, Assess Performance, Enhance Retention and Transfer; Planning and Preparation)*

*How do the activities (guided/independent practice and performance options) you choose relate to your standards?*
*How do the activities (guided/independent practice and performance options) you choose relate to your students?*

What are some of the instructional tools or activities you use regularly in instruction? (*Present Stimulus, Guided Practice, Independent practice, Performance, Assess Performance, Enhance Retention and Transfer; Planning and Preparation*)

*Are there different activities you use in different stages of the learning process (guided/independent practice, performance, assessing performance)?*
*Why do you use these particular tools or activities?*

What are some strategies you use to ensure your students' success in the learning process? (*Guided Practice, Independent Practice, Performance, Assess Performance, Provide Feedback*; *Planning and Preparation*)

*How do you introduce new topics (present stimulus)?*
*How do you help students solidify (practice, transfer, and retain) their learning?*
*How do you address misconceptions about the content (providing feedback)?*

How do students demonstrate their learning in your classroom? (*Performance, Assess Performance, Provide Feedback*; *Planning and Preparation)*

*Do students produce their own products or are they given defined tasks to complete (performance and assessing performance)?*
*What are some ways you assess student performances?*
*What are some ways you provide feedback to your students? When do you provide feedback to your students?*

** *Final interview only* - After experiencing Foldables® for a semester, what are your perceptions of it as an instructional tool

APPENDIX J

Data Analysis Rubric

## Data Analysis Rubric

Planning and Preparation

| | Unsatisfactory | Basic | Proficient | Distinguished | Comments |
|---|---|---|---|---|---|
| 1a: Demonstrating knowledge of content and pedagogy | In planning and practice, the teacher makes content errors of does not correct errors made by students. The teacher displays little understanding of prerequisite knowledge important to student learning of the content. The teacher displays little or no understanding of the range of pedagogical approaches suitable to student learning of the content. | The teacher is familiar with the important concepts in the discipline bit displays a lack of awareness of how these concepts relate to one another. The teacher indicates some awareness of prerequisite learning, although such knowledge may be inaccurate or incomplete. The teacher's plans and practice reflect a limited range of pedagogical approaches to the discipline or to the students. | The teacher displays solid knowledge of the important concepts in the discipline and how these relate to one another. The teacher demonstrates accurate understanding of prerequisite relationships among topics. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the subject. | The teacher displays extensive knowledge of the important concepts in the discipline and how these relate both to one another and to other disciplines. The teacher demonstrates understanding of prerequisite relationships among topics and concepts and understands the link to necessary cognitive structures that ensure student understanding. The teacher's plans and practice reflect familiarity with a wide range of effective pedagogical approaches in the discipline and the ability to anticipate student misconceptions. | |
| 1e: Designing coherent instruction | Learning activities are poorly aligned with the instructional outcomes, do not follow an organized progression, are not designed to engage students in active intellectual activity, and have unrealistic time allocations. Instructional groups are not suitable to the | Some of the learning activities and materials are aligned with the instructional outcomes and represent moderate cognitive challenge, but with no differentiation for different students. Instructional groups partially support the activities, with some variety. The lesson or unit has a recognizable | Most of the learning activities are aligned with the instructional outcomes and follow an organized progression suitable to groups of students. The learning activities have reasonable time allocations; they represent significant cognitive challenge, with some differentiation for different groups of | The sequence of learning activities follows a coherent sequence, is aligned to instructional goals, and is designed to engage students in high-level cognitive activity. These are appropriately differentiated for individual learners. Instructional groups are varied appropriately, with some opportunity for student choice. | |

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| activities and offer no variety. | structure; but the progression of activities is uneven, with only some reasonable time allocations. | students and varied use of instructional groups. | |

Specific Lesson Parts and Learning Outcomes

| | Unsatisfactory | Basic | Proficient | Distinguished | Comments |
|---|---|---|---|---|---|
| Gain Attention | The teacher fails to gain students' attention. Students are not engaged in learning. | The teacher presents a stimulus that gains students' attention. Students are attentive, but not actively engaged. | The teacher presents a stimulus that gains the students' attention. Students are attentive and actively engaged. | The teacher presents a stimulus related to the content that focuses the learners' attention on the information being presented. | |
| | *Observable Student Outcome*: students are engaged in lesson | | | | |
| State Objectives | The teacher fails to state their learning objectives. | The teacher's objectives are vague or unclear. Objectives reflect a low level of challenge and are not clearly connected to the performance. | The teacher establishes clear objectives for the learning activity. Objectives reflect challenging and relevant learning. | The teacher establishes clear objectives for the learning activity. Objectives reflect challenging and relevant learning and allow for different methods of performance. | |
| | *Observable Student Outcome:* students are able to state (verbally or in writing) objective for lesson | | | | |

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| Stimulate Recall | The teacher makes no connection to previous learning. | The teacher mentions previous lessons relating to concepts but does not engage students through questioning or discussion. | The teacher understands the importance of connecting current learning to past concepts and begins by activating existing knowledge and demonstrating how the new information relates. Students are involved in the process by answering low-level questions. | The teacher involves the students in the activation of prior knowledge through questioning and discussion. Connects new learning to previous knowledge in a meaningful way, allowing students to make their own connections where appropriate. |
| | *Observable Student Outcome:* students are able to state (verbally or in writing) prior learning and make connections; asks and answers appropriate questions | | | |
| Present Stimulus | The teacher fails to obtain the student's attention through the presentation of auditory and/or visual stimuli. Lesson is not related to the stated objectives. Prior knowledge is not built upon by lesson. | The teacher uses auditory and/or visual stimuli to present new information. Students are not actively involved in the learning process, rather they are merely listening or following directions. | The teacher uses both auditory and visual stimuli to present new information. Lesson is aligned with the stated objectives and build off of the students' existing knowledge. | The teacher uses auditory, visual, and/or tactile stimuli to present new information. Lesson is closely aligned with stated objectives as well as outcomes. Lesson is explicitly related to existing knowledge, crossing content areas where appropriate. |
| | *Observable Student Outcome:* students are able to state (verbally or in writing) new information and relate to existing knowledge. | | | |

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| Guided Practice | The teacher uses a limited number of examples. Examples may be unclear to the learners or even inaccurate. | The teacher presents numerous accurate examples of the new content. Students observe but are not active participants in the process. Nonexamples are not presented during guided practice. | The teacher integrates the use of accurate examples and nonexamples to help students categorize and organize their knowledge of the new content. Examples are presented first to establish a basic understanding, nonexamples are then introduced to focus the students' attention on the important characteristics of the concept. Students are actively involved in the processing of examples and nonexamples. | The teacher integrates both accurate examples and challenging nonexamples into the practice portion of the lesson. Examples are presented first followed by more complicated nonexamples to focus the students' attention on the important characteristics of the concept. The teacher offers differentiated examples and nonexamples based on the specific needs of students. |

*Observable Student Outcome:* With teacher guidance, students are able to:

Intellectually – distinguish examples from nonexamples; accurately identify classes of features, objects, and events related to the concept being taught; identify and define concepts using accurate terminology; create their own examples and nonexamples and make connections across content areas

Verbally – classify names, facts, and principles related to the content; generalize their knowledge relating it to past learning across multiple content areas as well as experiences outside of the classroom in their own lives or in current events; state in a meaningful sentence (written or verbal) what was learned

Cognitively – solve both presented problems and their own created problems using the content learned; accurately analyze situations and apply concepts to suggest multiple possible solutions; apply concepts to real life situations (e.g., current events, personal experiences)

Physically (Motor Skills) - accurately execute organized movements (e.g., writing, playing a musical instrument, folding paper) required for performance; create their own motor methods for demonstrating their learning

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| Independent Practice | Students are not given an opportunity to practice using new knowledge independently. | Students are given an opportunity to practice using new knowledge independently. The teacher is not readily accessible if students need help or guidance during the activity. | Students are given the opportunity to use the terms and examples presented without the direct support of the teacher. The teacher is still available for scaffolding where needed. | Students are given the opportunity to interact with new learning in a variety of ways, including different group settings and activities based on student needs. The teacher is available for scaffolding where needed and uses effective questioning to guide students' thinking. |

*Observable Student Outcome:* In small group or independent settings, students are able to:

Intellectually – distinguish examples from nonexamples; accurately identify classes of features, objects, and events related to the concept being taught; identify and define concepts using accurate terminology; create their own examples and nonexamples and make connections across content areas

Verbally – classify names, facts, and principles related to the content; generalize their knowledge relating it to past learning across multiple content areas as well as experiences outside of the classroom in their own lives or in current events; state in a meaningful sentence (written or verbal) what was learned

Cognitively – solve both presented problems and their own created problems using the content learned; accurately analyze situations and apply concepts to suggest multiple possible solutions; apply concepts to real life situations (e.g., current events, personal experiences)

Physically (Motor Skills) - accurately execute organized movements (e.g., writing, playing a musical instrument, folding paper) required for performance; create their own motor methods for demonstrating their learning

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| Performance | Students are not given the opportunity to demonstrate mastery through performance.<br><br>Performance assignment does not align to the stated learning objectives. | Students are assessed individually on their level of mastery of the new content. Only one performance option is available and is loosely tied to stated learning objectives. | Students are assessed individually or in groups on their level of mastery of the new content. Performance options are varied and closely tied to the stated learning objectives. Performance options are reflective of the learning outcome (intellectual ,verbal, cognitive) and may be differentiated where appropriate based on the learning needs of the students. | Students are authentically assessed on their level of mastery of the new content. Performance options are varied and allow for student choice. Performances are directly related to the stated learning objectives. Performance options are reflective of the learning outcome (intellectual ,verbal, cognitive) and are differentiated where appropriate based on the learning needs of the students. |

*Observable Student Outcome:* Students demonstrate mastery by independently:

Intellectually – distinguishing examples from nonexamples; accurately identifying classes of features, objects, and events related to the concept being taught; identifying and defining concepts using accurate terminology; creating their own examples and nonexamples and make connections across content areas

Verbally – classifying names, facts, and principles related to the content; generalizing their knowledge relating it to past learning across multiple content areas as well as experiences outside of the classroom in their own lives or in current events; stating in a meaningful sentence (written or verbal) what was learned

Cognitively – solving both presented problems and their own created problems using the content learned; accurately analyze situations and apply concepts to suggest multiple possible solutions; applying concepts to real life situations (e.g., current events, personal experiences)

Physically (Motor Skills) - accurately executing organized movements (e.g., writing, playing a musical instrument, folding paper) required for performance; creating their own motor methods for demonstrating their learning

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| Provide Feedback | The teacher fails to provide feedback.<br><br>Feedback provided is general and vague. | The teacher provides specific feedback at the conclusion of lesson. | The teacher provides specific and descriptive feedback throughout the lesson in the form of corrections, praise, and guiding questions. | Feedback is given through multiple sources including teacher, peers, and self-reflection. Specific and descriptive feedback in the form of corrections, praise, and guiding questions is given throughout the learning process. |
| | *Observable Student Outcome:* students receive feedback throughout the learning process from multiple sources, including self-reflection; feedback is offered for multiple outcomes including content (knowledge and skills), products (models, Foldables®, PowerPoints, etc.), and performances (presentations, role play, debate, etc.); students are able to modify their learning and/or practice as a result of feedback to more accurately demonstrate mastery | | | |
| Assess Performance | Students are not assessed for mastery.<br><br>Mastery assignment is not related to stated learning outcomes. | Students are assessed for mastery using a single performance assignment. | Students are assessed throughout the learning process using both preassessments and formative assessments. Mastery is assessed using varied performance assignments. | Students are assessed throughout the learning process using both preassessments and formative assessments. Mastery is assessed using varied performance assignments. Performance assignments are differentiated to address different learning needs of students. |
| | *Observable Student Outcome:* students demonstrate their mastery using multiple methods, including demonstration of content knowledge (knowledge and skills), products (models, Foldables®, PowerPoints, etc.), and performances (presentations, role play, debate, etc.); students demonstrate levels of mastery (e.g., acquisition, proficiency, maintenance) at their assessed performance level—below, on, or above level. | | | |

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| Enhance Retention and Transfer | Students are not offered additional practice activities and concepts are not referred back to in later lessons. | Students are given additional opportunities to practice with the new content. | Students are given additional opportunities to practice with the content to solidify learning. Concepts are also spiraled back to when appropriate for further learning. | Practice opportunities are created by both the students and the teacher. Concepts are spiraled backwards and forwards when appropriate for further learning. Practice and independent learning activities are available for students demonstrating mastery, giving them the opportunity to accelerate through content. |

*Observable Student Outcome:* students demonstrate levels of mastery (e.g., acquisition, proficiency, maintenance) at their assessed performance level—below, on, or above level.

REFERENCES


Adesope, O.O., & Nesbit, J.C. (2013). Animated and static concept maps enhance learning from spoken narration. *Learning and Instruction, 27,* 1-10.

Akinsanya, C., & Williams, M. (2004). Concept mapping for meaningful learning. *Nurse Education Today, 24,* 41-46.

Alverman, D. (1986). Graphic organizers: Cueing devices for comprehending and remembering main ideas. In J. F. Baumann (Ed.) *Teaching main idea comprehension* (pp. 210-226). Newark, DE: International Reading Association.

Anderson, T.H. (1980) Study strategies and adjunct aids. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 483-502). Hillsdale, NJ: Lawrence Erlbaum associates.

Anderson, T. H., & Armbruster, B. B. (1984). Studying. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research.* New York, NY: Longman.

Andre, T. (1990). Type of inserted question and the study – posttest delay. *Journal of Experimental Education, 58,* 77-86.

Armbruster, B. B. , & Brown, A. L. (1984). Learning from reading: the role of metacognition. In R. C. Anderson, J. Osborn, & R. J. Tierney (Eds.), *Learning to read in American schools: Basal readers and content texts.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Austin, J. L., Lee, M., & Carr, J. P. (2004). The effect of guided notes on undergraduate students' recording of lecture content. *Journal of Instructional Psychology, 31,* 314-320.

Austin, J. L., Lee, M., Thibeault, M., Carr, J. P., & Bailey, J. S. (2002). The effects of guided notes on university students' responding and recall of information. *Journal of Behavioral Education, 11*(4), 243-254.

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal learning. *Journal of Educational Psychology. 51,* 267-272.

Baddley, A. D. (1996). Exploring the central executive. *Quarterly Journal of Experimental Psychology, 49,* 5-28.

Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson, , R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research.* New York, NY: Longman.

Bannert, M. (2002). Managing cognitive load: Recent trends in cognitive load theory. *Learning and Instruction, 12,* 139-146.

Barnett, J. E., DiVesta, F. J., & Rogozinski, J. T. (1981). What is learned in notetaking? *Journal of Educational Psychology, 73,* 181-192.

Barron, R. F. (1969). The use of vocabulary as an advance organizer. In H. L. Herber & R. T. Vacca (Eds.) *Research in reading in the content areas: First year report* (pp. 29-39). Syracuse, NY: Syracuse University Reading and Language Arts Center.

Bartlett, F. C. (1932). *Remembering.* London: Cambridge University Press.

Bean, T. W., Singer, H., Sorter, Jack, & Frazee, C. (1986). The effect of metacognitive instruction in outlining and graphic organizer construction on students' comprehension in a tenth-grade world history class. *Journal of Literacy Research, 18(2),* 153-169.

Bogdan, R. C., & Biklen, S. K. (2006). *Qualitative research for education: An introduction to theory and methods* (5th ed.). Boston: Allyn and Bacon.

Bos, C.S. & Anders, P.L. (1992). Using interactive teaching and learning strategies to promote text comprehension and content learning for students with learning disabilities. *International Journal of Disabilities, Development, and Education,* 39, 225-238.

Bransford, J. D. (1979). *Human cognition: Learning, understanding and remembering*. Belmont, CA: Wadsworth.

Branford, J., Derry, S., Berliner, P., Hammerness, K., & Beckett, K. L. (2005). Theories of learning and their roles in teaching. In L. Darling-Hammond, & J. Bransford (Eds.), *Preparing teacher for a changing world: What teachers should learn and be able to do* (pp.40-97). San Francisco, CA: Jossey-Bass.

Bruner, J. S. (1960). *The Process of education.* Cambridge, Mass.: Harvard University Press.

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review*, 31, 21-32.

Bruner, J. S. (1966). *Toward a theory of instruction*. Cambridge, Mass.: Belkapp Press.

Bruner, J. S., Goodnow, J. J., & Austin, G. A. (1956). *A study of thinking*. New York: Wiley.

Calderhead, J. and Shorrock, S. B. (1997). *Understanding Teacher Education: Case Studies in the Professional Development of Beginning Teachers.* London: Falmer Press.

Cary, M., & Carlson, R. A. (2001). Distributing working memory resources during problem solving. *Journal of Experimental Psychology, 27,* 836-848.

Castello, M., & Monero, C. (2005). Students' note-taking as a knowledge-construction tool. *Educational Studies in Language and Literature, 5,* 265-285.

Cherryholmes, C. H. (1988). *Power and Criticism: Post-structural Investigations in Education.* New York: Teachers College Press.

Clark, C. M., & Yinger, R. J. (1979). Three Studies of Teacher Planning. Research Series No. 55.

Clarke, J. H. (1990). *Patterns of thinking :Integrating learning skills with content teaching* .Boston: Allyn & Bacon.

Clarke, J. H. (1991). Using visual organizers to focus thinking. *Journal of Reading, 34(7),* 526-534.

Common Core State Standards: National Governors Association and Council of Chief School Officers (2010). Retrieved August 2015, from: http://www.corestandards.org/.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE.

Danielson, C. (2011). *Enhancing professional practice: A framework for teaching* (3rd ed.). Alexandria, VA: ASCD.

Danielson, C. (2015). Framing discussions about teaching. *Educational Leadership, 72*(7), 38-41.

DiCecco, V. M., & Gleason, M. M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities, 35*(4), 306-320, DOI: 10.1177/00222194020350040201.

Dinah-Might Adventures, LP, 2015. FAQ. Retrieved February 12, 2015 from http://www.dinah.com/faq/faq.php

DiVesta, F. J., & Gray, G.S. (1972). Listening and note-taking. *Journal of Educational Psychology, 63,* 8-14.

Dye, G. A. (2000). Graphic organizers to the rescue! Helping students link and remember information. *TEACHING Exceptional Children, 32(3),* 72-76.

Eagan, M. (1999). Reflections on effective use of graphic organizers. *Journal of Adolescent and Adult Literacy, 42(8),* 641-645.

Einstein, G. O., Morris, J., & Smith, S. (1985). Note-taking, individual differences, and memory for lecture information. *Journal of Educational Psychology, 77*(5), 522-532.

Eskritt, M., & Lee, K. (2002). "Remember where you last saw that card": Children's production of external symbols as a memory aid. *Developmental Psychology, 38,* 254-266.

Eskritt, M., & McLeod, K. (2008). Children's note taking as a mnemonic tool. *Journal of Experimental Child Psychology, 101*, 52-74, DOI:10.1016/j.jecp.2008.05.007.

Feldhusen, J.F. (2006). The role of knowledge base in creative thinking. In Kaufman, J.C. & Baer, J. (Eds.) *Creativity and Reason in Cognitive Development*. New York: Cambridge University Press.

Foos, P. W., Mora, J. J., & Tkacz, S. (1994). Student study techniques and the generation effect. *Journal of Educational Psychology, 86*(4), 567-576.

Gagné, R. M. (1985). *The conditions of learning and theory of instruction.* (4th ed.). New York, NY: Holt, Rinehart and Winston.

Gagné, R.M., & Dick, W. (1983). Instructional psychology. *Annual Review of Psychology, 34,* 261-295.

Gagné, R. M., & Driscoll, M. P. (1988). *Essentials of learning for instruction.* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Gardner, D. P. (1983). A nation at risk. *Washington, DC: The National Commission on Excellence in Education, US Department of Education*.

Gerring, J. (2006). *Case study research: Principles and practices.* Cambridge, England: Cambridge University Press.

Griffin, C. C., Malone, L. D., & Kameenui, E. J. (1995). Effects of graphic organizer instruction on fifth-grade students. *The Journal of Educational Research, 89(2),* 98-107.

Griffin, C. C., & Tulbert, B. L. (1995). The effect of graphic organizers on the comprehension and recall of expository text: A review of the research and implications for practice. *Reading and Writing Quarterly, 11(1),* 73-89.

Hall, R. H., Dansereau, D. F., & Skaggs, L. P. (1992). Knowledge maps and the presentation of related information domains. The Journal of Experimental Education, 61, *5-18.*

Hawk, P. P. (1986). Using graphic organizers to increase achievement in middle school life science. *Science Education, 70(1),* 81-87.

Hawk, P. P., McLeod, N. P., & Jeane, K. L. (1981). Graphic organizers in initial learning and retention. *Carolina Journal of Educational Research, 2,* 70-78.

Hidi, S., & Klaiman, R. (1983). Notetaking by experts and novices: An attempt to identify teachable strategies. *Curriculum Inquiry, 13,* 377-395.

Ives, B. (2007). Graphic organizers applied to secondary algebra instruction for students with learning disorders. *Learning Disabilities Research & Practice, 22*(2), 110-118.

John, P. D. (2000). Awareness and intuition: how student teachers read their own lesson. In T. Atkinson and G. Claxton (Eds.), *The Intuitive Practitioner* (pp.84-107). London: Open University Press.

John, P. D. (2006). Lesson planning and the student teacher: Re-thinking the dominant model. *Journal of Curriculum Studies, 38(4),* 483–498.

Kane, T. J., & Staiger, D. O. (2012). Gathering Feedback for Teaching: Combining High-Quality Observations with Student Surveys and Achievement Gains. Research Paper. MET Project. *Bill & Melinda Gates Foundation*.

Katayama, A. D., & Robinson, D. H. (2000). Getting students "partially" involved in note-taking using graphic organizers. *The Journal of Experimental Education, 68(2),* 119-133.

Kiewra, K. A. (1988). Cognitive aspects of autonomous note taking: Control processes, learning strategies, and prior knowledge. *Educational Psychologist, 23*(1), 39-56.

Kiewra, K. A. (1989). A review of note-taking: The encoding-storage paradigm and beyond. *Educational Psychology Review, 1*(2), 147-172.

Kiewra, K. A., DuBois, N. F., Christian, D., McShane, A., Meyerhoffer, M., & Roskelley, D. (1991). Notetaking functions and techniques. *Journal of Educational Psychology, 83,* 240-245.

Kulhavy, R. W., Lee, B. J., & Caterino, L. C. (1985). Conjoint retention of maps and related discourse. *Contemporary Educational Psychology, 10,* 28-37.

Liben, L. S. (1999). Developing an understanding of external spatial representations. In I. E. (Eds.), Development of mental representation: Theories and applications (pp. 297-321). Mahwah, NJ: Lawrence Erlbaum.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Beverley Hills, CA: Sage.

Lincoln, Y. S., & Guba, E. G. (1986). *But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation.* In D. D. Williams (Ed.), *Naturalistic evaluation, new directions for program evaluation, No. 30.* San Francisco, CA: Jossey-Bass.

Lofland, J., & Lofland, L. (1984). *Analyzing social settings: A guide to qualitative observation and analysis* (2nd ed.). Belmont, CA: Wadsworth.

Makany, T., Kemp, J., & Dror, I. E. (2009). Optimising the use of note-taking as an external cognitive aid for increasing learning. *British Journal of Educational Technology, 40*(4), 619-635. doi:10.1111/j.1467-8535.2008.00906.x

Martin-Kniep, G. & Uhrmacher, P. B. (1992). Teachers as curriculum developers. *The Journal of Curriculum Studies, 24(3):* 261-271.

Marzano, R.J., Pickering, D.J., & Pollock, J.E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement.* Alexandria, VA: Association for Supervision and Curriculum Development.

Mayer, R. (1989). Models for understanding. *Review of Educational Research, 59*(1), 43-64.

Mayer, R.T. (2006). The role of domain knowledge in creative problem solving. In Kaufman, J.C. & Baer, J. (Eds.) *Creativity and Reason in Cognitive Development*. New York: Cambridge University Press.

Mercer, C. D. (1997). *Students with learning disabilities.* Upper Saddle River, NJ: Prentice Hall.

Meyen, E. L., Vergason, G. A., & Whelan, R. J. (1996). *Strategies for teaching exceptional children in inclusive settings.* Denver, CO: Love.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage.

Moore, D. W., Readence, J. E. (1984). A quantitative and qualitative review of graphic organizer research. *The Journal of Educational Research, 78(1),* 11-17.

Mumford, M.D., Blair, C.S., & Marcy, R.T. (2006). Alternative knowledge structures in creative thought. In Kaufman, J.C. & Baer, J. (Eds.) *Creativity and Reason in Cognitive Development*. New York: Cambridge University Press.

Narjaikaew, P., Emarat, N., & Cowie, B. (2009). The effect of guided note taking during lectures on Thai university students' understanding of electromagnetism. *Research in Science & Technological Education, 27*(1), 75-94.

National Council for the Social Studies (2010). *National Curriculum Standards for Social Studies: A Framework for Teaching, Learning, and Assessment.* Silver Spring, MD: NCSS.

National Council of Teachers of English, & International Reading Association. (1996). *Standards for the English language arts*. National Council of Teachers.

National Council of Teachers of English and International Reading Association. (1996). *Standards for the English language arts*. Urbana, IL: NCTE

National Council of Teachers of Mathematics (Ed.). (2000). *Principles and standards for school mathematics* (Vol. 1). National Council of Teachers.

National Research Council (Ed.). (1996). *National science education standards*. National Academy Press.

Neef, N. A., McCord, B. E., & Ferreri, S. J. (2006). Effects of guided notes versus completed notes during lectures on college students' quiz performance. *Journal of Applied Behavior Analysis, 39,* 123-130.

Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn.* New York: Cambridge University Press.

Novak, J. D., Gowin, D. B., & Johansen, G. T. (1983). The use of concept mapping and knowledge ___ mapping with junior high school science students. *Science Education, 67(5),* 625-645.

Patton, M. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publishing.

Patton, M. (2002). *Qualitative evaluation and research methods* (3rd ed.). Newbury Park, CA: Sage Publishing.

Pearson, P. D., & Spiro, R. (1982). The new buzz word: Schema. *Instructor, 91(9),* 46-48.

Peper, R. J., & Mayer, R. E. (1978). Note-taking as a generative activity. *Journal of Educational Psychology, 70,* 514-522.

Peper, R. J., & Mayer, R. E. (1986). Generative effects of note-taking during science lectures. *Journal of Educational Psychology, 78*(1), 34-38.

Piaget, J. (1929). *The child's conception of the world*. Rowman & Littlefield.

Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities Press.

Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. Basic Books.

Piolat, A., Olive, T, & Kellogg, R. T. (2005). Cognitive effort during note taking. *Applied Cognitive Psychology, 19,* 291-312.

Robinson, D. H., & Schraw, G. (1994). Computational efficiency through visual argument: Do graphic organizers communicate relations in text too effectively? *Contemporary Educational Psychology, 19,* 399-415.

Robinson, D. H., Katayama, A. D., DuBois, N. F., & DeVaney, T. (1998). Interactive effects of graphic organizers and delayed review in concept acquisition. *The Journal of Experimental Education, 67,* 17-31.

Robinson, D. H., & Kiewra, K. A. (1995). Visual argument: Graphic organizers are superior to outlines in improving learning from text. *Journal of Educational Psychology, 87(3),* 455-467.

Rock, M. L. (2004). Graphic organizers: tools o build behavioral literacy and foster emotional competency. *Intervention in School and Clinic, 40(1),* 10-37.

Ritchie, D. & Volkl, C. (2000). Effectiveness of two generative learning strategies in the science classroom. *School Science & Mathematics*, 100(2), 83-89.

Sartain, L., Stoelinga, S. R., & Brown, E. (2011). *Rethinking teacher evaluation in Chicago*. Chicago: University of Chicago Consortium for Chicago School Research.

Slavin, R. E. (1991). *Educational Psychology*(3rd ed.). Needham Heights, MA: Allyn & Bacon.

Sousa, D.A. (1995). *How the brain learns: A classroom teacher's guide.* Reston, VA: The National Association of Secondary School Principals.

Spires, H. A. (1993). Learning from lecture: Effects of comprehension monitoring. *Reading Research and Instruction, 32,* 19-30.

Stake, R. E. (1995). The art of case study research. Thousand Oaks, CA: Sage.

Stefanou, C., Hoffman, L., & Vielee, N. (2008). Note-taking in the college classroom as evidence of generative learning. *Learning Environments Research, 11*(1), 1-17.

Strauss, A., & Corbin, J. (2007). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: SAGE Publications, Inc.

Stronge, J.H. (2001). *Qualities of effective teachers.* Alexandria, VA: Association for Supervision and Curriculum Development.

Stull, A.T., & Mayer, R.E. (2007). Learning by doing versus learning by viewing: Three experimental comparisons of learner-generated versus author-provided graphic organizers. *Journal of Educational Psychology, 99,* 808-820.

Sweller, J., & Chandler, P. (1991). Evidence for cognitive load theory. *Cognition and Instruction, 8,* 351-362.

Texas Education Association (2009). *Texas Essential Knowledge and Skills.* Retrieved August 2015, from: http://tea.texas.gov.

Texas Education Association (TEA, 2014). *Texas Academic Performance Report.* Retrieved from http://ritter.tea.state.tx.us/cgi/sas/broker?_service=marykay&year4=2014&year2=14&_debug=0&single=N&title=2014+Texas+Academic+Performance+Reports&_program=perfrept.perfmast.sas&prgopt=2014%2Ftapr%2Ftapr.sas&ptype=P&level=campus&search=campname&namenum=Reagan&campus=221901120

Titsworth, B. S., & Kiewra, K. A. (2004). Spoken organizational lecture cues and student note taking as facilitators of student learning, *Contemporary Educational Psychology, 29*(4), 447-461.

Torgesen, J. K. (1977). Conceptual and educational implications of the use of efficient task strategies by learning-disabled children, *Journal of Learning Disabilities, 13,* 19-26.

Triona, L. M., & Klahr, D. (2007). A new framework for understanding how young children create external representations for puzzles and problems. In E. Teubal, J. Dockrell, & L. Tolchinsky (Eds.), *Notational knowledge: Developmental and historical perspectives.* Rotterdam, Netherlands: Sense.

Uhrmacher, P. B., Conrad, B. M., & Moroye, C. M. (2013). Finding the Balance Between Process and Product Through Perceptual Lesson Planning. *Teachers College Record, 115*(7), 2-27.

Van Merrienboer, J. J. G., Kirschner, P. A., & Kester, L. (2003). Taking the load off a learner's mind: Instructional design for complex learning. *Educational Psychologist, 38,* 5-13.

Wallace, D. S., West, S. W., Ware, A., & Dansereau, D. F. (1998). The effect of knowledge maps that incorporate gestalt principles on learning. *The Journal of Experimental Education, 67,* 5-16.

Winn, W. (1982). Visualization in learning and instruction: A cognitive approach. *Educational Communications and Technology Journal, 30,* 3-25.

Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative Health Research, 11,* 522-537.

Wittrock, M. C. (1986). Students' thought processes. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.). New York: Macmillan.

Whittrock, M. C. (1990). Generative processes of comprehension. *Educational Psychologist, 24,* 345-376.

William, R. L., & Eggert, A. C. (2002). Notetaking in college classes: Student patterns and instructional strategies. *The Journal of General Education, 51*(3), 173-199.

Yin, R. K. (2003). *Case study research: Design and method* (3rd ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2009). *Case study research: Design and method* (4th ed.). Thousand Oaks, CA: Sage.

Yinger, R. (1979). Routines in teacher planning. *Theory into Practice, 18(3),* 163–169.