EXPLORING HOW FOURTH GRADE TEACHERS IMPLEMENT THE COMMON CORE
STATE STANDARDS
IN
NEW HAMPSHIRE

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Abstract

The Common Core State Standards were released in 2010. States who have adopted the new standards have begun implementation. Kentucky has used a top-down approach by providing guidance to its school districts. New Hampshire allowed each district to interpret the Common Core State Standards for their own interpretation and implementation. A qualitative approach was used to explore the ways elementary teachers are implementing the Common Core State Standards. Four fourth-grade teachers at one site were interviewed and data was analyzed through an ecological systems lens. Results indicate the complex relationship of implementing the Common Core State Standards between state leaders, district leaders, teachers, and students. As a result, collaboration is occurring between each stakeholder. Additionally, results indicated that there is a shift in pedagogical practices and teacher, student, and teacher understanding. Further, results indicated how each layer of the system is setting goals to interpret the Common Core State Standards.

Key words: common core state standards, ecological systems theory, rigor, goal setting, transitioning, assessment
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Chapter 1: Introduction

Statement of the Problem:

We are in the year 2014, but the framework of the United State public school system has not changed since the early twentieth century (Hess, 2010). Former President Ronald Reagan brought attention to this urgency in 1984 using the study, *A Nation At Risk*, to show how American students are lagging behind their international counterparts in math, science, and reading. By the early 1990s, states had created their own standards, or guidelines, for teachers to follow (Maye, 2013). The implementation of the No Child Left Behind Act sought to have 100% proficiency in math, science, and reading from all students (“No Child”, 2012). As a result of this mandate, pedagogy focused on rote content understanding rather than the process of attaining knowledge (Ortmann, 2007). In 2010, forty-five states, the District of Columbia, and four territories adopted the Common Core State Standards wherein students engage in a more rigorous curriculum to foster 21st Century Skills (“Common Core State Standards Initiative”, n.d.). These core competencies include innovative thinking, critical thinking, and strong communication skills (21st Century Skills Map, 2011).

According to the Common Core Appendices (n.d.), students currently are not prepared with 21st Century Skills in order to be successful in the workforce. The documents details that pedagogy (instruction) and content have required substantially lower levels of student thinking than expected. In her classroom studies, Maye (2013) observes that educators are teaching content that only requires students to use lower-level thinking skills. Due to a disconnect between theory and pedagogy, students are not receiving a rigorous curriculum (Reybold, Flores, & Rojas-Cortez, 2006).
While the Common Core State Standards were released in 2010, states have only begun gradually rolling out the new standards (“Common Core State Standards Initiative”, n.d.); in 2015, there will be a national assessment to gauge the effectiveness of these standards (“Common Core State Standards Initiative”, n.d.). As educators roll out Common Core State Standards across the United States, teachers are expected to deliver a level of instruction that may be unfamiliar and more complex (Wagner, 2006). As a result of the release of the Common Core State Standards, teachers need support to develop immediate, effective practices in order for their students to demonstrate higher levels of learning. Currently, researchers have devoted minimal attention to the processes elementary teachers are using to execute and implement a rigorous curriculum (Wagner, 2006).

By examining various pedagogies, we can better discern specific practices that can help define the expectations being sought within the Common Core State Standards. With the new definition, district administrators can expand upon the ideas with their school board leaders. Administrators and school board leaders can use this information to design adequate professional development for teachers to develop a rigorous and engaging curriculum. Once these strategies are put into practice, state/district leaders, teachers, and students will understand their expectations and learn in order to be successful in the classroom and active in the twenty-first century society.

**Significance of Problem:**

The implementation of the Common Core State Standards has created much dialogue amongst members of the education community. According to the Common Core State Standards (n.d.) there are many ideas that are becoming confused. First, the standards are designed to evoke a higher level of thought for students and are not mandated under the No Child Left Behind Act.
Next, the standards are not a curriculum, but rather a tool schools and teachers should use to set goals for students and Common Core developers have provided models of exemplary texts teachers may utilize in the classroom. Finally, according to the Common Core State Standards (n.d.), “…these standards will establish what students need to learn, but they will not dictate how teachers should teach. Instead schools and teacher will decide how best to help students reach the standards.”

Cravey (2013) describes the implementation of the Common Core State Standards as an opportunity to redefine the societal view of schools. In doing so, State governments are mandating their schools to execute the standards. State governments are not providing direction in the curricular reform and teacher trainings (Kober & Rentner, 2011). In fact, Kober & Rentner (2011) describe how states are allowed to add 15% more curriculum to the standards that they see fit. As a result, caution must be taken in the redesign of curricular plan and lessons to create an increased demand in rigor (Kober & Rentner, 2011). According to Kober & Rentner (2011), there is great concern in pedagogy practices in the classroom due to the connection of teacher evaluations to the student demonstration of the standards. The lack of direction and weight placed on teacher evaluations provide a sense of confusion regarding the expectations of pedagogical practices from state to state.

**Kentucky and New Hampshire**

The state of Kentucky has been a leader in the nation in its implementation of the Common Core State Standards (Overturf, 2011). According to Overturf, in 2009 the government sought to overhaul the state’s curriculum for their students. Conveniently, the Common Core Standards were released in 2010, and Kentucky was on board in its adoption (Overturf, 2011). State leaders formed Leadership Networks throughout the state. The Leadership Networks were
composed of teachers, administrators, and curriculum specialists. Together, the network would collaborate and reflect upon their alignment of the Common Core State Standards (Overturf, 2011).

The question of funding developed because there was a question in how to implement the Leadership networks. Funding can impact curricular matters due to legal mandates and funding issues (Overturf, 2011). The networks and curriculum redesigns were funding by the Bill & Melinda Gates Foundation rather than the Race to the Top funds issued by the Department of Education (Overturf, 2011).

Kentucky’s implementation of the Common Core State Standards was a statewide rollout, whereas the state of New Hampshire gave the directive for each municipality to implement the national standards. Towns within the state of New Hampshire are beginning the process of adopting the Common Core State Standards. Many towns have formally adopted, while some have been more hesitant. This reluctance is most prevalent within the town of Alton and the city of Manchester. On September 17, 2013, the Alton School Board rejected the implementation of the Common Core State Standards (“Divided Alton School Board Rejects Common Core,” 2013). Board members cited that half of the staff left the elementary school in fear of the expectations, but the principal explained that only three teachers left to work closer to home. Board members expressed concerns that schools should be in local control; the board does not like the idea of big government taking over curriculum in their public schools. Buckland’s (2013) article describes a city and school board in doubt over the true level of rigor the Common Core State Standards. Alton appears to echo this sentiment, believing that the Common Core State Standards is another ploy from the government for more control (Buckland, 2013; Feely, 2013; Siefer, 2013).
In the city of Manchester, New Hampshire, committees formed to create curricular maps to implement the Common Core State Standards (Feely, 2013). Upon presenting the English Language Arts map for grade two and the Math map for grade seven, the school board believed there were not enough specific examples to approve the program. However, the district agreed to have 2013 serve as a pilot year for the maps (Feely, 2013; Siefer, 2013). Just as in the Alton School District in Alton, New Hampshire, Manchester had concerns about funding the new curriculum (Feely, 2013). There are concerns that Manchester could lose its funding under the No Child Left Behind Act should they adopt the Common Core State Standards. School board members feel that there needs to be more information prior to the adoption to be successful (Buckland, 2013; Feely, 2013; Siefer, 2013).

There appears to be a need to provide a set of exemplars or guidelines for how teachers should teach the Common Core State Standards. Teachers are receiving mixed messages. School administrators are creating committees or networks to collaboratively and reflectively develop a curricular plan in their respective states/towns; however, local municipality government leaders are struggling to determine the right approach to take to develop the standards for their particular municipality.

The purpose of this study is to explore what an elementary teacher does to implement the Common Core State Standards within the state of New Hampshire. This research will help teachers create a clearer understanding of how to deliver instruction, as well as inform state or local government leaders regarding how rigor is used and what it looks like within the classroom.

**Positionality Statement:**

I define a good education as each student having equal access to the curriculum while maintaining a higher level of thinking for his or her level. Being a classroom teacher for the last
ten years has help mold this definition through reflection, collaboration, and assessment. Only, recently in my career have I begun to question the standards prior to the Common Core State Standards. Teachers were teaching from textbooks, while students were expected to regurgitate facts without reflecting on how the skills and content relate to their everyday lives. These observations caused me to transfer schools or even change school districts, because our definition of a good education has evolved over time and did not match. The majority of states and school districts in the United States are facing a new mandate: The Common Core State Standards.

My prior teaching experiences have taught me that the power of collaboration with peers allows for me to continually reflect upon my practices/pedagogy within the classroom. Teaching is more than introducing content to students. There is a certain flare or style a teacher must embody in order to ensure that each student is reaching the highest levels of learning he or she can attain. I learned that teaching from a textbook is not the answer, but rather finding new ways to address 21st Century Skills in the classroom. Assessments can be viewed as tools to guide instruction, formatively, or as tools to measure learning, summatively in the direction of twenty-first century skills. Assessments should be developed in a way to help guide the teacher in understanding his or her students. Hess (2010) describes how education has not changed in one hundred years. Teachers are stagnant and struggling to reconstruct their perception and pedagogy to meet the needs of the 21st Century.

Once a state adopted the Common Core State Standards, it could add an additional 15% more curriculum (Kober & Renter, 2011). At that point, state leader could choose to roll out the standards as a statewide initiative such as the state of Kentucky or district rollouts such as the state of New Hampshire. There is a source of contention between various school districts and
school board leaders within the state of New Hampshire. From my perspective, teachers and school administrators are grappling in understanding the new standards for the higher level thinking they represent. In turn, the message being delivered to school board leaders are being perceived as vague and unclear.

It’s my opinion that the state of New Hampshire has placed its school districts in quite the quandary. School administrators are expected to present ideas and concept to school board members who are unsure of what the Common Core State Standards represent at a curricular level. In fact, New Hampshire school districts are working independently from each other, as opposed to working at the state level in creating a unified curriculum for districts to implement with a common goal as was intended with the Common Core State Standards.

The implementation of the Common Core State Standards is bringing about change within school districts across the country. In order for the change to be successful, three paradigm shifts must occur. First, teachers must understand that we have to provide purpose and context to our students. Students are failing because they cannot see the connection between their learning to the needs of the global community (Miskovic & Hoop, 2006). Second, teaching and assessment must be more rigorous. Teachers are only scratching at the surface of student learning. Lastly, state leaders, local leaders, district leaders, and classroom leader must recognize the need to shift our practices in the classroom to reach a higher standard. Though it is important to create a clear picture as to what that will look like in the classroom. It’s time to dig deeper in order to help our students reach their full potential.

**Research Central Question/Sub-Questions:**
Overarching Question—

What does it look like when elementary teachers in New Hampshire implement Common Core State Standards?

**Definition of Terms:**

*21st Century Skills*: A set of four skills students need to master in order to be successful in a global economy: problem solving, communication, collaboration, and original thinking (Pellegrino & Hilton, 2012).

*Common Core State Standards*: A set of national standards that were formed to increase students’ analytical and pioneering thinking and collaboration skills (“Common Core State Standards Initiative”, n.d.; 21st Century Skills Map, 2011).

*Curriculum*: A guide to inform teachers of what to teach.

*Pedagogy*: A teacher’s execution of the expected curriculum through tools such as strategies, principles, and assessments (Simon, 1987).

*Rigor*: A scaffolded environment that encourages a higher level of thinking because of the high level of expectations and the deeper breathe of understanding needed (Blackburn, 2013).

**Theoretical Framework:**

“An ecosocial system is a human social community taken together with the material ecosystem that enables, supports, and constrains it” (Lemke, 1994, p.15). The Ecological Systems Theory explores events through a complex lens from the person’s direct exchanges to their interactions through the community and their connections within society itself (Gabbard & Krebs, 2012). Systems’ thinking is the understanding of how the relationships of different parts work together or each other (León, 2007). Each component works interchangeably to achieve a
common goal. Ecological Systems Theory seeks to understand the interdependence of the network, the complexity, the short and long-term effects, and the whole picture (León, 2007).

Lemke (1994) discusses the notion of social semiotics; the idea of looking at how social actions makes up cultures. The use of language through conversation creates these formations (Lemke, 1994). People understand these social patterns due to the day-to-day predictability for conceptual understanding between microsocial and macrosocial subsystems. It is this reason that systems involve both human aspects and environmental aspects (Lemke, 1994). According to Lemke (1994), the system is a living thing, constantly changing, serving as the basis for ecosocial subtleties.

A person’s environment and interactions are key components that directly affect the way a person will develop (Chau-Ying Leu, 2008; Gabbard & Krebs, 2012). According to Bronfenbrenner (1994) and Lemke (1994), these interactions create a complex web of networks that encompass persons, settings, and environment. Because of this complexity, there is a reciprocation of interactions between one person and another (Bronfenbrenner, 1994).

Human interactions are complex in nature and the Ecological Systems Theory helps researchers break down these multifaceted relationships (Zhao & Frank, 2003). “Eco” is Greek for “oikos” or household. “Ology” is the study of phenomenon. Zhao & Frank (2003) explain how using an ecological perspective allows for researchers to understand all parts of a person’s environment.

Through a series of ecological interactions, a person creates his or her reality, and that individual must be malleable in order to change (Senge, Kleiner, Robers, Ross, & Smith, 1994). Senge et al. (1994) explains how a person uses reflection and determination to create his or her
own success. These tools, in conjunction with sharing visions with a group or leading the group, result in a person using systems thinking (Senge et al., 1994).

Bronfenbrenner & Morris (1998) explain how interactions must be regular and occur over a certain period of time. They describe these consistencies over time as proximal processes. Next, a person does not develop immediately, but rather changes over time throughout his or her lifespan (Bronfenbrenner & Morris, 1998). Development occurs when the person is active, consistent, and interactions are reciprocated. The longer the development occurs, the more complexity develops with the objects and people (Bronfenbrenner & Morris, 1998).

Human Development

Human development is the steadiness and adjustments in a person over a lifespan and across generations (Bronfenbrenner & Morris, 1998). As a result, human development occurs when the person is experiencing active, consistent interactions. Bronfenbrenner & Morris (1998) explain that the more repeated the interactions, the more complex the relationship becomes. It is these complex relationships that require researchers to look at the system surrounding a person to truly understand human development (Bronfenbrenner, 1977). Bronfenbrenner (1979, p.9) describes development “as the person’s evolving conception of the ecological environment and his relation to it as well as the person’s growing capacity to discover, sustain, or alter its properties.”

The idea of sustaining over time is a concept identified as the chronosystems (Bronfenbrenner, 1988; Bronfenbrenner, 1994; Feinstein, Driving-Hawk, & Boartman, 2009). A person’s historical background can affect and predicate his or her choices (Feinstein, Driving-Hawk, & Boartman, 2009). Bronfenbrenner (1994, 1998) acknowledges time and its effect on
Bronfenbrenner (1977) uses three definitions to explain the ecology of human development. First, the researcher must study the transition a person makes as a mode of adaptation to the needs of his or her environment, both in the inner and outer context. Secondly, a person’s immediate environment is part of a larger network. The researcher must observe the person’s interactions, but then also investigate those on a larger social scale (Bronfenbrenner, 1977). Lastly, a person perceives his or her environment in different ways. However, it is important to understand that the person’s reality is valid from his or her individual perspective.

**Environmental Subsystems**

In order for researchers to understand processes in a clear and organized way, Bronfenbrenner (1977) identified four subsystems: microsystem, mesosystem, exosystem, and macrosystem. Bronfenbrenner & Morris (1998) equate the systems to a Russian doll, wherein each layer can be pulled apart to look deeper and add more breadth, but also work interchangeably for a common goal. The overall progression of the four subsystems would start with home, then to community, then to culture (Gabbard & Krebs, 2012). These subsystems help decompose the various environments into manageable contexts, and they also provide insight into how different environments may produce different results (Bronfenbrenner, 1994; Bronfenbrenner, 1988).

**Microsystem**

A microsystem explores the interactions a person directly has with his or her immediate environment (Feinstein, Driving-Hawk, & Boartman, 2009; Bronfenbrenner, 1977). These face-to-face interactions delve into the patterns of social roles, such as son or student (Gabbard &
According to Chau-Ying Leu (1998), an interaction typically occurs between two people. As interactions occur more frequently, then the complexity of networks develop (Bronfenbrenner & Morris, 1998).

Bronfenbrenner & Morris (1998) explored Wachs’ study on the relationship between physical and psychological environments. On one hand, researchers discovered that the physical environment plays a direct role in how a person’s psychological well-being plays out. On the other hand, there is a reciprocating action occurring that a poor or positive psychological environment can effect the physical environment (Bronfenbrenner & Morris, 1998; Bronfenbrenner, 1977). Lemke (1994) states:

The more interdependent they are, both in numbers of interconnections and the strength of the interconnections, the less predictable the future of the system. When the couplings ‘loop back’ on themselves (e.g. changes in A produce changes in B, which produce changes in C, which in turn produce changes in A again), the system may grow in complexity, generating new global patterns and new information. (p.7)

Darling (2007) believes Bronfenbrenner did not focus his attention to the social relations, cognition, or biodevelopement. He is calling for more research to focus on the person at the epicenter of the system. There are three essential aspects of behavior. First, the more active the person is, the more apt he or she is to make the right choices for change. Second, perception is all in the eye of the beholder, in that what the participant perceives is the reality for him or her as compared to another person. Lastly, different environments bring different responses from the participant; Bronfenbrenner (1977) investigates this more closely within the mesosystem.

*Mesosystem*
The mesosystem steps out from immediate interaction and explore how a person changes in a different setting, such as the transition from home to school or work to church (Bronfenbrenner, 1977; Feinstein, Driving-Hawk, & Boartman, 2009). As each participant ventures from one setting to another, the researcher will notice and document consistencies or inconsistencies (Bronfenbrenner, 1977). Researchers then measure the amount and quality of the connections (Chau-Ying Leu, 2012). These connections between the two settings, more specifically the transitions, play an important part understanding how their roles change within the environment (Bronfenbrenner, 1977; Gabbard & Krebs, 2012).

**Exosystem**

Researchers must look beyond the immediate setting and investigate indirect forces in the environment, such as TV shows or radio (Bronfenbrenner, 1977; Feinstein, Driving-Hawk, & Boartman, 2012). The subject is not directly involved, but its contribution could still alter the person indirectly (Gabbard & Krebs, 2012; Bronfenbrenner, 1994). Participants’ involvement in various communities and activities could sway their decisions, such as sports, churches, and clubs (Chau-Ying Leu, 2008).

**Macrosystem**

The macrosystem then explores how societal norms interact with the participant (Feinstein, Driving-Hawk, & Boartman, 2009). Culture, customs, and laws can play a role in influencing an individual (Gabbard & Krebs, 2012; Chau-Ying Leu, 2008). At the macrosystem level, various other systems maybe compare (Bronfenbrenner, 1977). It is also here where goals and roles may be restructured with a trickle-down effect to the participant. (Bronfenbrenner, 1977).
Chapter 2: Review of the Literature

Introduction

Within the context of strategic planning, this paper analyzes the role rigor plays in a teacher’s pedagogical practice in the classroom. This analysis consists of a literature review of articles from peer-reviewed journals, ranging from case studies, theoretical pieces, and books, covering a period from 1762 to present day. This literature review identifies the complex aspects of pedagogical practices through an ecological systems lens. These findings suggest that research needs to be conducted at the elementary level to see how implementing a more rigorous curriculum can affect a teacher’s instructional practices.

21st Century Thinking

Marzano & Heflebower (2012) describe how 21st Century thinking can be divided into four skill areas: core subjects immersed with 21st Century Skills, learning and innovation, information media in conjunction with technology skills, and life and career skills. These skills emerged as a result of our changing world and lack of rigor in schools to meet the demands of society (Marzano & Heflebower, 2012). During the industrial revolution, Americans sought to build and create the best product in the world, however the shift in society is how to create and build collaboratively, not within the United States, but rather the world (Heflebower, 2012). Schools have been unable to address students’ individual needs, resulting in high dropout rates, lack of student engagement, and burgeoning achievement gaps.

A committee composed of members of the education; science, engineering, and research fields came together in 2012 to define 21st Century skills (Pellegrino & Hilton, 2012). The researchers established four essential skills students need to develop to compete in the 21st Century global economy. Students need to be able to think critically when problem solving,
communicate effectively, collaborate, and think outside of the box with innovation (Pellegrino & Hilton, 2012).

Teachers are tasked with helping students develop their thinking in order to transfer knowledge from the classroom to society and real-world applications (Pellegrino & Hilton, 2012). This in turn requires students to use their metacognition (Hacker & Dunlosky, 2003; Pellegrino & Hilton, 2012). Students must ask how, why, and when to apply the content and skills they have acquired (Pellegrino & Hilton, 2012).

Using the four essential skills as a framework, the committee established three domains of competencies to investigate how students successfully acquire and transfer knowledge (Pellegrino & Hilton, 2012). These competencies are where the standard is decomposed into the content and skill (Voorhees, 2001). First, there is the cognitive component dealing with metacognition and creativity (Pellegrino & Hilton, 2012). Next, is the interpersonal component, which assesses students’ ability to lead and/or collaborate (Pellegrino & Hilton, 2012). Lastly, the intrapersonal component assesses students’ flexibility in their thinking as well as their self-efficacy skills (Pellegrino & Hilton, 2012).

**Critical Thinking**

Critical thinking is described as reasonable, reflective thinking that is focused on a particular task, people, or beliefs (Pithers & Soden, 2000). There are four major components to critical thinking (Pithers & Soden, 2000). First, the student must identify the problem. Next, the student should take the problem and decompose it into clearer parts. Then, the student should analyze the problem and use deductive reasoning to create potential solutions to the problem. Lastly, the researchers indicate that students should participate in a reflection or evaluation of the
solution. Shamir, Zion, & Spector-Levi (2008) would also add a final step in which students integrate and formulate a plan to implement the solution.

In the classroom, there is a constant cycle of beliefs, judgments, and conclusions that make the essence of school (Pithers & Soden, 2000). Pithers and Soden (2000) assert that critical thinking should not be a subject in and of it, but rather incorporated into every aspect of schooling. Conversely, a study done of college professors and students found that there is not a clear understanding of what critical thinking entails (Pithers & Soden, 2000). These findings suggest that educators have not introduced students to critical thinking concepts such as flexibility in thinking, independence, focused learning, and open-mindedness, and students do not see the relationships among these variables (Pithers & Soden, 2000).

In order for critical thinking to develop, metacognition must be present (Pithers & Soden, 2000). Scaffolding plays an important part in developing metacognition because it bridges the gap between current understanding and what is needed to comprehend new knowledge (Heritage, 2010; Jonassen, 2011; Pithers & Soden, 2000). Vygotsky suggests there is a Zone of Proximal Development, a time when the student is able to develop skills needed for problem solving (Pithers & Soden, 2000). Scaffolding can help a student come closer to that particular zone by bringing up prior knowledge, modeling, or making connections (Jonassen, 2011; Pithers & Soden, 2000). However, high school teachers often do not understand the purpose of scaffolding and are unaware how or when to utilize it with their students (Pithers & Soden, 2000).

**Administrator and Teacher Interactions**

There has been much emphasis placed on the importance of effective teaching since the beginning of the No Child Left Behind Act (Benedict, Thomas, Kimerling, & Leko, 2013). Steiner (2013) found that students with subpar teachers only learn fifty percent of what peers
with effective teachers do. In fact, students placed in classrooms with inadequate teachers for two years in a row lose about a year’s worth of content and quality instruction (Steiner, 2013). With the implementation of the Common Core State Standards, now more than ever it is imperative to have good teachers (Grennon Brooks & Dietz, 2012). Grennon Brooks and Dietz (2012) define good teachers as:

Good teachers set up classrooms rich in opportunities for student to construct integrated knowledge transferable across discipline. They offer interdisciplinary, authentic investigations that provoke students to confront cognitive challenges in the pursuit of answers to their own questions. They invite students to think about ideas that matter to them and to resolve potential contradictions, and they help students develop the skills and dispositions to think about those ideas at an increasingly deep levels. (p. 65)

Policies created under No Child Left Behind fostered an era of deceptive teaching pedagogical practices (Grennon Brooks & Dietz, 2012). However, some researchers believe that policies within the No Child Left Behind Act are still in place under the current Obama administration (Grennon Brooks & Dietz, 2012; Benedict et al., 2013). The Race to the Top initiative provides incentives to states that achieve high scores on standardized achievements tests (Benedict et al., 2013). McDonnell & Weatherford (2013) believe that using high-stakes testing goes against the ideals of the Common Core and will reestablish inequity between the states. The Common Core State Standards were developed to achieve competitiveness in the global economy and educational equity amongst the states (McDonnell & Weatherford, 2013).

Steiner (2013) explains how the Common Core State Standards are for teachers to make critical decisions in developing a more rigorous curriculum. Thus, turn create higher-achieving students who use a deeper level of thinking. Teachers try using progressive methods to reach
rigor; however, some administrators struggle with seeing the progressive nature of the Common Core State Standards and Common Core State Standards, thus discouraging teachers from approach instructions with new approaches (Grennon Brooks & Dietz, 2013). Administrators will use standardized test to assess teacher achievement in meeting the demands of the curriculum (Steiner, 2013). Teachers argue that standardized tests do not successfully assess analytical skills, which are a primary focus under the Common Core State Standards (Steiner, 2013).

**Teacher Evaluations**

Teachers are still being evaluated based on the pedagogical practices that administrations mandate (Grennon Brooks & Dietz, 2013). These evaluation materials come from the same testing agencies that create standardized tests. Administrators may feel that standardized tests will increase student achievement, but the tests will only compartmentalize instruction so students cannot see how content and skills are connected (Grennon, Brooks, & Dietz, 2013). As a result, teachers are guiding instruction to the test, in turn creating disjointed instruction that lacks rigor.

**New York State’s Evaluation Reform.** The state of New York realized an error in their evaluation system where only 1% of teachers were rated unsatisfactory in their instruction, yet student test scores did not acknowledge these findings (Steiner, 2013). Leaders began to question how student achievement was poor and teacher competency was so high. As a result, the current evaluation process is weighted with 20% based on student achievement, while the other 80% is based on observations and professional responsibilities (Steiner, 2013). Steiner (2013) describes how most prospective teachers may feel the new evaluation model is less appealing, but due to the complexity of this evaluation it would allow for celebration of student
and teacher growth. Those who teach in content areas other than Math and English Language Arts are concerned, because a common curriculum in other content areas has not been developed (Ray, 2012). The new evaluation model would allow for teachers to be assessed on student achievement, but also through their reflective practices based on observations and professional responsibilities (Steiner, 2013).

**Proposed Teacher Evaluation Model.** Evaluations are important for teacher instruction, especially where there are checkpoints for teachers to gage their pedagogy (Benedict et al., 2013). These checkpoints can be formative, for teachers to learn what they can improve upon, and summative, as an overall evaluation of learning (Benedict et al., 2013). Benedict et al. (2013) details examples of formative assessments including observation checklists and peer reviews, whereas summative assessments can be portfolio reviews and standardized achievement tests.

Marzano (2013) developed a teacher evaluation model to coincide with the rigorous expectations of the Common Core State Standards. Within this new model there are four domains: classroom strategies and behaviors, planning and preparing, reflecting on teaching, and collegiality and professionalism (Marzano, 2013). Within the four domains there are sixty elements that teachers would need to demonstrate to prove effectiveness. Classroom strategies and behaviors focus on creating goals for students to track and attain. Teachers and students would celebrate success only once students have achieved the goals. (Marzano, 2013). Planning and preparing requires teachers to explore the content and skills they are teaching and prepare a scaffolded unit for students to develop a deeper understanding. Reflection on teaching asks for the teacher to maintain a professional growth plan while also evaluating his or her progress. Lastly, collegiality and professionalism explores the teacher’s collaborative nature in the greater
context of the classroom and school by sharing ideas and maintaining an encouraging environment (Marzano, 2013).

**Teacher**

**Rigor**

Blackburn (2013, p.10) defines rigor as “creating an environment in which each student is expected to learn at high levels, each student is supported so he or she can learn at high levels, and each student demonstrates learning at high levels.” On the contrary, Maye (2013) and Wagner (2006) state that there is no real tangible definition. The need for rigor is defined by the needs of the 21st Century and not by providing more work for the students, giving resources, and lessening support (Blackburn, 2013).

The idea of rigor came about with colleges and universities began noticing that first-year students lacked college-ready skills (Blackburn, 2013). Marzano (2012) explains how society is evolving from a manufacturing and hands-on concentration to focusing more on a culture of digital thinkers. Next, he explains how seven out of ten students will drop out of high school, with achievement gaps becoming ever more present. Lastly, student engagement is at an all-time low (Marzano, 2012).

As a result, the Common Core State Standards were created to address the lackluster and unchallenging courses being provided to students (“Common Core State Standards Appendix A Math,” n.d.). The Common Core State Standards (n.d.) believe that low-achieving expectations and low-level work do not create successful students. According to Maye (2013), the Common Core State Standards have a strong focus on rigor.

Never before in the history of education has rigor carried so much emphasis, and now teachers are unsure or question what level of rigor to use when teaching students these standards
(Maye, 2013). In a study of twelve classrooms, Maye observed that most teachers taught at a basic level of acquisition, some application, and no demonstration of adaptation in problem solving (Maye, 2013).

Blackburn (2013) suggests a number of ways to increase rigor. The teacher can raise the level of content with a deeper understanding and increase in complexity. Next, there must be adequate support by setting clear expectations and scaffolding in order to raise expectations. The higher the expectations, the higher the level of rigor may be attained (Matsumura, Slater, & Crosson, 2008). Based on increased complexity of the problem, the teacher must create an open mind and understand there is more than one answer for each problem.

**metacognition.** Metacognition is the self’s awareness and regulation of his or her thinking processes (Downing, Kwong, Chan, Lam, & Downing, 2009; Hacker, Dunlosky, 2003; Krause & Stark, 2010; Warfuing & Wretling, 2006). Metacognition falls under the overarching idea of self-regulated learning, which also includes goal setting and self-assessment (Loyens, Magda, & Rikers, 2008). Researchers describe two characteristics of metacognition. First, the self can attend to his or her thinking, as well as change his or her thinking based on what has been learned (Loyens et al., 2008). Downing et al. (2009) refers to this as executive processing. Second, the self is aware of how he or she thinks and is cognizant of the process others may experience (Downing et al., 2009).

Metacognition can be separated into three categories: 1) metacognitive knowledge, or what one knows; 2) metacognitive skill, or what one is doing; and 3) metacognitive experience, or one’s cognitive state (Downing et al., 2009). Dinsmore, Alexander, & Loughlin (2008) break down the third category into two stages: first, creating and identifying goals, and second, implementing strategies at a time of need.
Hacker & Dunlosky (2003) identify verbal forms of metacognition a student can experience while working on critical thinking problem. First the researchers explain how there are concurrent reports. When a student works on a problem requiring critical thinking skills, the student will describe, in detail, his or her thought processes as she or he analyzes and forms a solution (Hacker & Dunlosky, 2003). Next, the student can give a retrospective report (Hacker & Dunlosky, 2003). Once the critical thinking task is completed, the student can develop his or her thinking further through reflection (Hacker & Dunlosky, 2003). Lastly, Hacker & Dunlosky (2003) believe the student can take this new understanding and use the skill again in a future task, known as prospective reports.

While the student may partake in each of the different reports, there is a level of rigor that a student experiences in their retelling known at the level of verbalization (Hacker & Dunlosky, 2003). In level one, the students report their findings on a basic level (Hacker & Dunlosky, 2003). Hacker & Dunlosky (2003) describe level two as requiring the student to discuss in greater detail the actions that they are implementing. The level requiring the highest level of thinking is level 3, which requires the student to provide ongoing justification and rationale of the strategies and skills that he or she is implementing (Hacker & Dunlosky, 2003). Level three is an intricate part of metacognition because the student recognizes gaps in his or her thinking and fills the gaps with new thought processes.

Rigor is associated with achieving competencies (Wagner, 2006). Competencies are objectives students must demonstrate in order to prove mastery or move on to the next level (Wagner, 2006). Wagner (2006) suggests students use these competencies to generate questions to help them understand their needs for learning: What is the purpose of this lesson; why is this important to learn; in what ways am I challenged to think in this lesson; how will I apply, assess,
or communicate what I’ve learned; how will I know how good my work is, and how can I prove it; do I feel respected by my peers; do I feel respected by my teachers (Wagner, 2002).

**prior knowledge.** Linnenbrink-Garcia, Pugh, Koskey, & Stewart (2012) explain that prior knowledge is a combination of a student’s current understanding, ability to reason, and their dedication of the concept or idea. In order for conceptual learning to occur, the student must be able to alter his or her prior knowledge (Linnenbrink-Garcia et al., 2012). Prior knowledge is activated by taking long-term memories and returning it to working memories (Wetzels, Kester, Merrienboer, & Broers, 2011). Wetzels et al. (2011) refer to a unit of knowledge as a concept. The connectivity of concepts is what forms knowledge (Wetzels et al., 2011). The more the connections there are, the easier it is to link new thinking to prior knowledge (Wetzels et al., 2011). According to Song, Hannfin & Hill (2007), prior knowledge paired with conceptual change will help students develop a deeper sense of understanding. This conceptual change is critical in developing student learning (Song et al., 2007).

Lagattuta & Wellman (2001) explain how using prior knowledge to develop new thinking is formed during a child’s preschool years. The new knowledge is developed through bringing emotional experiences from prior knowledge (Lagattuta & Wellman, 2001). Typically these emotions are based on negative experiences, but are unusual and can’t be explained (Lagattuta & Wellman, 2001). In a study of middle school students, Song et al. (2007) discovered students with a higher sense of their prior knowledge and awareness of their own learning developed higher confidence when working on difficult tasks. The study also showed that students who are unable to connect knowledge with the task at hand have a more difficult time (Song et al., 2007). This is due to the lack of information they can draw upon in their past experiences (Song et al., 2007).
Students who do not use prior knowledge use existing memory to try and sort and categorize new thinking (Fazio, Barber, Rajaram, Ornstein, & Marsh, 2013). Fazio et al. (2013) conducted a study that suggests that all people possess the prior knowledge needed for conceptual change, but when it comes time to use it, people struggle or are unable to access it.

Haager and Vaughn (2013) explain how prior knowledge is extremely difficult to change. One can alter cognitive knowledge for conceptual change by using effective pedagogical strategies, student motivation, and using current understanding (Linnenbrink-Garcia et al., 2012). To teach for conceptual change, the teacher must have an understanding in pre-assessing their students’ prior knowledge (Wratten & Hodge, 1999; Wright & Bilica, 2007). The teacher must also incorporate/build upon these conceptions through scaffolding (Wright & Bilica, 2007). Wright & Bilica (2007) stress how teachers must help students understand their own learning, unveil misconceptions, and restructure old conceptions by using tools such as a graphic organizer, student-generated questions, and concept maps.

**teacher prior knowledge.** Not only does prior knowledge factor into student learning, but it also plays a role in the way teachers deliver instruction in the classroom. This is often referred to as pedagogy competency and professional knowledge (Jutter, Boone, Park, & Nehaus, 2013). Professional knowledge can be decomposed into seven categories: content, general, pedagogical, curriculum, pedagogical content, knowledge of learners, knowledge of educational context, and educational ends, purposes, and values (Jutter et al., 2013).

Some educators become disenchanted with teaching because they originally envision passing worksheets out to students and enjoying plenty of vacation time (Reybold et al., 2006). New teachers are facing a reality of the complex nature of developing professional knowledge. Pedagogical content knowledge is the understanding of how to bring the content to the level of
the student (Kleickmann, Ritcher, Kunter, Elsner, Besser, Krauss, & Baumert, 2012). Content knowledge itself is not enough to be a successful teacher, but rather pedagogical content knowledge is complex and demonstrates a level of rigor in understanding for a teacher (Jutter et al., 2013). A teacher’s pedagogical content knowledge is formed based on personal K–12 experiences, teaching development, and teaching experiences (Kleickmann et al., 2012; Reybold, Flores, & Riojas-Cortez, 2006).

**trust.** A student’s environment is essential in developing metacognition (Raider-Roth, 2008). Conditions that support metacognition from the literature are trust and conceptual change (song, Hannafin, & Hill, 2007; Raider-Roth, 2008). Raider-Roth (2008) explains that the learning of the “self” occurs in the classroom. It is through the development of trust in which a student can develop into a rational learner (Raider-Roth, 2008). In other words, the student must trust his or her understanding in order to challenge beliefs with learning and/or collaboration (Raider-Roth, 2008). Once the student has developed this sense of trust, he or she can fully connect with the learning by initiating actions, making meaning from experiences, and developing an awareness of his or her own learning (Raider-Roth, 2008). Classroom climate has a direct correlation in fostering a more rigorous curriculum (Matsumura, Slater, & Crosson, 2008).

Trust can be created in a number of ways. Researchers state the classroom environment must be student-centered to allow students to practice their ideas and respond to others’ ideas, through which they can develop their voice. Raider-Roth (2008) describes a study where students in K–12 show a higher level of achievement based on their positive relationships with others. Good relationships help students form valuable experiences that they can draw upon and challenge their new thinking, also known as Dewey’s Reflective Theory (Raider-Roth, 2008).
As stated by the author, the trusting environment creates a student who does not need a facilitator, but rather an intrinsic drive to teach him or herself.

Blackburn (2013) suggests there is a cycle of success that a student must experience in order to develop trust. First the student and/or the teacher must set goals. The goals can then be achieved. As the student realizes he or she is achieving, then his or her self-confidence will increase. In turn, he or she will have a willingness to set new goals and repeat the cycle again.

Song et al. (2007) stresses the importance of the relationship between the teacher and student. While metacognition can be unique between individuals, there must be a balance between these different kinds of learning (Song et al., 2007). There are two types of reconciliations: unilateral reconciliation, in which either the teacher or the student makes efforts, and mutual reconciliation, which include efforts by both the teacher and student (Song et al., 2007). These reconciliations are imperative in the development of conceptual change.

**depth of knowledge.** Roach, Elliot, & Webb (2005) and Webb (2002, 2007) suggest there is an alignment between pedagogy, curriculum, and assessment. He defines alignment as a “degree to which expectations and assessment are in agreement and serve in conjunction with one another to guide the system toward students learning what they are expected to know and do” (p.1).

In order to understand the level of rigor to which a teacher is to deliver instruction, Webb (2002, 2007) developed the Depth of Knowledge levels. These levels are used to explain the level of rigor the student must use to understand the content and skills. At the most basic level is recall, in which a student utilizes a simple procedure or (Webb, 2002, 2007). The next level is the demonstration of skill or concepts (Webb, 2002, 2007). Students utilize mental processes that go beyond a quick response, usually requiring more than one step. At the third level,
students tap into their strategic thinking by reasoning and planning complex and abstract ideas or problems (Webb, 2002, 2007). The final level is identified as extending thinking (Webb, 2002). Here students use all of the previous levels together over a long period of time. Though there is no said progression of levels, the first two are generally mastered in the primary grades, while level three and level four are demonstrated in the upper grades (Webb, 2007). Typically, level four is found at the high school level.

At the curricular level it is important to create a student-centered learning environment (Webb, 2002). To accomplish this teachers much align the curriculum based on the needs of their students. According to Webb (2002), this alignment can help students understand and answer questions on a much deeper depth of knowledge. In making curricular decisions, the teacher must understand their teaching strategy and question the concepts and skills they are teaching. Webb (2002) suggests that teachers dive into their standards to see if they are addressing some aspects greater than others. If this is the case, then there might be gaps in the students’ understanding.

Lastly, curriculum should be taught in a way that students can build upon prior knowledge (Webb, 2002). Students cannot make a connection with ideas or skills if they have had no exposure in the past. For example, if a child lives in New England, it may be difficult to use contextual examples from California if the child has never visited.

**social emotional learning.** Trust is an essential skill to allow a student to develop metacognition. In order for the student to recognize his or her idea(s), he or she must trust the ability to formulate new concepts (Raider-Roth, 2008). Raider-Roth (2008) discusses the importance of trust in developing a student’s self-efficacy. Teachers must recognize the student’s social emotional needs in order for them to expand their metacognition (Zins, Bloodworth,
Weissberg, & Walberg, 2007). Researchers indicate that social emotional learning is a process through which a student can begin to recognize and manage his or her emotions in order to make positive choices, act in a responsible manner, and to recognize and avoid potential negative behavior or consequences.

However, for social emotional learning to be effective, the teacher must help the student develop metacognition or a self-awareness of his or her actions (Zins et al., 2007). This comes with understanding how to maintain trusting relationships and make responsible decisions (Zins et al., 2007). Researchers suggest that by creating a positive environment, the contextual features will help promote these elements. In turn, students will build confidence to develop metacognition to confront a problem-based learning activity.

**Pedagogy**

Simon (1987) defines pedagogy as the implementation of strategies, tools, principles, and assessments of a curriculum. Both the teacher and the student are active participants in learning (Ottey, 1996). Pedagogy is knowledge that is socially constructed based on the needs, ethics, and collaborative nature of society (Miskovic & Hoop, 2006). For the purpose of this research, society is defined as the students within the classroom.

Dockter, Haug, & Lewis (2010) explain how pedagogy allows students to attain a deeper understanding by permitting students to build their own understandings. Pedagogy is also used to allow students to collaborate in meaningful ways (Dockter et al., 2010). Students are encouraged to use critical and creative thinking through a high degree of rigor (Dockter et al., 2010). Through the use of this critical thinking and reflection, students are able to embrace challenges, feel respected and trusted, are able to connect with societal expectations, and deliver meaning to an authentic audience (Dockter et al., 2010).
**self-regulated learning.** Students engage in self-regulated learning when they are in control and are actively engaged in their learning through goal-setting and awareness of their thoughts, feelings, and actions (Loyens, Magda, & Rikers, 2008). The teacher displays the standards for the students and they set goals for themselves (Loyens et al., 2008). The researchers explain that these goals help direct the students in constructing a solution to the problem. As a result, the student can identify and manipulate the variables in order to succeed (Loyens et al., 2008).

Problem-based learning is a form of self-regulated learning (Loyens et al., 2008).

Problem-based learning is built on a framework designed by progressive thinkers Dewey and Rousseau. Child-centered learning can help a student develop in a more natural and rigorous manner (Dewey, 2001; Reese, 2001; Rousseau, 1762). Dewey (2001) and Rousseau (1762) allude to the how students use metacognition to fill their inner curiosity of how things work. Marzano & Heflebower (2012) believe problem-based learning develops 21st Century skills in that it focuses more on complex material that forces learners to make deeper meaning.

Dewey discusses the importance of the student finding meaning behind what he or she is learning (Dewey, 2001). Dewey (2001) feels there is a disconnect in traditional education because students are not applying skills taught to “nature” or society. Dewey and Pestalozzi share the concept that it is important to expose the student to real life experiences (Dewey, 2001;
Reese, 2001). Dewey (2001) describes how a student can “become blasé, lose his natural hunger for the simple things of direct experiences…” (p.78). He depicts a diagram to explain how the home, experience, and discussion play a role in a deeper understanding.

Rousseau (1762) views the student as an independent learner. He suggests that the student comes into the classroom as a clean slate (Rousseau, 1762). The teacher facilitates in the development of self-worth and trust through modeling and experiences (Rousseau, 1762). Rousseau (1762) explains that the relationship between the teacher and student is a collaborative one; the teacher is not an authoritarian. At younger ages, students should be encouraged to take risks and try alternative assessments blame should not be placed on the student for his or her lack of understanding, but rather, the question is how the teacher bridges the student’s current understanding to the new ideas (Rousseau, 1762).

At its core, problem-based learning is student-centered instruction that is based on an authentic, real world problem (Gijbels, Dochy, Van den Bossche, & Segers, 2005; Shamir, Zion, & Spector-Levi, 2008; Vos & Graaff, 2004). Students can form collaborative groups as a tool to uncover new information (Gijbels, Dochy, Van den Bossche, & Segers, 2005; Shamir et al., 2008). As the students are problem solving, the teacher takes on the role of facilitator (Gijbels, Dochy, Van den Bossche, & Segers, 2005; Shamir et al., 2008). Problem solving is the process of accomplishing a goal when obstacles occur, as defined by Marzano & Heflebower (2012).

Problem-based learning was developed in Canada during the 1950’s and 1960’s in the medical field to allow students to practice in an authentic learning environment (Gijbels et al., 2005; Jonassen, 2011; Loyens et al., 2008; Shamir et al., 2008). Years progressed and problem-based learning branched out into other career areas (Gijbels et al., 2005). Gijbels et al. (2005) explains that students become experts in two ways. First, they become more flexible in thinking
about the type of problem, and second, students become experts in a specific area of study (Gijbels et al., 2005).

Teachers guide instruction through the use of problem solving skills (Shamir et al., 2008). Students will first interpret the problem. Next, students will gather information on the topic to develop prior knowledge (Jonassen, 2011; Loyens et al., 2008; Shamir et al., 2008). Once information is attained, the students will collaboratively work together to identify a possible solution (Shamir et al., 2008). Based on their research, students will evaluate all of the different options (Shamir et al., 2008). Lastly, students will present their findings and conclusions (Shamir et al., 2008).

Shamir et al. (2008) suggests that math is more suitable for problem-based learning; however, others argue that integration of all subjects can be easily implemented (Bramante & Colby, 2012). In addition, according to Shamir et al. (2008) the younger the student, the more apt they are to adapt to problem-based learning due to their intrinsic desire to understand how things work.

scaffolding. Jonassen (2011) describes problem solving as a complex network of relationships that has two key parts: the internal and external factors of a problem. Internal factors deal with the student’s prior knowledge, experiences, thinking skills, learning styles, and metacognitive state (Jonassen, 2011). External factors pertain to the problem’s viewpoint, configuration, depth of knowledge, and framework (Jonassen, 2011). Strategies used to bridge the gap between current understanding and preparing for new information may vary depending on the form of problem-based learning, thus affecting the student’s ability to understand the task at hand (Heritage, 2010; Jonassen, 2011).
To create a classroom climate of critical thinkers, teachers must scaffold students in understanding the language of thinking (Tisman, Perkins, & Jay, 1995). The researchers find that critical thinking words such as “believe,” “guess,” and “conjecture” are used sparingly. Teachers must model, explain, collaborate, and provide feedback. In the classroom, teachers should embrace the curious nature of children (Tisman et al., 1995).

There are several ways a teacher may scaffold in problem-based learning (Jonassen, 2011). First, the teacher can create a purpose of learning for the student (Jonassen, 2011). A clear purpose can help a student set goals to achieve (Loyens et al., 2008). Work examples and case studies presented to the students can assist them in developing prior knowledge and help create a draft of a solution (Jonassen, 2011). Jonassen (2011) recommends that teachers provide students with experiences to build upon, such as field trips or in-classroom expert visits. Students can experience simulations that provide new or alternative perspectives to the problem (Jonassen, 2011).

**cognitive scaffolds.** In addition to developing prior knowledge as a base for student learning, teachers can also create cognitive scaffolding to help students prepare for metacognition (Jonassen, 2011). By helping students make connections to the relationships in the problem and/or to previous problems, students will find themselves to be more successful, as stated by Jonassen (2011). Students may need assistance in everyday reasoning such as examining the different parts of the problem and/or the cause and effect relationships that are occurring (Jonassen, 2011). Jonassen (2011) recommends that teachers allow students to get into debates in order to rethink their own viewpoint from a different perspective. Teachers can also scaffold by having the student participate in a questioning dialogue or observe a teacher who is modeling the particular skill (Jonassen, 2011).
**Collaborative Discussions.** Collaborative discussions can occur between the teacher and student, parent and student, and/or student and student (Hmelo-Silver & Barrows, 2008). Hmelo-Silver & Barrows (2008) describe questions as the first component to collaborative discussions. Questioning can help stimulate discussion, but the researchers caution that questions should not be constraining. Questioning can either hinder or open the student’s mind to new perspectives (Hmelo-Silver & Barrows, 2008). Next, students must assert their ideas and describe the way the thinking has been changed or perhaps extend the thinking of another idea (Hmelo-Silver & Barrows, 2008). Lastly, students must be transparent in their thinking by making their thought processes more visible in an appropriate way that is acceptable to group members, such as by verbalizing or creating a diagram (Hmelo-Silver & Barrows, 2008).

**Parent Collaboration.** In a study conducted by Hayden, Johnson, Howard, Frizzell, Grant, Farmville, & Mallard (2014) parental involvement is directly correlated to student achievement. The researchers found that parents who participated within math information nights and build math activities for use at home and school supplied tool kits. Parents were able to take these pieces home to help increase parental involvement between the home and school.

Kirst (2014) describes the importance of schools being transparent with parents. Schools can do this by providing clear feedback on new assessments. New assessments are believed to be more trustworthy in identifying if a student is on the road in being high school and college ready (Kirst, 2014). The research uses California as an example in how they use parental involvement as a supplemental indicator in test scores.

Schools can collaborate with parents by creating informative math nights (Hayden et al., 2014) and by providing feedback on student learning (Kirst, 2014). By doing so, parents would
be more inclined to become more involved in student learning. In turn, student achievement would increase.

**Student Achievement**

**Formative and Summative Assessment**

Student achievement can be assessed using two forms, summative and formative (Callingham, 2008; Gioka, 2009). Summative assessment is “of” learning (Callingham, 2008). It can be used in curriculum development for identifying the strengths and weaknesses of a program. An example is standardized tests. Formative assessment is “for” learning (Callingham, 2008). This includes short answers, performances, and observations (Bakula, 2010). There is concern that summative assessments distort classroom instruction because some teachers view classwork as summatively rather than formatively (Gioka, 2009). Vice versa, some teachers view observations as not an authentic form of assessing (Gioka, 2009).

Roskos & Neuman (2012) explain how formative assessments involve “making judgments about the quality of student responses (performances; student work) and using those judgments immediately (mainstream in instruction) to guide and improve students’ understandings and skills” (p.534). The primary difference between formative assessment and summative assessment is that formative assessment is used in real-time, specified Roskos & Neuman, 2012).

Formative assessments help highlight student gaps in order for teachers to address an individual child’s particular need (Bakula, 2010; Roskos & Neuman, 2012.) Gioka (2011) explains how the formative assessment shows the student’s current understanding, points the teacher in a direction to teach the student, and what pedagogical practices may be used. By utilizing various forms of formative assessment, the teacher will have a clearer understanding as
to the student’s present level of performance (Roskos & Neuman, 2012). If there is confusion in a student response, the teacher should ask for clarification from the student and create a dialogue for a deeper understanding (Alonzo, 2011). Alonzo (2011) uses the following example for clarification. The teacher may ask the students, “What do plants need to survive?” A student may respond with “food and sunlight.” The teacher would then want to ask the student to be more specific about what he or she means by “food.”

In understanding the student’s context, the teacher is able to create a learning hierarchy, or learning progression, by looking at the standards and placing them in a meaningful way to develop rigor for the student (Alonzo, 2011; Roskos & Neuman, 2012). In a study conducted by Bakula (2010), seventh grade students showed improvement with the use of formative assessment and feedback.

**feedback.** Gioka (2009) states, “Teaching is about helping students to learn and improve” (p. 425), and thus formative assessment provides immediate feedback allowing for self-reflection. Data collected through assessment has two purposes: information on the student and providing feedback to the student (Gioka, 2009). The teacher and student should be clear on goals by creating a feedback loop with one another consisting of modeling, instruction, and student-centered learning (Gioka, 2009; Roskos & Neuman, 2012). Callingham (2008) stresses the importance of dialogue and feedback in an assessment.

He continues to explain how feedback must tell the student not only what they need to do, but also what they can do. However, Callingham (2008), cautions that in order for the feedback loop to be complete, the student must reciprocate by acting upon the feedback. Telling a student that he or she did not get the problem is not enough, but rather the teacher must explain why the problem is incorrect (Bakula, 2010). Using consistent feedback allows for the student to
understand what he or she can do to improve on the summative assessment (Bakula, 2010). Feedback allows for students to identify their own needs and assess their own skills independently (Gioka, 2009).

**Reflection**

Reflection is considered to be the key in developing metacognition (Fox & Riconscente, 2008; Krause & Stark, 2010; Papinczak et al., 2007; Pithers & Soden, 2000; Song et al., 2007). Krause and Stark (2010) define reflection as a metacognitively controlled activity or monitoring and regulating one’s own learning. This mindfulness helps to attend to the subject at hand (Krause & Stark, 2010). During reflection, students purposefully take prior knowledge and change it conceptually based on the new experience through analysis and synthesis (Fox & Riconscente, 2008; Pithers & Soden, 2000). According to the researchers, if a teacher provides feedback on a problem, the feedback itself does not necessarily guide students to reflection. Students who work alone and are left to their own devices to reflect do not succeed academically (Krause & Stark, 2010). Students must have support from their teacher, such as scaffolding, to help connect existing understandings to new knowledge (Heritage, 2010; Jonassen, 2011).

**Summation**

The 21st Century is upon us, and the need to keep up with the global economy is placing pressure on students in American schools. In response to this need, the Common Core State Standards were released. There is an increased demand on teachers to implement a more rigorous curriculum and create more rigorous instructional practices in the classroom. Communication between the administrator and the teacher must be that of a reflective nature. By using more reflective practices in teaching, the teacher is able to incorporate practices into the classroom that are student centered and seek to increase student achievement. Where summative assessment has
a place in schools, there is a loud cry for a more formative use of assessment in the classroom. The formative assessment demonstrates student achievement in real-time, allowing for constant feedback between the teacher and the student. In turn, the student can use self-reflection in understanding his or her needs.

The literature suggests there is a gap in what teachers consider to mean a more rigorous curriculum. Though the Common Core State Standards were adopted, there is an interpretation that must happen at the state level, the district level, the administrative level, the teacher level, and the student level. More information is needed to understand the ways teachers can improve instructional practices in order for students to attain the Common Core State Standards at a higher depth of knowledge. There is also a need to identify how elementary teachers are using formative assessments to drive instruction within the classroom to achieve a more student-centered environment.
Chapter 3: Research Design

Methodology

The Common Core State Standards were created to bridge an equity divide in the United States in order for students to attain skills needed to live in the 21st Century: innovation, collaboration, communication, and critical thinking (Krause & Stark, 2010; 21st Century Skills Map, 2011). As a result, states, districts, administrators, and teachers have been trying to understand how to teach the standards (Wagner, 2006). Teachers are expected to teach at a level of rigor that has not been expected of students in the past (Reybold, Flores, & Rojas-Cortez, 2006). It is up to teachers to interpret these standards and deliver content and skill instruction for students to comprehend at a deeper level (Wagner, 2006). The purpose of this study is to explore what an elementary teacher does to implement the Common Core State Standards within the state of New Hampshire.

Overarching Research Question:

Overarching Question—

What does it look like when elementary teachers in New Hampshire implement Common Core State Standards?

Research Design

Qualitative research is used to develop a relationship between the researcher and the subject (Creswell, 2012; Pontorotto, 2005). As the relationship is established, the research is able to learn from the perspective of the subject. This study will investigate the ways elementary teachers are incorporating a more rigorous curriculum under the Common Core State Standards. There is a new added focus on implementing a curriculum that has a deeper breadth of
knowledge (CITE). As a result, there is little research currently showing how teachers are implementing a more rigorous curriculum.

Metacognition is how the self is able recognize its own thinking and how the self is able to regulate it (Downing, Kwong, Chan, Lam, & Downing, 2009). Ponterotto (2005) explains how reality is a formation of the human consciousness. It is with this reasoning that the study is using a constructivism-interpretive paradigm. Burrell & Morgan (1979) explain how the interpretive paradigm dives into “…depths of human consciousness…” (p. 31). To truly understand the teacher’s point of view, the researcher must deepen the relationship and explore the subject’s social world (Burrell & Morgan, 1979). The authors suggest that one gains a true understanding when experiencing through a person experiencing an event. By using a postmodern perspective, the researcher investigates the varied perspectives each subject presents (Creswell, 2007). In turn, the researcher is able to break dialogue into meaningful pieces Creswell (2007). Deep reflection of lived experiences is needed for researchers to glean a true understanding of reality (Ponterotto, 2005). The pieces formulate relationships to uncover hidden themes (Creswell, 2007).

Research Tradition

“The core understanding is learning what people make of the world around them, how people interpret what they encounter, and how they assign meanings and values to events or objects” (Rubin & Rubin, 2012, p. 19). Interviewing pays homage to the participant’s story by allowing the participant to reflect upon their experience (Seidman, 2006; Smith, Flowers, Larkin, 2009). A researcher may observe a behavior, but interviews provide a researcher with a deeper understanding by knowing the rationale behind behavior and thoughts occurring throughout an event (Seidman, 2006).
The goal of a researcher was to gather meaning through the use of open-ended questions that require a depth of vivid answers (Rubin & Rubin, 2012; Seidman, 2006; Smith, Flowers, & Larkin, 2009). “The primary way a researcher can investigate an educational organization, institution, or process is through the experience of the individual people…” (Seidman, 2006, p.10). Researchers seek details by pursuing fine points by seeking out the particulars (Rubin & Rubin, 2012). It is through the details researchers seek to inquire a richer detailed account to examine “layers of meaning, gradually unpeeling the onion to get to the heart of the matter” (Rubin & Rubin, 2012, p. 103). In turn, researchers seek out cause and effect relationships.

**Interview Versus Everyday Conversations.**

Interviews are different than regular conversations because the researcher is seeking more clarification in specifics, such as pronouns, and providing a summary through each transition (Rubin & Rubin, 2012; Smith, Flowers, & Larkin, 2009). A researcher may listen to an example, an event that explains an idea, but will inquire a more in depth response (Rubin & Rubin, 2012). The interviewee may tell a narrative, telling a story from his or her perspective. The story is a narrative that is told everyday that may be inconsistent, but the moral or point of the story is valid.

**Participants**

At the chosen site, there are five elementary schools with six grade levels ranging from kindergarten to fifth grade. There were twenty-nine classroom teachers with an average of about 5 classrooms at each grade level. The researcher requested three to five fourth grade teachers. Three to five participants were considered purposeful sampling of the elementary teacher at a single school district site.
For this research, implementing a more rigorous curriculum at the elementary level is identified as the phenomenon. Creswell (2007) recommends a case study should not be more than four to five participants. “This number should provide ample opportunity to identify themes…” (Creswell, 2007, p.128). This case study identifies the bounded case as the typical elementary teacher.

The bounded case is within a single school district site. Purposeful sampling is used to select participants to participate in the study to understand the central phenomenon (Creswell, 2012). The researcher will email the teachers at the fourth grade level. The teachers to respond first shall participate in the study.

Recruitment and Access

Wherein the researcher is also a teacher at the site, teachers are apt to feel more comfortable in participating in the study. Rubin & Rubin (2012) explain how participants who have a good rapport with researchers are more likely to be trustful of the study. A notice was emailed to all forth grade teachers within the site using the researcher’s university email address, see Appendix B, about an opportunity to participate in a study. The researcher informed the teachers of the purpose of the study and the sequence of events. Teachers who wish to participate were provided an informed consent form to sign. The first 3-5 teachers who responded to the email can participate in the study. Those who would like to participate after the participants have been selected were placed on a list of alternates. Consent was obtained from the participants prior to the first interview.

To gain access to the site and participants, the researcher presented the study to the site’s Assistant Superintendent. Once the Assistant Superintendent approved the study, she then presented the study to the School Board for their approval. The site’s five elementary principals
and the School Board must maintain constant communication in order for the researcher to obtain continued access to the participants. Upon approval, Northeastern University’s Internal Review Board approved the study.

**Data Collection**

Rubin & Rubin (2012) describe responsive interviews as a style of interviewing that builds a relationship of trust between the researcher and the interviewee. Most interviews are between forty-five to ninety minutes in length where the interviewee is primarily speaking (Smith, Flowers, & Larkin, 2009). There are various stages to an interview (Rubin & Rubin, 2012; Smith et al., 2009). Typically there is an introduction or a first interview, questioning, and then the closing.

Within the introduction, the researcher is transparent with the purpose of the research and the purpose of the interview (Rubin & Rubin, 2012). Trust is developed within this stage so the interviewee feels comfortable and is willing to share personal experiences by acknowledging his or her feelings. Rubin & Rubin (2012) stress the importance for the researcher to show empathy, physically and verbally, and listen to what is being said.

The questioning stage has phases that help the researcher get to a level of depth needed for a quality set of data (Rubin & Rubin, 2012; Smith, Flowers, Larkin, 2009). The researcher may use a set of main questions that get to the heart of the study and use follow up questions to allow for clarification of a narrative (Rubin & Rubin, 2012). Questions should be open ended to allow the participant to expand upon their ideas (Creswell, 2012). If the conversation seems to deviate from the topic, the researcher may use probes to guide the conversation in the correct direction. The researcher will maintain a consistent interview using these forms of questions and balanced transitions (Rubin & Rubin, 2012; Smith et al., 2009).
To begin the line of questioning, the researcher must start with questions that are easy, important to the interview, but not difficult, and builds confidence. Once confidence and trust has been built, the researcher is able to begin asking difficult questions. Rubin and Rubin (2012) state, “A sensitive question might concern a cultural taboo…failures, loses, or defeats” (p110). Difficult questions should only be brought up until late in the interview, the line of questioning has brought the researcher to a good point, or the researcher is being direct (Rubin & Rubin, 2012).

The interview should end on a less serious note, so the researcher must bring the line of questioning back to simpler questions and to see if the interviewee has anything to add that he or she feels the researcher may have neglected (Rubin & Rubin, 2012; Seidman, 2006; Smith, Flowers, & Larkin, 2009.) Lastly, end the interview open ended allowing the researcher to allow for member checking or clarification of ideas.

Data Storage

The researcher ensured all data collected was kept in a secure manner. Digital notes and recordings were saved in a secure database. Folders and documents created on a computer were password protected and only the researcher possessed the password. Paper copies and a flash drive containing digital copies were kept in a locked filing cabinet. Only the researcher possessed the key. Data collected during the interview process was transcribed by a professional transcription service named REV. Voice recordings were sent via a network connection on a secured server. REV ensured confidentiality upon all materials submitted. Upon the completion of the study, the researcher will destroy all data in an appropriate manner to ensure confidentiality of the participants within a year’s time.

Data Analysis
Interpretive phenomenological analysis allows for a researcher to observe how a person interprets their own life experiences and how a person reflects upon those experiences (Creswell, 2007; Smith, Flowers, & Larkin, 2009). The suffix “ology” stands for the study of and phenomena is experience, hence the study of the experience. The researchers uses their own experiences to interpret the event being observed (Smith et al., 2009).

Reality is based on the person experiencing it (Creswell, 2007; Smith et al., 2009). In turn, it is invaluable to observe an experience within its raw environment. Smith et al. (2009) describe a method to interpret the experience. First, the research must not take things for granted, but rather dissect every word. Next, reexamine an experience through specific and different lens in order to analyze data more critically known as reductions. Then, eidetic reduction allows for the researcher to analyze what lies underneath the individual’s perceptions. Lastly, the transcendental reduction goes into the consciousness itself.

With the transcribed data from the interviews, the researcher will follow Creswell (2007) and Smith et al.’s (2009) steps in interpretive phenomenological analysis. In step one, the researcher will read and reread the transcribed data. This allows for the researcher to focus upon the participant and maintain the level of rapport developed from the interview. Step two is identified as initial noting, Moustakas (1994) refers to this step as horizontalization. The researcher will reread the transcribed interview scribing notes about the participant descriptions, linguistics, and conceptual thinking. Next, step three is the development of emergent themes. Saldaña (2013) describes this as first cycle coding. The researcher will use a first cycle coding system known as first In Vivo Coding. In Vivo Coding uses the exact wording of the participant (Saldaña, 2013). This is imperative for the study, because it shows the value and respect for the participants’ perspective of their understanding. In step four the researcher searches for
connections across emergent themes. Saldaña (2013) describes this as second coding or as Moustakas (1994) identifies as developing clusters of meaning. The researcher utilizes Axial Coding as the method for secondary coding. The researcher analyzes codes and places them within common themes as they emerge (Saldaña, 2013). Step five asks the researcher to respect each participant by treating each of their perspective separately, as if it were its own. Lastly, step six involves the researcher looking for patterns across the various cases.

**Trustworthiness**

The purpose of this study was to explore what elementary teachers do to implement the Common Core State Standards within the state of New Hampshire. Research conducted within the study is that of a sensitive nature as it explores the reflective processes of elementary teachers. As a result, the researcher aims to ensure trustworthiness and validity. This section discusses the triangulation of the study, as well as threats to internal and external validity.

Researchers use triangulation to produce more truthful results from the various data points they collect (Creswell, 2012). Yardley (2000) describes four principals in maintaining validity within a study. First, the researcher paid close attention to all details by following good interview procedures, listening to what the interviewee has said and select the most appropriate theme to describe the interviewee’s portrayal. Next, the researcher practiced commitment and rigor by being respectful of the needs of the participants’ words and time by having a good analytic eye when exploring the data. Third, the researcher was transparent and coherent with the participant. Lastly, the researcher stressed the impact and the importance of the research.

To also ensure validity, the researcher provided member checking. Member checking allows for participants to verify accuracy of the data used in the study (Creswell, 2012). Each participant was able to sit with the researcher to approve whether the account was accurate as to
what he or she experienced. Member checking is completed in a non-researcher friendly manner; the researcher created a web for teachers to evaluate. The center of the web was the overarching theme. Coming off of the theme was the In Vivo Code correlated with the particular theme. The webs were presented in bright colors using a user-friendly font. The participants then evaluated the webs for accuracy. If a theme was unclear to the participant, the researcher provided a definition.

The researcher asked for assistance from a fellow colleague for an external audit. An external audit is where “the researcher hires or obtains the services of an individual outside the study to review different aspects of the research (Creswell, 2012, “How Do You Validate The Accuracy Of Your Findings?”). In the case of this study, the researcher had a teaching colleague review the themes developed from the data. The researcher took the colleague’s evaluation into consideration when analyzing the findings.

A threat to validity refers to how the researcher may come to false conclusions based on contextual factors out of the researcher’s control (Creswell, 2012). For potential threats to internal validity, teachers may act a certain way with their colleagues versus students. In addition, maturation may occur in the study where teachers will grow and learn throughout the activity (Creswell, 2012). The researcher was cognizant of the maturation levels of each of the participants through the use of a research journal to reflect on the participants’ cognitive growth. The participant may respond to a question with what they believe the researcher wants to hear as opposed to what they really experienced. However, if the researcher is present and involved in the problem-based learning activity, then the participants will be familiar with the researcher and are more apt to provide honest responses.
Bias may form because of the familiarity with the researcher and the participants. As a result, the researcher must ensure he approaches the study with an unbiased perspective. The researcher posits that being a teacher involves having students succeed to their highest potential, and that also being a facilitator can help students use reflective thinking. Participants may choose to leave the study for lack of interest, prior commitments, and/or frustration levels. Using the research journal, the researcher considers the experience from participants who drop out in relation to those that remain in the study.

“Threats to external validity are problems that threaten our ability to draw correct inferences from the sample data to other persons, settings, treatment variables, and measures” (Creswell, 2012, “Threats to External Validity”). The population of this study was elementary teachers. All elementary teachers at the site had an opportunity to be part of the study. The setting of the study posed a threat, because not all elementary schools had the same resources as the one used in this particular study. Also, the researcher is also employed within the school.

**Protection of Human Subjects**

Site permission was obtained through the school board. A letter of intent was delivered to the Assistant Superintendent, see Appendix A, to be presented to the school board, per district policy. Data was not collected until approval was granted from Northeastern University Internal Review Board and the school board.

To ensure the protection of the vulnerable population, there was constant transparency with the participants involved. To be equitable all fourth grade teachers located at the site had the opportunity to be part of the research. An email was sent, from the researcher’s university email, to the teachers, which informed them of the researcher’s purpose, see Appendix B. Participants were accepted in the order their applications were received. Participants who submitted beyond
the capacity were informed of an alternate list. Participants who were accepted were given an informed consent form to sign, see Appendix C.

The researcher communicated to the participants the benefits of the study. These benefits included examining critical thinking skills, making curricular connections, and utilizing reflection. First, the participants were exposed to higher-level critical thinking skills to challenge their mindset. Next, participants made connections to their learning via a real-world activity. Lastly, participants reflected on their thinking in a new way.

To certify there is no coercion of the teachers to participate in the study, the researcher communicated that employment status would not affected based on participation or outcomes of the study. Also, the researcher emphasized that participants may opt out of the study at any time. The study takes about five days. Participants were aware that they could voluntarily withdraw from the study at any time.

To ensure the participant feels confident, the researcher allowed the teacher to select his or her own “study name” to be used as a pseudonym through the study, to give the teacher a sense of ownership in his or her confidentiality. In order to respect the participants in the study, they were given a snack and drink prior to the interview. The level of risk was low for this study and sought an expedited internal review board approval.
Chapter 4: Research Findings

This chapter presents the findings of the research conducted, exploring how elementary teachers within the state of New Hampshire are implementing the Common Core State Standards. The overarching question that guides this study is: what does it look like when elementary teachers in New Hampshire implement Common Core State Standards?

The chapter begins with a description of how four fourth grade teachers are actively implementing the Common Core State Standards, followed by an analysis of those interviews. Interpretive phenomenological analysis follows a six-step process to reveal themes from a person’s experience (Smith et al., 2009). These steps include: reading and reading transcribed data, initial noting, development of emergent themes, connections across emergent themes, individuality when reviewing themes, and seeking patterns across the various cases.

The narrative analysis includes a profile of each participant. Each profiles describes the participant’s teaching experience and an explanation of what the Common Core State Standards represents to them. Each narrative contains examples, in the participant’s own words, to convey their unique experience.

Participant Profiles: Susan

Susan has been a teacher for almost twenty years. She spent her first three and a half years teaching at another district in their preschool program. She taught pre-kindergarten and kindergarten for students with severe handicaps. Susan describes her experience as:

That was a really nice experience for me because it was my first position after my degree, and it just set me up so wonderfully for any kind of issues in the classroom, any kind of disabilities. It was wonderful, and I had close contact with many specialists in our classroom at any one time. There would
be a speech pathologist, OT, PT, special ed. teacher, myself, and depending on the needs, there might be a signing person that came in for the day. It was a really nice opportunity for me to learn getting my feet wet.

Susan has been in her current district for a total of sixteen years. The first year she taught in a third grade classroom, and she spent her latter years in a fourth grade classroom. Susan transferred to a different school within the district after seven years.

As well as teaching fourth grade, Susan is in her third year teaching at a local community college. She teaches courses such as psychology, human growth and development, children psychology, and abnormal psychology. Susan’s goal is to continue teaching at the community college level once she retires from the elementary classroom.

When asked what the Common Core State Standards mean to her, Susan points out that the standards are more “kid friendly, user friendly.” She describes her viewpoint best below:

I don’t put this up and say, “Hey, kids. Here are the Common Core Standards.” I say, “What are we going to work on? This is what we’re working on. What could we do? What do you think you want to achieve?” What I did is, this probably will tie right into that for you as well, as I did my goals on the Common Core because I thought it was so important.

**Participant Profiles: Gloria**

Prior to teaching, Gloria was an active member within her school district’s Parent Teacher Association (PTA). She was a PTA volunteer, PTA room parent, and a PTA mom when her children attended. Gloria eventually began teaching within the same school in a fifth grade
classroom for several years. She later transferred to her current school where she taught fifth grade for eight years. Currently, she is ending her third year teaching in fourth grade.

When asked what the Common Core State Standards mean to her, Gloria explains how they create a more equitable education for all students across the states. She uses the word “balance” to allow states to follow comprehensible standards. She continues by explaining how her current district has created a curriculum map for teachers to follow and also includes examples for teachers.

**Participant Profiles: Ann**

Ann has been teaching fourth grade special education. The fourth grade team at her school consists of four classroom teachers and a special education teacher. She works collaboratively within three of the four classrooms. In previous years, she was also a special education teacher for multiple grade levels at once: second, third, and fourth grades.

Ann serves on a leadership committee within the school district called the English Language Arts Common Core Committee, She details their responsibilities as follows:

We look at guided reading, writing, and language to see what flowed and worked well together and created based on. We look at the whole year and decided which made sense for a normal progression that we would take throughout the year and we had to align it with the writing and our language standards to make sure that they all flow together.

Ann and the English Language Arts Common Core Committee also designs test items for the district’s language and foundational Skills benchmark assessments. The teachers within the district will use the benchmarks to guide instruction and use data to form intervention groups.
When asked what the Common Core State Standards mean to her, Ann describes them as “a common set of standards that we can use nationally to ensure that students across the country are receiving the same education and rigor and content.” Ann gives an example of a fourth grade student living in Michigan. If that student moves to Maine, then the student should have received the same skill base and content knowledge as his or her peers and be able to transfer that knowledge to a new academic setting.

**Participant Profiles: Joey**

Joey originally studied as an undergraduate with the goal of becoming a child psychologist. Upon entering her senior year, she decided to become an elementary teacher instead and pursued her Master’s degree in teaching. Joey became a preschool teacher, but after one year she went on to teach second and third grade at a charter school in Massachusetts. After moving to New Hampshire, she taught third grade in a different district. In her current district, Joey has been teaching for seven years. She started out teaching fifth grade and is currently completing her third year teaching fourth grade. She describes her experience transitioning from fifth grade to fourth grade:

> It helps me understand their development a little more. I tend to, I think, expect a lot and then sometimes I say okay, they're only nine… I think because I taught fifth grade so long, I had to really push back and be like they're not fifth graders. They're beginning fourth graders. I know that was the biggest shift for me, but it's been nice to see the different ages and how they grow from year to year.

When asked what the Common Core State Standards mean to her, Joey describes it as a document that explains the skills and ideas her fourth grade students need to possess prior to moving to the fifth grade. The expectation is that she is to teach these standards to her students.
The skills and content the students are mastering is also at a more rigorous level, which is something she enjoys teaching. Joey states, “Oh, I used to teach that in fifth grade so I feel like some of the things have gone back a little bit different.”

**Emergent Themes**

As previously mentioned in the chapter on methodology, interviews allow for the researcher to not only visualize the actions of a participant, but also to understand the reasoning behind the actions (Seidman, 2006; Smith, Flowers, Larkin, 2009). The researcher is able to seek out further details of experiences through conversation and from there discover the underlying themes (Rubin & Rubin, 2012). Interpretive phenomenological analysis provides the researcher with a structure to interpret the participant’s experiences and how they reflect upon them (Creswell, 2007; Smith, Flowers, & Larkin, 2009).

The researcher went through a six-step process to uncover emerging themes from the participants of the study: reading and reading transcribed data, initial noting, development of emergent themes, connections across emergent themes, individuality when reviewing themes, and seeking patterns across the various cases (Smith et al., 2009). The emergent themes uncovered are as follows:

- **Theme #1: Create a Sense of Ownership**
  - Sub-theme #1: Teacher Ownership
  - Sub-theme #2: Student Ownership
  - Sub-theme #3: District Leadership
  - Sub-theme #4: Family Involvement

- **Theme #2: Seeking Curricular Guidance**
  - Sub-theme #1: Common Core State Standards
- Sub-theme #2: Curriculum Map
- Sub-theme #3: Rigor
- Sub-theme #4: Collaboration
- Sub-theme #5: “I can…” Statements

- Theme #3: Reflect On Instructional Practices
  - Sub-theme #1: Assessments
  - Sub-theme #2: Differentiation
  - Sub-theme #3: Instructional Practices

- Theme #4: Allow for Transitioning
  - Sub-theme #1: Teacher Transitioning
  - Sub-theme #2: Student Transitioning
  - Sub-theme #3: Parent Transitioning

Each theme is addressed with supporting examples in the sections that follow.

**Theme #1: Create a Sense of Ownership**

Create a Sense of Ownership is the first theme that emerges from the research question: What does it look like when elementary teachers in New Hampshire implement Common Core State Standards? This sense of ownership considers multiple viewpoints. First, both the teacher and the student experience a sense of empowerment through the implementation of the Common Core State Standards. Next, district leaders provide a sense of ownership through their actions that extends to how teachers operate in the classroom. Last, families develop a sense of ownership of the Common Core State Standards via the teacher’s communication.

**Sub-theme #1: Teacher Ownership.** Ann, Gloria, Susan, and Joey describe their implementation of the Common Core State Standards as an exciting time in teaching. Susan
states, “I embraced [the Common Core State Standards] from day 1.” Each teacher created a binder with the standards and district curriculum map. Joey made “so many notes” and “put little arrows” to highlight new or important skills.

Gloria and Joey describe how they “mostly trained themselves” and had to do some independent research. Both would typically type a standard in Google and explore the information and resources that would appear. Below, Gloria describes an experience in which she learned a new multiplication strategy:

I had never seen multiplication taught that way, I didn't learn it that way when I was in college or even back in 4th grade. We had to do research on it so I asked the pace teacher for information. I asked the 5th grade teachers for information, and I went online and I found these boxed samples of how to do the work.

This example shows how teachers are taking pride in their new learning. Gloria embraces the learning because she and her team are able to make “it our own.” By furthering their teaching knowledge and familiarizing themselves with the Common Core State Standards, they are becoming more at ease with the content, skills, and rigor needed to implement the standards.

Ann describes how her fourth grade team sat together and dissected the standards:

It told us exactly what it wanted to… when you first look at the standard you might think that it's just asking you to do one thing. But then once you pull out all of the verbs then you realize, “Hold on. This one standard is actually asking me to do more than one thing,” depending on the depth of knowledge that they would like you to have.

All four of the teachers discuss the ideas of setting goals. Gloria and Susan discuss how they focus their professional goals around the Common Core State Standards. Gloria states, “I
feel that I was encouraged to do my annual goal related to common core.” While Susan explains, “I did my goals on the Common Core because I thought it was so important.” Susan admits that there is still a ways to go in understanding the Common Core State Standards, but “we’re coming along.”

**Sub-theme #2: Student Ownership.** In order for students to have a sense of ownership, Susan explains the importance of developing a community within the classroom. Susan accomplishes this by using a responsive classroom method. She describes this as a “kind environment” in which “everyone learns because they are sharing ideas.” This in turn creates an environment in which “children learn from each other.”

Ann and Susan also detail that trust is an importance element for students in order to show ownership of their learning. Ann describes an experience wherein the concept of trust is utilized to encourage students to choose from various strategies in order to find one that is successful to them:

> Again, we teach them all four [strategies] and then after a certain point you can see which ones they're continuing to struggle with or they'll say, "I hate this way," or they'll say, "I really like this way. This way is easiest for me." The students really dictate what it's going to be. I'm not going to pick a method for them. They're going to really pick the method that works best for them.

Susan’s example shows how students could even disagree with appropriate strategies, but come together in the end:

> It was fabulous to see the light bulbs go off in the kids and for them to say, “Hey, you know what? I'm going to use this now. This is my way now,” and then to hear
another kid say, “No, it doesn’t work with me. I like this way.” It was great because we could all come together to disagree.

Gloria describes a project in her classroom where students were able to pick their own standards to further their understanding. This is part of a yearlong project that students work on periodically. Seventeen out of the twenty-one students participated in this voluntary project. The students were very interested in their topics and showed a sense of pride upon completion.

Ann asserts that students demonstrate ownership when are able to explain their work. She is asking students to explain their thinking and provide evidence from the text. Ann reasons, “I think that they’re more open to being able to tell us how and think about how they came up with it rather than just saying, "Because I know that that’s the answer."

Susan depicts a moment in which a student demonstrated his ownership of the standards:

This is a student that had a lot of behaviors since last year, and not one this year. He was very engaged. He felt ownership. He was excited, and I think that’s what the key is. I think that’s the difference between the state standards that we had before were more for us [The teachers]. In my opinion, they were more for us. This is what you need to cover as a teacher, but these are really for the kids. The kids have ownership. You hear them talking about it. They use it. Well, what do you think? I think I’m going to use this. I think I can do… It’s wonderful.

Joey illustrates how her students know about themselves. During independent reading, students are asking to read a book “on their level.” She explains how each student is comfortable in understanding their level and “knowing what level they should be on.” In turn, she believes students “feel better about themselves” and are able to show academic growth.
**Sub-theme #3: District Leadership.** Ann is on the English Language Arts Common Core Committee. She explains that the district and committee provided training sessions for the district in math and English language arts during the summer months and at the beginning of the school year. Gloria, Susan, and Ann found the trainings to be helpful. However, Joey disagrees:

> It's more of they've given me what I need to teach and we've had some workshops on it. We've had some vertical team meetings on it. I meet a lot with my team all the time about what we're teaching, but it's ... I don't want to say I've done it independently because I haven't. I've done it as a team, but I don't think it's as much as the district is training me or anything. More we've trained ourselves.

Ann states that the district has been working in creating common benchmark assessments and common language to create consistency across the district. Susan explains how the district has also taken some of the language arts budget to purchase more common core resources for teachers to use.

Each of the teachers expresses joy in discussing how the building administration supports them. Gloria and Susan explain how their vice principal comes in to see the students’ projects and interacts with the students to check their understanding. Both teachers agree that it was not a formal observation, but rather an opportunity as a teacher to show their administration the work they do on their professional goals for the Common Core State Standards.

Ann’s building administration has created a time for “vertical planning”:

> They give us vertical planning meetings at least once a month so that we can go in it and fourth grade gets to meet with fifth grade and they get to meet with third grade ... We want to make sure especially with Math ... especially since the Math map was being rewritten, we really need it to meet to make sure because there
were going to be gaps for that first year. For the first year of our reading map, we wanted to make sure that those gaps were going to be addressed.

Gloria, Susan, and Joey all stress the need for vertical planning. Though the schools are within the same district, not all buildings are providing vertical team planning time. Joey asserts that filling in the gaps is important for the success of each student.

**Sub-theme #4: Parental Ownership.** Parents have become more involved in Susan and Gloria’s curriculum. Parents are aware of the new Common Core State Standards because of Susan and Gloria’s classroom open houses. Parents sign a contract for various projects that Susan and Gloria assign to their students throughout the year. Susan believes that “parents were thrilled to know that this was really going to be more kid friendly and all about their learning and all about them being excited about learning.”

Gloria explains how parents are choosing her school because of its reputation with its teaching and the Common Core State Standards.

I actually had a student this year who moved here from Ohio. The student had to be put on an IEP and we've had several meetings. That mother told me that she did some research on the ratings of the schools. Her school in Ohio, I don't know what website she went to or just the town information, was rated more at a 4 or a 5. They didn't have all this type of common core that we use or the methods we use or the teaching or the standard that she knew of. She came to [this town] and she looked up [our] School and we were at a 9 out of 10.

Each of the research participants also keeps up ongoing monthly communication with parents. Susan, Gloria, and Joey send home monthly newsletters, while Ann has frequent
meetings with her parents to discuss their child’s progress and provide mid-term and end of term progress reports

**Theme #2: Seeking Curricular Guidance**

Seeking curricular guidance is a theme that emerges from the data framed by the research question, what does it look like when elementary teachers in New Hampshire implement Common Core State Standards? Teachers design instruction based on the Common Core State Standards. District/teacher-created curriculum maps are used to present the teaching in a teacher-intuitive and student-friendly way. Through constant collaboration with peers, teachers are discussing resources and strategies for their instruction, and they are determining how to set the appropriate level of rigor

**Sub-theme #1: Common Core State Standards.** Gloria, Joey, and Ann describe that the purpose of the Common Core State Standards is to create consistency across the country and remove overlaps of skills and concepts in the curriculum. Ann further describes the Common Core State Standards:

> Common Core is a set of standards. We've always had a set of standards. It's just a different set of standards so I don’t find it that different at all. Common Core doesn’t tell us how to teach something. It just tells us what to teach.

According to Susan, the “Common Core Standards [are] to know where you want to end up but I think that you need to individualize all of the learning so that each child can get there.”

Joey recognizes that standards she previously taught in fifth grade math are now being taught at the fourth grade level. For example, in fourth grade she has always taught fractions, but to use a “line plot” to explain number sense was new to the fourth grade curriculum. This
progression of skills informs her of how the standards have become more rigorous and accelerated.

**Sub-theme #2: Curriculum Map.** According to all of the participants, the curriculum map is a teacher guide prepared by committee members from each of the elementary schools. Being on the English Language Arts Common Core Committee, Ann explains that they decomposed the standards into the skill and the content. The committee meets usually every month to evaluate how the maps flow and if the progression of skills is appropriate. Teachers throughout the district provide feedback to the committee to make suggestions about how the curriculum map is working within their classrooms. Ann states that the committee is “very receptive” to the feedback and incorporates and/or considers the suggestions.

From there, the committee created “I can…” statements. Gloria describes the curriculum map as the teacher’s “bible.” Gloria states that “I can…” statements have “brought the massive amount of details on the map down to a simple basic sentence that I can say can they do this or not. I think it's helpful to have them.” Susan believes that the “I can…” statements allow for teachers to speak of the standards in a “kid-friendly” way when teaching. However, she does believe that the English language arts map is too complicated and must be simplified. Gloria has taken the initiative and created “I can…” statements for the science standards, which have not yet been completed by the district.

Susan uses the curriculum map to formulate final projects for students. She then follows the process of “backwards design” where she understands the end goal of her curriculum and then designs lessons to help meet that goal. According to Susan, her students have a lot of success using this model.
Joey expresses her appreciation for the pacing suggestions on the curriculum map. She feels that the length of day refers to the level of rigor that she must utilize in teaching her students. She gives the example of how the year before she taught area and perimeter in only a couple days, whereas now she must spend about ten days. However, each research participant agrees that the pace of the curriculum map and the constraints on the daily schedule can be difficult to maintain at times. They all wish there was extra time in the day to dive in deeper into the standards.

Gloria states:

I'd like to have 10 more minutes to finish this, but we can't. Some kids leave the room. I feel like if the kids could work until completion or at least get to a good stopping point, for some of the kids who feel it is important to understand and get to where they feel comfortable to stop or they understand or they don't have any more questions, that would be nice.

**Sub-theme #3: Rigor.** Each research participant defines rigor differently. Susan describes rigor as, “Over and over, and over again.” Gloria explains it as, “I guess it would basically mean repeating, reviewing, instructing. That could probably go first. Instructing, repeating, reviewing over and over until you get the assessment results that you want.” Joey states, “Rigor, to me, means not only pacing, but how in depth you go with a subject.” Ann views rigor as, “how deep we're asking a student to go in order to explain their answer, so not just cutting the surface level but they have to actually go deep to show us that they really do know the material.”

These teachers are trying to drive their instruction to a deeper depth of knowledge. Gloria describes how she uses a depth of knowledge assessment, or a “DOK” wheel to enhance
the level of rigor. She describes that wheel as being in four parts: DOK 1 being lower-level thinking to DOK 4 being the highest-level thinking. Using the standards, Gloria sees where the verbs fall onto the wheel. She also plans questions to ask her students using the wheel. Gloria reports:

[What I was] surprised about was they said that in elementary school, most students don't get to the DOK 4, but we should get up to at least a DOK 3. We should definitely be past the DOK 1, which is more repeating back facts for tests. We're focusing on the DOK 2 and 3 with our assessments to make sure that they're ready to move up to 5th grade and hopefully they're ready for new smarter balanced testing that's coming out.

Ann also reviews the verbs within the standards to understand the necessary depth of her instruction. She explains the difference between a “DOK 1” and a “DOK 2”:

If it's a DOK 1, you might just need to define something but then you might need to explain which might make it a DOK 2, so recognizing versus actually explaining it are the difference in the depth of knowledge.

Susan and Joey discuss that the idea of the Common Core State Standards is to expose all students to various ways of solving a math problem. Susan notices this particularly in the skills of multiplication:

The modules were fabulous and I found that it was an excellent tool as an educator, because what I did is I exposed them to all of the tools. I think of the multiplication ones. It was so fabulous to hear... I had one little boy, Andrew, say, “I didn’t get the other ways but I really get this.” I think it was more one way before.
Rigor also means supporting students so that they reach that higher level of thinking. Susan further explains:

That’s that rigor that I’m talking about. That you set the bar, and they know that they have certain elements they have to achieve, but you still have to make them feel and help them along the way, scaffold them, again, knowing everything about them, their personal background and everything.

**Sub-theme #4: Collaboration.** Each teacher participating in the study mentions that they do not feel alone in understanding the Common Core State Standards. They all feel that they are part of a collaborative team. Typically all of the classroom teams have one scheduled team-planning period throughout the week. Joey describes how there are impromptu meetings with a colleague in the hallway or in the shared closet between classrooms. Ann’s school allows for an extra vertical team plan each month and an additional two times to plan intervention for the students.

During these meetings, teachers bring resources, ideas, and the curriculum map. Teachers sit with one another and discuss what the standards represent. Gloria and Susan explain how the team planning time is used to show one another various ways to teach ideas and concepts to students. As all the participants describe, they typically use the Internet to find ideas and resources. Gloria shares her experience in learning the lattice method for multiplication:

You pop the numbers into the sides of the boxes and then you're not multiplying really, truly, a two-digit by a two-digit. You're multiplying a one-digit by a one-digit and then another one-digit by another one-digit, and you're adding up the totals at the end. That was something new on the math curriculum, area models.
I'll definitely teach it that way the first thing right off from now on because it made a big difference on how the kids understood.

Collaborative opportunities for teaching and learning also present themselves throughout the day, as the teachers have varying specialists coming in and out of their classrooms, including special education teachers, occupational therapists, guidance counselors, PACE teachers (accelerated math), reading department support staff, paraprofessionals, English as a second language teachers, and administration. Ann and Susan also describe how going to the grade level ahead for advice is really helpful for them because their colleagues can provide guidance about how the students will perform in fifth grade. Likewise, Ann and Susan visit grade levels below them to share ideas and offer support and assistance.

**Theme #3: Reflect On Personal Instructional Practices**

Reflecting on personal instructional practices emerges as the third theme from the research question: What does it look like when elementary teachers in New Hampshire implement Common Core State Standards? It is through reflection that teachers must decide how to differentiate instruction for their students. Assessments are used as tools to help with reflection for teachers. Teachers utilize assessments to choose the best strategies and intervention models for their students.

**Sub-theme #1: Assessments.** Each research participant describes various forms of assessment they use in their classrooms. Gloria and Ann discuss the state assessment called the New England Common Assessment Program, which will be replaced with the Smarter-Balance Assessment next school year. Ann explains that each school administers the New England Common Assessment Program in different ways. She says, “I know that for NECAP it's given very differently school to school and that’s a principal's choice, depending if they want all hands
on deck or if they want to do grade by grade.” Susan describes how the New England Common Assessment Program can have negative connotations for parents because of the punitive measures parents see as a result of underperforming scores.

Ann’s experience with her special education students highlights potentially “frustrating” results when relying on the New England Common Assessment Program for data:

> It didn’t tell us if there was growth. It just told us that they were proficient. I know that they're probably not going to be proficient because if they were proficient, they probably wouldn’t have an IEP.

Additional formal assessments that teachers are giving in the district are the Northwest Evaluation Association, math benchmark assessments, and upcoming reading and language arts benchmarks. These assessments are used in conjunction with the New England Common Assessment Program to measure student achievement.

Within the classroom, teachers assess their students in many informal ways. Ann and Gloria identify these forms as formative assessments. Each of the research participants uses various different forms of informal assessments such as observations, checklists, questions answered on white boards, pre-assessments, quizzes, conferencing during independent reading and writing times, and goal setting. According to Joey, the modality should vary based on the skills and content the teacher is assessing. Susan ensures that all of her students are made aware of the “criteria” of each assessment. She says that formative assessments are used to “see which [skill or strategy] they're really struggling with” and guide instruction accordingly.

Ann and Gloria go on to describe summative assessments as a final assessment of skills within a unit. The participants describe these assessments as more formal long-term projects, tests, and quizzes.
**Sub-theme #2: Differentiation.** Susan asserts, “I believe you need to use your Common Core Standards to know where you want to end up but I think that you need to individualize all of the learning so that each child can get there.” All of the research participants highlight the need to “individualize” instruction for all students in the classroom. “They're all doing the same thing, but more at what their level is or ability,” explains Joey.

Joey describes her experience piloting the upcoming reading program for the district, Reader’s Workshop. She explains how each student is to learn fourth grade skills, but at a reading level appropriate to them. Ann points out that there are many different levels in each classroom for both math and reading. The teachers give assessments in order to differentiate depending on the level and type of learner. Joey provides each student with an individual book bin that contains books at the student’s present level. Ann provides manipulatives, rephrasing of questions, or pictures models to understand math skills. Susan uses various methods to solve math problems, including the standard algorithm, and allows students to make a judgment as to which method will offer more success for them. According to Susan, Kahn Academy is also a useful tool to enrich learning for both struggling and gifted students. Gloria has back up material available if any students appear to be struggling with the skills and concepts.

All of the research participants discuss the idea of intervention within their grade level. Though each participant’s intervention may look different, they all describe a similar goal: to help students who are struggling with skills and concepts despite differentiation. Joey, Gloria, and Susan have the students stay within their classrooms. They will work with students within small groups. The students not working with the teacher will work on an enrichment activity. For example, Susan explained various activities the children could be working on:
What was happening was I was using quilt squares, but basic ones for the lower level learning. These were like oh, my gosh. They were just like all kinds of shapes and designs, and a level because each one had an answer. The levels for those higher quilt squares were challenging for those students. Then when they’re done with that, they have like the KenKens and also the Khan Academy. KenKens are a number solving puzzle that uses basic operations.

Ann’s team sorts students based on assessment data. “We need to see where students are struggling, what they’re struggling with, and that’s a good time that we bring out … if this teacher has a particular strength teaching this then they’re going to take that group of kids.” The team reevaluates their groupings at the bi-monthly intervention meetings. However, it is important to note that each school has different practices than their sister school.

Sub-theme #3: Instructional Practices. All of the research participants use various instructional practices in the classroom. Gloria and Susan describe how it is up to the students to choose the way in which they demonstrate their learning. Gloria and Susan ask what the purpose of the activity or project is and whether the students demonstrate successful understanding with their approach. Susan depicts her experience:

[The] product can come out many different ways. That was really important to me—like this boy did a book on dinosaurs. Another student did a poster, but another student did a PowerPoint presentation. What I love is these are what we want to achieve, but how you achieve it is your personal preference.

Gloria gives choices for the final end product:
Then when they were ready, I offered to them that they could write a report. They could do a diorama. They could do a poster. They could do a demonstration. They could dress up, any way that they wanted.

Students are also presented with various materials and methods to understand curriculum within the classroom. Some of these are within small group and hands-on activities, as in Gloria’s classroom. Ann uses various forms of manipulatives for math and diaries for writing. Susan uses technology, such as having the students Google information and creating a PowerPoint presentation. Joey uses a diverse amount of games to teach skills and concepts.

**Theme #4: Allowing For Transitioning**

The final theme to emerge from the data is allowing for transitioning. School districts have only begun implementing the Common Core State Standards for about three years. Teachers have been adjusting to instructing at a higher level of rigor. Students are working on meeting these expectations, and parents are trying to understand these new ideas so that they can continue to help and support their children.

**Sub-theme #1: Teacher Transitioning.** All of the participating teachers describe their excitement to “embrace,” as Susan described, the Common Core State Standards. Each teacher envisions the new standards as delivering a level of rigor that the old standards did not possess. As mentioned prior in the chapter, the teachers describe their transitioning into teaching a more rigorous curriculum.

However, the research participants note that there are differences between the old standards to the Common Core State Standards. Gloria has concerns that there may be too much “subjectivity” within the new standards. She explains how teachers are left to interpret the standards in different ways. The language map is also an area of concern for her; she feels there
is not enough emphasis on grammar within the Common Core State Standards. She tries to address those skills within her intervention block.

**Sub-theme #2: Student Transitioning.** Susan strongly believes that the standards prior to the Common Core State Standards were meant for just the teachers. The implementation of the new standards is so that the students to also understand what is expected of them.

Gloria believes that “when they come to me, don't know any different.” Ann explains that her experience with her students shows that students “do not know any different” than the standards that are being asked in class. She describes how students come to class knowing that these are the expectations. Ann predicts that in the coming years, students will be progressing through the grade levels showing a deeper level of thinking and reflection upon their own understandings.

**Sub-theme #3: Parent Transitioning.** Gloria explains how “parents are really getting streetwise to all of this, too” in reference to the implementation of the Common Core State Standards. The Common Core State Standards are available to parents, and Gloria, Susan, and Joey discuss the standards during open house night. However, Ann shares a different perspective on parent ownership:

Unfortunately, a lot of parents are not that aware of what Common Core actually is because they think that the new Math, as they call it, they think is all generated by Common Core—and it's not. It's just a different way of teaching Math so a lot of times they blame Common Core for that… The students have to tell us how they know and in their minds it's easier to just teach them a standard algorithm than having to teach them the base 10 method of being of being able to visualize or see, count by 10, something like that. They think it's easier to just do 45 times
45 and a lot of ways it is, but we're hoping that the students have an understanding of where those numbers came from. I explain to them what Common Core really is and then when they say, "I can’t do this homework with them," [then] I say, "That’s perfectly fine." I would rather, "You didn’t do your students' homework for them because I would like to know that they know how to do it.

Susan describes how parents are excited by the new standards:

People were like, “Yeah, this is going to be good.” I also said that we were moving away from the NECAP because that has such negative connotations as well. It really does. Parents are not happy with the way that we as educators in our systems have been forced to teach, teach to the test, teach to the test, and that’s unfortunate.
Chapter 5: Discussion of Research Findings

In 2010, the Common Core State Standards (CCSS) were adopted by forty-five states, including various territories and the District of Columbia, to bring a higher level of thinking and understanding for students to compete in the global economy (21st Century Skills Map, 2011; “Common Core State Standards Initiative”, n.d.). States did not start implementing the standards until two years later in 2012 (“Common Core State Standards Initiative”, n.d.). Wagner (2006) explains that these changes create situations where teachers must teach at a level of understanding that some teachers are not familiar with. Wagner posits that middle school teachers are not teaching at a critical level, but because the CCSS are relatively new, little has been researched on the ways in which elementary teachers are executing and implementing curricula at this level.

The CCSS has created a gateway for educational reform and have initiated dialogue regarding the purpose of the standards (Cravey, 2013). Kober & Rentner (2011) explain how implementation and rollout vary from state to state. The state of New Hampshire allows each district to interpret the standards, while Kentucky, for example, went with a top down approach in guiding its teachers (Buckland, 2013; Feely, 2013; Siefer, 2013; Overturf, 2011).

This study, set in New Hampshire, used the Ecological Systems Theory as a lens to interpret and build understanding about the teachers’ experiences of the implementation process. The Ecological Systems Theory focuses on the interactions and exchanges between a person, their community, and society itself (Gabbard & Krebs, 2012). This study explores the complex relationships between teachers, administrators, state leaders, and students as they relate to implementing the CCSS. A qualitative approach was used to understand the perspective of how four elementary school teachers in New Hampshire think about and understands their role in
implementing the CCSS. The researcher conducted interviews to gather the data necessary to understand and interpret the thoughts and experiences of these four fourth grade teachers (Seidman, 2006).

This chapter will answer the research question: What does it look like when elementary teachers in New Hampshire implement CCSS? The researcher has outlined each overarching theme within chapter 4. This chapter will discuss the three findings based on the data collected.

**What does it look like when elementary teachers in New Hampshire implement Common Core State Standards?**

The implementation of the CCSS has varied from state to state (Feely, 2013; Overturf, 2011). The state of New Hampshire decided that each school district would interpret and carry out the expectations of the CCSS on their own (Buckland, 2013; Feely, 2013; Siefer, 2013). Though there is a common set of standards, it is vital to understand how implementation is happening since each district and even schools within the same district are interpreting and implementing ideas differently. According to this study, implementation is a collaborative process. School leaders are helping teachers create a sense of ownership by guiding teachers in forming professional goals related to the Common Core implementation. In turn, teachers are meeting with students to help them set goals of their own to increase the student’s level of understanding and engagement with regard to the different standards. By focusing individual goals across the district, from administrators to students, each member of the district participates in and engages with the implementation, interrupting the top-down nature of the reform.

**Collaboration.** Each level of the Ecology of Human Development (Bronfenbrenner, 1979) locates the individual in relationships. In addition to being situated within these various levels of the system, each individual is engaged in myriad interpersonal relationships. At the school level,
the goal of the CCSS implementation is for teachers, administrators and students to have a common language and a common understanding of the skills and content at a more rigorous level of instruction.

The implementation of the CCSS has generated countless collaborative discussions and work sessions at the district, state, and teacher levels. New Hampshire has chosen for each to district to interpret the standards independently, so collaboration between districts is limited. Within the district where the current study was conducted, administrators are acting as the bridges for collaboration between teachers, parents, and students. Teachers are collaborating with one another to create a common idea as to what the standards are asking for. Lastly, there is a form of trust within the collaboration between the teacher and the student. Fostering the collaborative environment has created room for educators in this New Hampshire district to engage with and participate in the implementation process, but that is not necessarily true across the State.

Tension about consistency at the state level, even though local systems have support, can impact administration, teacher, student, and parent confidence. So, while New Hampshire asks each district to share out its interpretation of CCSS at this point, the fact that certain state and federal level implications remain means that the lack of state-wide collaboration matters in developing a common understanding not only within the local district, but also across districts and state-wide. Brofenbrenner (1979) posits that human beings develop within a nested system of relationships and contexts, and the individual is impacted by each of the layered systems. The Ecological lens helps capture and describe the need for multi-layered collaboration, as seen with Gloria’s comparison with another district’s lack of implementation. Collaboration needs to be
consistent across New Hampshire in order to support the most effective implementation of the CCSS.

**Statewide collaboration.** Statewide collaboration is a challenge given that the state of New Hampshire has left it up to each district to interpret different aspects of the standards. For example, one of the purposes of the CCSS was to deliver a more rigorous level of instruction to students, and the State has left it up to each school district to interpret the meaning of “rigor.” District administrators at the study site have worked toward creating a common understanding about what this may look like in student work, but while they are working towards a common understanding, teachers appear to have concerns about the lack of alignment between different districts.

Gloria describes how colleagues in other districts are concerned with the local district’s direction. She expressed that not every district in New Hampshire is on the same page. Buckland (2013), Feely (2013), and Siefer (2013) explain that the state of New Hampshire asks each school district to adopt of the CCSS with support from their local school boards. There seems to be a lack of a collective understanding of the standards due to New Hampshire’s choice to implement the standards from a bottom up approach.

School funding in the state of New Hampshire is based on the results of the New England Common Assessment Program, and Ann describes that the New England Common Assessment Program falsely represents her students who have special needs. McDonnell & Weatherford (2013) support Ann’s experiences as they state that a test, such at the Smarter Balance Common Core Assessment, does not truly measure a student’s ability as a critical thinker. She believes that students with special needs to do not demonstrate a growth in understanding within the New England Common Assessment, because they are simply labeled as “below proficient.” Similarly,
Gloria contends that parents feel negatively toward the New England Common Assessment Program because of its sanctions and labels it places upon failing schools. There is a question about how growth will be measured. McDonnell & Weatherford (2013) argue that the Smarter Balance Assessment goes against the principles behind the CCSS.

The way students are assessed can affect the entire system. Formative and summative assessments are tools to help teachers guide their instruction. Formative assessments can come from the state, district, and teacher level. Just as Callingham (2008) has explained about the role of summative assessment, New Hampshire administers the New England Common Assessment Program to comply with the federal guidelines of adequacy and to determine funding for its school districts. Even though the state of New Hampshire has adopted the CCSS, each district has not complied with this mandate. As a result, the districts’ performance on measures like the NECAP will vary, and some districts will lose federal funding (Buckland, 2013; Feely, 2013; Siefer, 2013). This could directly impact the way each district implements the CCSS.

**District-wide collaboration.** León (2007) describes how each facet of understanding within a system is tied together by a common goal. In the case of this study, the goal is the implementation of the CCSS, but that appears to be a bit too broad. While participating teachers are collaborating in various ways and describe strong connections between administration, teachers, and students, discrepancies remain between the various elementary schools understanding of the CCSS. This is most apparent where the students’ parents are concerned.

The participants describe discussing the new standards with parents at open house meetings or individual education plan meetings. According to Susan’s experiences, the parents are pleased that the New England Common Assessment Program will be no longer administered; however, she remains unclear if parents understand what is being demanded of their child as a
result of the CCSS. Ann explains that parents do not understand, and many wish to go back to the “old math”. The participants explain that the parents are relying on teachers to convey their interpretation of the CCSS, and parents appear to be unclear as to what the common goal is in what the CCSS is asking of their children. Participants’ expressed concern that without parental understanding and buy in for support of the CCSS, the implementation will be impacted.

Hmelo-Silver & Barrows (2008) discusses the idea of a school being transparent in its views and thinking. Kirst (2014) would posit the value of providing feedback on what the CCSS represent would provide parents with a clearer understanding of the CSS expectations. The participants in this study describe how parents are informed of the expectations of the CCSS through means of parent conferences. Hayden, Johnson, Howard, Frizell, Grant, Farmville, & Mallard (2014) would suggest increasing the awareness through parents experiencing the CCSS in hands on methods. Brofenbrenner (1979) discusses the fluidity of interactions between the systems. At this particular site, there are clear interactions occurring within the inner systems and blurred interaction between the parents and the school.

**Team level collaboration.** As with Maye’s (2013) assertion that teachers do not have a clear understanding of what rigor represents, this study shows how each teacher presented a unique and different response. Moreover, when asked to provide an example of rigor each teacher appeared to struggle with describing what rigor looks like in practice. The construct of rigor provides a good example of how difficult it is to build a shared understanding when multiple individuals are involved, and the teachers describe the various collaborative strategies that help them in that pursuit.

The participants describe the process by which they build a common understanding of rigor within their collaborative team and the discussions on finding rigorous materials. They
describe how the collaborative process allows them to learn. In turn, teachers who engage in collaborative discussions are more likely to facilitate similar opportunities with their students. As Pellegrino & Hilton (2012) and Raider-Roth (2008) suggest, teachers who prioritize opportunities for collaborative and reflective thinking foster student self-efficacy, which will be in direct relation for student understanding of a more rigorous level of instruction. The team-based collaboration provided the teachers the opportunity to interpret the skills and the content embedded in the standards and develop creative ways to deliver these ideas to the students.

**Trust in collaboration.** Song, Hannafin, & Hill (2007) and Raider-Roth (2008) discuss the idea of creating an environment of trust to allow for students to reflect on their work. Raider-Roth (2008) emphasizes that fostering trust among teachers during the collaborative process helps teachers feel safe and welcome critiques and suggestions. Participants in this study explain that developing a level of trust with one another mattered, particularly in the face of implementing new mandates like those associated with the Common Core. The participants meet at least once a week with frequent check-ins throughout the day. Senge, Kleiner, Robers, Ross, & Smith (1994) describe how reflection and purpose, along with a common goal, foster a systems thinking approach. The systems thinking makes room for each person to contribute to the collective understanding, and participants describe how they bring resources and/or strategies that can be used to implement the CCSS. Bronfenbrenner (1994) and Lemke (1994) view these frequent interactions as complex, because not only do the teachers interact with one another; there is a reciprocal interaction between the teachers, between teachers and students, and each individual and the system. The interactions among these various levels provide all members of the community with new ideas and opportunities. For example, after trying out ideas with
students, teachers go back to the collaborating table with new and different ideas. Thus, a reciprocating cycle will occur.

Teachers expressed that collaboration fostered an environment where each team member trusts that their colleagues consider their contributions as opposed to judging or dismissing their ideas. Susan explains how her team meets to discuss the standards, and because each classroom has such varied needs they trust each other to make the soundest instructional choices for their students. Gloria showcases the way each team member presents materials for others to evaluate and the group works together to decide whether or not the resource is reliable or useful. Ann explains that the team makes collaborative decisions on student data to adjust instruction or form intervention groups. Joey describes how her team views her as a “leader,” and she describes her commitment to making room for disagreement. Since there is a higher level of trust and each collaborative session is used to share and evaluate ideas and resources, each participant explains that should a disagreement occur there is always a way toward resolution or to meet at common ground.

Local collaboration improves each teacher’s practice by inspiring them to try new approaches and assignments that lead to deeper and more rigorous student learning. Susan and Gloria described trying out new strategies as a result of collaboration, like helping students approach a long-term project by identifying their goals and needs, ultimately supporting successful project outcomes. Through their own collaboration, they ended up fostering increased self-regulated learning with the students and created an opportunity that supported students’ twenty-first century thinking skills while delivering a particular content area (Loyens Magda, & Rikers, 2008; Marzano & Heflebower, 2012). As suggested by Webb (2002), the teachers
aligned the curriculum to the task and built ideas around concepts that were previously taught within the classroom.

Trust plays an important role within each of the systems implementing CCSS in the state of New Hampshire. The state of New Hampshire trusts each district to interpret and apply the CCSS expectations within in their district. However, that back fired because each district is creating meaning as a single district rather than collaboratively with other districts. At the district level, leaders are providing resources for teachers to make meaning. Administrators are working with teachers to accomplish goals around CCSS. Leaders encourage and support each team of teachers to collaborate with one another for understanding, but, based on Anne’s account, each school has a different interpretation of the standards. Trust provides teachers with the confidence to take chances and risks, but, at the state level, more support is needed to unify the trust and understanding between all districts.

**Shifting Gears.** Shifting gears means that we have to stop and reassess what each of us is doing and change it up to fit the new expectations. By each of us, I mean administrators, teachers, students and parents alike. The CCSS was implemented to create college ready students. As a result, standards where set to a level of rigor not seen before (cite). This section will explore how inadequate teacher and student prior knowledge impacts understanding and delivering the CCSS; the difficulty teachers have establishing an aligned curriculum; and the energy teachers expend looking for resources to build both their understanding and their students’. Ecological Theory (Gabbard & Krebs, 2012) helps us consider how different layers within a human have different interpretations of a common phenomenon, and understanding needs to come across all the layers in order to support a common understanding. Without understanding across systems, the cross-system collaboration becomes impossible.
Prior knowledge. Learning is a developmental process. One of the many characteristics of this process is the role teachers play in helping students remold past understanding into a new understanding (Linnenn-Garcia, Pugh, Koskey, & Stewart, 2012). According to participants in this study, many students who are coming into a particular grade with the new CCSS do not have the necessary knowledge base because the implementation of the new standards in prior grades had not begun. It seems like teachers and students are struggling with understanding skills and concepts within the CCSS due to the lack of prior knowledge. As a result, students are having a difficult time meeting the standards, and teachers are struggling to teach accordingly when the students are not prepared. Song, Hannafin, & Hill’s (2007) show that students will have a difficult time accessing the curriculum if they are unable to build upon previous skills that have yet to be taught.

Similarly, Jutter, Boone, Park, & Nehaus (2013) argue that teacher practice is built on prior knowledge, professional knowledge and pedagogy competency, and since teachers were given instruction in practices based on older standards, there is a gap in their understanding of the current standards and pedagogical practices. Pithers and Soden (2000) conducted a study in which they found teachers struggle with teaching critical thinking skills. Pellegrino and Hilton (2012) explain that critical thinking tasks require students to use a deeper depth of knowledge and the task should refer to a real world task. Facilitating these more in-depth tasks requires appropriate resources, and there appears to be a lack of understanding as to what makes a rigorous resource to guide teachers to foster students’ critical thinking skills students.

Teachers are scouring the Internet for resources that are not fully vetted to deliver instruction at a rigorous level. As a result, the curriculum is segmented in a way where students are unable to see the connectivity between skills and concepts. My observations suggest that
teachers are using a variety of resources to support student learning, but they find it difficult to truly assess the resource’s validity. Administrators are providing teachers with resources to develop a common understanding, but there is more to be done to create a common understanding about what resources and experience support higher-level student learning.

**Disjointed curriculum.** Until teachers figure out how to build on what students learn in prior grades, the curriculum will remain disjointed and the ultimate goals of a more rigorous learning experience will remain unrealized. There may be an assumption that educators believe the district is transitioning to a more rigorous set of standards without understanding what that looks like from one grade to the next and whether it is actually happening. Gloria and Ann, for example, explain that students come into the fourth grade with the expectation to learn fourth grade skills and the students have nothing to compare it to, meaning students are coming into a new grade level without the prior knowledge needed for learning. The work of phasing it in across all grade levels is challenging, and until that has been done, districts have to pay close attention to how they can provide an integrated and aligned curriculum.

The participants discussed how time is a factor because not only are students missing important prior knowledge, but also the standardized tests make them feel like “they must move on to the next idea.” McDonnell & Weatherford (2013) explain that administration may see standardized assessments as tools to bring about student achievement, but in fact these tests may force teachers to deconstruct the curriculum to the point where the student is unable to make any substantive connection among the ideas. Moreover, Grennon, Brooks, & Dietz (2013) believe creating a curriculum around the idea of a summative assessment results in the teacher teaching a curriculum that is broken down into such small chunks that students would not be able to connect skills and concepts and would in turn produce students that lack the depth of understanding
needed. Creating learning opportunities that lack depth exacerbates the students’ lack of readiness for the next grade level.

The impact of standardized tests is an important component of the implementation process because teacher-created formative and summative assessments tend not to hold an equal part in the evaluation of teacher performance. As a result, the work of creating an aligned curriculum that allows students to develop over time and build more in-depth connections between ideas from one year to the next remains a primary challenge.

**Goal setting.** The CCSS are new to the participating fourth grade teachers; however, each expressed excitement about diving in and interpreting the various standards and expectations. Goal setting is an integral part of their work adopting the Common Core. Teachers are setting professional goals around the CCSS with their administrators. In turn, teachers are goal setting with students for them to take ownership in their learning. As Ecological Theory suggests, integrating the efforts and focus of the various individuals within the particular context, a common goal can be created allowing for clearer interactions between each system (Lemke, 1994.)

**Teacher goal setting.** Blackburn (2013) suggested the idea of creating goals helps increase self-confidence. Marzano (2013) explains that goal setting and celebrating meeting those goals is essential for student engagement; however, Marzano does not explore how teacher goal setting provides a parallel process to student goal setting and contributes to the overall process. Furthermore, Raider-Roth (2008) described that sharing a trusting relationship with teachers develops a student’s self-efficacy. Similarly, developing a trusting relationship with the Vice Principal seems to have supported the teachers’ confidence and engagement. Gloria and Susan, for example, discussed how they met with the vice principal and created professional
goals related to implementing the CCSS. The school district administration guided its teachers to be more knowledgeable with the CCSS by directly tying district goals to teacher expectations of instruction, and the teachers created a unit of instruction to help complete each of their goals. Furthermore, the administrators followed up with the teacher’s work and witnessed the implementation. While the students were demonstrating their learning, the vice principal came in to observe both student and teacher goal success, in turn, making them feel more confident and aware of what it took to implement the CCSS.

**Student goal setting.** It seems like the process of goal setting and trust building with the administrator created the space for teachers to develop a similar opportunity with their students. The participants in this study built trusting relationships with their students, partly by allowing them to set personal goals for themselves (Raider-Roth, 2008). For example, teachers provided students the opportunities to choose the most appropriate learning strategies, guide their own learning, and/or choose texts at their preferred level of difficulty for comprehension. In the process, the students became able to recognize their learning needs and advocate for the strategies that improved their academic success (Zins, Bloodworth, Weissberg, & Walberg, 2007). Furthermore, while the students were demonstrating their learning, the vice principal came in to observe both the students’ and teachers’ goal success, supporting the type of learning environment mandated by the Common Core.

**Trust building as a function of goal setting.** Blackburn (2013) develops the notion of creating a cycle of trust within the classroom for students to continue pushing themselves. Creating an environment that fosters critical thinking, such as Susan’s use of the Responsive Classroom model, will increase the students’ self-confidence in tackling difficult tasks (Zin et al., 2007). According to Susan, she found that as her students’ confidence developed, they became
more apt to try tasks that require more critical thinking skills. Critical thinking also fosters an environment for enhanced learning (Heritage, 2010; Jonassen, 2011; Pithers & Soden, 2000). The teacher is developing an environment for critical thinking skills to emerge, and they are doing so within the trusting environment that the administrators already began to develop. The administrators developed an environment of trust by supporting teacher goal setting and collaborative planning time toward reaching those goals. As a result, the teachers and the students engaged in a similar learning process. Gloria and Susan had the students create goals in the independent learning tasks. Each teacher had the students select a topic or “I can…” statement. Students then created a goal with the objective being for a deeper understanding of content and skills. Like Pithers & Soden’s (2000) assertion that teachers provide opportunities for students to tackle critical thinking problems, Susan and Gloria are providing these exchanges through building trust, setting goals, and creating safe and learning-focused interactions with their students.

**Immediate feedback as a component of effective goal setting.** Gioka (2009) discusses the importance of providing immediate feedback to students in order to allow for self-reflection. Joey provides critical feedback during independent reading conferences, stopping the student to ask questions to assess understanding of their “at level” texts. These conferences allow students to set common expectations with the teacher about what they are working on and establish common understanding about how they are progressing. These mini-conferences are essential to both the students and teachers, because they allow for students to reflect upon their own metacognition development and the teachers reflect upon their own instructional practices and strategies (Krause & Stark, 2010). Reflection paired with critical-thinking skills provides a more rigorous environment for students to trust and embrace learning (Dockter, Haug, & Lewis, 2010).
**Goal setting without student input.** Ann created goals but did not present these goals to their students. For example, Ann created progress reports for her students that were included in each student’s personal individual education plans. Contrary to Marzano’s (2013) idea in having student become part of process to develop academic goals, she never alluded to the students’ awareness of their particular goals. It was not as clear in the context where the students did not participate in creating their individual education plan how the individual education plan goals affected student learning. However, the administration in Ann’s building facilitates student goal-setting in a different format. Ann describes that the teams meet twice a month to create intervention groups. In this way, the teachers work together to create a goal through identifying of weakness for their students. At subsequent meetings, the teachers discuss assessment data to see if the intervention goals have been attained. The team then reformulated and reevaluated the grade level’s progress at the next meeting. While the administration does create a learning community for teachers to share and grow professionally, it seems like leaving students out of the goal setting and evaluation process interrupts the learning opportunity for the students, as it prevents them from engaging in the learning process to the same degree. While Ann describes the value of goal setting, the teachers who talked about including the students in the process described a more engaged and reciprocal learning environment.

There are many interactions that occur throughout the implementation of the CCSS. There appears to be a lack of collaboration between the districts in the state of New Hampshire, but varied forms of collaboration between district leaders, teachers, and students. Teachers must change their prior knowledge, which, as Haager and Vaughn (2013) state, is extremely difficult. Each teacher’s understanding is built upon prior experience on his or her education and/or teaching practices (Kleckmann, Ritcher, Kunter, Elsner, Besser, Krauss, & Baumer, 2012;
Reybold, Flores, & Riojas-Cortez, 2006). Along with their change, teachers need to reconsider the student’s level of prior knowledge to attain the goals of the CCSS. Finally, the process of including all members of the learning community in the goal setting process is critical to navigating the changes associated with implementing the Common Core.

Goal setting helps teachers create common goals (Lemke, 2004) around CCSS, which can then lead to a common understanding of instruction practices. Gabbard & Krebs (2012) posit that interactions constantly occur within each ecological system. In the case of this study, feedback is given from each system to the other. For example, teachers trust one another to provide feedback on practices. Teachers also create goals with students and provide feedback about their progress. Administrators provide feedback to teachers to help reflect upon instructional practices in relation to CCSS. Each system creates a set of goals to achieve and there is a conversation occurring between each system toward improved understanding at all levels of the learning system.

**Implications of Study**

The purpose of this study was to explore the ways elementary teachers have implemented the CCSS within the state of New Hampshire, and the two most important thing that I learned from this research are as follows: 1) it is essential to create a safe learning environment for everyone involved, because the implementation process requires administrators, teachers and students to learn new ways of going about school; and 2) the implementation process must cross systems boundaries, engaging individuals across those systems in collaborative work. Everyone involved must have the opportunity to develop a sense of ownership and power. This study provides a platform for practitioners to empower themselves and others throughout the process of implementing the CCSS.
**Teacher.** This study highlights that teachers are learning how to become effective facilitators in the classroom. Teachers are at the center of a complex system between the expectations from the state, district leaders, and building administrators. They are constantly adapting classroom practices by juggling the current mandates and the understandings students demonstrate.

Tasks that are embedded within a real world situation are taking the place of rote learning. Rather than doing multiple problems, students are asked to do one or two critical thinking problems to demonstrate their learning. Implementing this change is a complex process, and no one can work toward the change in isolation. This study provides a view of how teachers rely on collaboration as they make sense of and implement the state standards.

This study demonstrates how teacher, administration, and students can create a learning situation to bring about change. School administrators receive and make sense of feedback from parent correspondences and student achievement data. Teachers work together to build their own understanding while also developing criteria and resources to support and assess students’ learning within the Common Core Curriculum. Finally, teachers work with the students to facilitate their learning and growth, focusing both on the curriculum and what it looks like to take responsibility of their own learning within it.

**District Administration.** The complexity of implementing a new net of standards allows for district leader to bridge each stakeholder within the complex system. Leaders must help teachers create a common understanding about the CCSS. They must also help bridge this new thinking with parents.

This study revealed district leaders are working towards a common understanding about what this new set of expectations looks like in practice. They do this through workshops, team
planning time, vertical team planning, and supporting teachers’ professional goal setting around the CCSS. According to the participants, the administrator not only supports the teachers’ goals, but also the students’ goals by coming into the classroom and observing. However, even with layers of collaborative work, multiple interpretations remain. For example, participants in this study have not achieved a common definition of rigor. Administration could take this opportunity to continue building their staff as a community of learners and facilitate a collaborative definition of rigor that is relevant to their school community. With that in hand, teachers can use the definition and the process of constructing it as a stepping-stone for developing rigorous tasks for their students. In addition, having a clear and shared definition allows teachers to provide clearer feedback when goal-setting with students.

Administrators must create the space and opportunity for teachers to develop learning tasks based on the schools newly acquired definition. Teachers can build curriculum maps and identify goals for the general student population. The teachers can collaborate with one another to deconstruct the standards and determine the level of rigor that needs to be met and achieved through goal setting. Once determined, the teacher can create authentic, real-world tasks for students to solve. Thus student data can be used to further develop the curriculum map for teachers.

Administrators also have to support parent understanding. Parents play a valuable role within the complex system of the implementation of the CCSS. This study revealed that parents are open-minded to the concepts of the CCSS at the site of this study. However, parents are in need of more information as to how their children are learning. The Common Core demands a level of reform that forces parents, as well as school personnel and students, to think about schooling in new ways. When the students’ parents went to school, education was different, and
Administrators can assist parents in bridging the school and the home by helping parents learn how to support their children’s goal setting around their education. By setting goals with their children, parents are effectively creating a community surrounding their education. However, parents need training about how to do participate in and support this implementation process too.

Administrators can help parents create a learning partnership with the school or the district. Parents can be updated with the latest strategies and educational trends to support their children at home by district leaders and teachers. They could be taught how to evaluate a text that can challenge their child’s understanding. Parents would develop a sense of empowerment by directly affecting their child’s learning and augment their academic success.

District administrators could aid teachers and parents toward developing a sense of empowerment as they set out to devise powerful resources and strategies that could be used for student academic achievement. As a result, the teachers become more vested in the student’s learning and students become more vested in their own learning. Ultimately, the school would become a learning community for all stakeholders: administration, teachers, students, and parents.

**Limitations of Study**

The researcher recognizes there are limitations within the study. The limitations are stated below:

- This study only sought fourth grade teachers.
- All participants were from a single research site.
- Three participants were at a single elementary school at the research site, while the other was at another elementary school within the same district.
As recommended by Interpretative Phenomenological Analysis the sample for this investigation was small, so the findings are particular to the site. Transferability will depend on the degree to which the context described here reflects other school settings.

- The data were collected during the last two weeks of school.
- Participants were all considered veteran teachers, and new teacher experiences may differ.

**Future Topics of Study**

The purpose of the study was to explore how elementary teachers within the state of New Hampshire are implementing the CCSS. The study resulted in five findings collected from shared experiences of four fourth grade elementary teachers. From the findings, the researcher has compiled a list of recommendations for future study to aid in the implementation of the CCSS in school district across the United States. The recommendations are:

- Blackburn (2013, p.10) defines rigor as “creating an environment in which each student is expected to learn at high levels, each student is supported so he or she can learn at high levels, and each student demonstrates learning at high levels.” This study showed that teachers have various definitions of rigor. A study exploring the definition of rigor would help teachers implement, through common understanding, instruction steeped in rigor.
- This study focused on fourth grade teachers. Additional studies across the various grade levels might highlight different themes or areas of concern for each grade level.
- This study focused on the state of New Hampshire, where the districts are choosing district-led implementation. A comparative study with similar states may unveil new themes. Also, a comparative study with states using a top down mode of implementation could have unique themes emerge.
• A case study analysis of teachers implementing the CCSS in the classroom would use artifacts and observation to gather more of the teacher’s experience.

• Students are being asked to learn skills and concepts at a much more rigorous level. However, more information is recommended in seeing how students are transitioning with the new state standards.

Conclusion

The CCSS asks teachers to engage in educational reform throughout the United States. The purpose of the standards is to create commonality in educational content and skills at a much more rigorous level to evoke deeper meaning within the expectations of learning for the students. States across the country have chosen different methods of implementation. The state of Kentucky has chosen to interpret the standards for their districts. In contrast, the state of New Hampshire has each district interpreting the standards independently from the other districts within the state. New Hampshire’s bottom up approach lead for the researcher to questions how the CCSS was implemented within the state.

Ecological Systems Theory provided a lens to understand the relationship of the system and how it’s contextual pieces affect a center point or vice versa. By having the district administration empower teachers to set goals, the teachers felt the need to empower the students by forming goals. The students then informed the teacher of their understanding through the use of formative and summative assessments. As a result, the teacher reacted by implementing differentiated teaching strategies to help the student gain understanding of skills and concepts.

Through the use of Interpretive Phenomenological Analysis, four findings emerged: It is essential for all members of a learning system to take ownership of the process and participate in setting goals; CCSS creates an opportunity for collectively building a new understanding about
and approach to schooling, including building a common understanding of the nebulous construct of rigor; New approaches mean new measures, especially as we support individual student goals; Lastly, students and teachers are in the middle of a transition period in grappling with a deeper understanding of how the CCSS redefine what we mean by schooling, and it is apparent from this study that the process must be collaborative. Teachers are no longer alone in the classroom. Administrators, teachers, students and parents unite as a cohesive and active team and together strive to ensure everyone’s needs are met and student outcomes improve.
Reflection

Neither my parents nor my brother graduated from high school. To this day, my family does not have a full understanding as to why I would want to conduct this study. As a student in elementary school, my life was consumed with my parents’ divorce, cleaning and managing the house, and also my schoolwork. In retrospect, I am the student that just skated by or fell off the radar. There were few teachers that would try to push the envelope with me or see my full potential. In fact, upon entering high school they placed me in all remedial classes.

This required me to think about my own learning and what got me labeled “remedial.” I had teachers asking me to solve math problem after math problem and to memorize formulas. One teacher assessed us by asking us to write twenty-five things we learned in class based on his slide shows of him touring the United States with his son. My point is that I was not challenged with my thinking. At times, I feel that I was cheated out of a quality education.

My background, my teacher’s lack of pedagogy, and my ability to fly under the radar makes me reflect constantly upon my own teaching practices. During the first few years of teaching, I felt myself being bored and unchallenged by what I was delivering to students. In turn, this was reflected in the students and their scores. I decided to move into a more progressive district that provided trainings for teachers to deliver a more rigorous instruction. As I began to learn with my students, I saw that I was engaged and they were engaged. The students’ scores even showed vast improvement as well. However, this success came with some hurdles.

I soon found myself defending my practices with colleagues. They felt that my ideas were too “progressive” and would not work. However, my personal belief is that if you challenge students, they will rise to the occasion and surprise you. I found myself on the defensive, standing up for what I believed in and, at times, feeling bullied for my ideals.
The goal of this study was to help me explore what it looks like when teachers have to change and improve their practice, partly because I thought I had it all figured out. The process of my doctoral research, though, has allowed me not only to explore what professional development looks like in the context of the Common Core, but it has also forced me to learn how to look critically at my own teaching and while making room for other perspectives as well.

It has shown me that critical thinking takes on many different appearances. No matter the context or position we inhabit, educational research allows us to become better problem-solvers for our institutions.

The process of this study has transformed me into a leader and scholar practitioner. Rather than accepting the way things are, I am apt to ask questions, seek answers, and orchestrate change in collaboration with my colleagues. Just as in the engineering design process, we must recognize the problem, seek understanding, find solutions, and constantly improve.

Prior to the beginning of the study, I would have considered myself more of an elitist when it came to classroom practices. I often viewed other teachers as not performing up to my standards. However, this study has shown me that teachers are making changes in their practices. I have learned that change is a process that must be nurtured and those who are changing must be guided and feel supported. We are not alone in making students and our schools become as successful as they can be.
References


Executive Office President's Council of Advisors Science and Technology. (2010, September). Prepare and inspire: K-12 education in science, technology, engineering, and math (stem) for america's future.


Hacker, D. J., & Dunlosky, J. (2003, October 8). Not all metacognition is created equal. New Directions For Teaching and Learning, 2003(95), 73-79. doi:10.1002/tl.116


http://dx.doi.org/0.3102/0013189X13512676


Executive Office President's Council of Advisors Science and Technology. (2010, September). Prepare and inspire: K-12 education in science, technology, engineering, and math (stem) for america's future.


Rousseau, J. J. (1762). Emile: or, on education.


http://dx.doi.org/10.1348/000709910X517425


doi:10.1080/03043790410001716257

Cambridge: Harvard University Press.


http://dx.doi.org/10.3102/0028312040004807
Dr. Nelson, Dr. Connors-Krikorian, and School Board Members:

I am writing to request permission to conduct research for my dissertation at the Ernest P. Barka Elementary School. As a doctoral candidate in the Doctorate of Education Program at Northeastern University, I am looking to explore the ways teachers are implementing a more rigorous curriculum under the Common Core State Standards. The following are the research questions guiding my research study: Overarching Question—What are the ways teachers are changing their practices in order to meet the demands of the Common Core State Standards? Sub question—How are the resources that districts and schools are providing to help teachers transition into utilizing Common Core State Standards? Sub question—How do teachers assess their students based on the new higher-level thinking demands of the Common Core State Standards?

The Common Core State Standards were created to have students attend to the curriculum at a more rigorous level. There is much debate as to how and the level at which teachers should be instructing. This study will be used as a tool for leaders, administrators, and teachers to have a discussion about good instructional practices that deliver curriculum at a deeper depth of knowledge.

Derry Cooperative School Board Strategic Plan #1 states, “To have all students, K-12, learning at a high level by: 1(a) providing a rigorous curriculum aligned with the Common Core for all students 1(b) having a high quality teacher in every classroom.” By participating in the study, the school district will contribute to its own reflection of curriculum practices, while also helping its teachers reflect upon their instructional practices. Not only will participating in the study contribute to the Derry Cooperative School District, it will also contribute upon the global educational community.

This study seeks to have a teacher from grades one, three, and five to participate in the study. Once the teachers have consented, they will be asked to partake in two interviews, one before school and one after school. The teachers will also be observed over a period of time teaching a unit. The researcher will look at artifacts the teachers produce to deliver instruction. The expectation is that the study will be concluded within a couple week’s time. Confidentiality will be at the strictest of importance, and since students are not participating in this study, there is no risk or burden to the students.

Thank you so much for your consideration to allow me to conduct research within the Derry Cooperative School District. If there are any questions, please do not hesitate to contact me.

Sincerely,

Steve J. Lebel
Appendix B:

Dear Fourth Grade Teachers,

As part of my EdD program at Northeastern University, I am conducting a study that will investigate what an elementary teacher does to implement the Common Core State Standards within the state of New Hampshire. I am looking for three to five fourth grade teachers to participate in my study. If you would like to participate email me at lebel.s@husky.neu.edu or call me at 603.858.1531.

Sincerely,

Steve Lebel
Appendix C:

Northeastern University, Doctorate of Education  
Name of Investigator: Steve Lebel  
Title of Project: Elementary Teachers Implementing The Common Core State Standards

Informed Consent to Participate in a Research Study  
I am inviting you to take part in a research study. This form will tell you about the study, but the researcher will explain it to you first. You may ask this person any question that you have. When you are ready to make a decision, you may tell the researcher if you want to participate or not. You do not have to participate if you do not want to. If you decide to participate, the researcher will ask you to sign this statement and will give you a copy to keep.

Why am I being asked to take part in this research study?  
I am asking you to be in this study because you are a fourth grade elementary teacher who implements the Common Core State Standards within the state of New Hampshire.

Why is this research study being done?  
The purpose of this study is to explore what an elementary teacher does to implement the Common Core State Standards within the state of New Hampshire.

What will I be asked to do?  
If you decide to take part in this study, I will ask you to participate in a 45-90 minute interview discussing what it is like to be an elementary teacher who implements the Common Core State Standards within the state of New Hampshire.

Where will this take place and how much of my time will it take?  
You will participate in a 45-90 minute interview. The location will be determined for your convenience.

Will there be any risk or discomfort to me?  
The level of risk for this study would be low.

Will I benefit by being in this research?  
You will benefit from participating in this study from looking at your own practices through a critical lens. You will be able to make curricular connections through this real-world activity. Lastly, this will provide you a unique ways of reflecting upon your instruction.

Who will see the information about me?  
Your part in this study will be confidential. Only the researcher on this study will see the information about you. No reports or publications will use information that can identify you in any away or any individual as being of this project.

All notes and recordings will be saved within a secure database that will require a password to open the document. All paper copies and a flash drive containing digital copies will be kept in a locked filing cabinet that only the research posses the key. REV, the transcription service has
ensured confidentiality of all material that is submitted. All files and documents will be destroyed within a year’s time to ensure confidentiality.

**What will happen if I suffer any harm from this research?**  
No special arrangements will be made for compensation or for payment for treatment solely because of my participation in this research.

**Can I stop my participation in this study?**  
Your participation in this research is completely voluntary. You do not have to participate if you do not want to and you can refuse to answer any question. Even if you begin the study, you may quit at any time. If you do not participate or if you decide to quit, you will not lose any rights, benefits, or services that you would otherwise have as an employee.

**Who can I contact if I have questions of problems?**  
If you have any questions about this study, please feel free to contact Steve Lebel, Doctoral Candidate, 40 Border Street, Amherst, NH, 03031. Tel: 603.858.1531, Email: lebel.s@huskey.neu.edu, the person mainly responsible for the research.

**Who can I contact about my rights as a participant?**  
If you have any questions about your rights in this research, you may contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, Ma 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

**Will I be paid for my participation?**  
You will be give a $10 gift certificate to Panera as soon you complete the post interview.

**Will it cost me anything to participate?**  
There may be costs of gas to drive to a location to conduct the interview.

I agree to take part in this research.

___________________________________  ____________________
Signature of person agreeing to take part  Date

_________________________________________    _____________________
Printed name of person above  Date

_________________________________________    _____________________
Signature of person who explained the study to participant above and obtained consent  Date

_________________________________________    _____________________
Printed name of person above
Appendix D:

Interview Protocol

Interviewee (Title and Name):
Interviewer: Steve Lebel
Date: ________________________
Location of Interview:

INTRODUCTION
Part I: Introductory Question Objectives (5-7 minutes): Build rapport, describe the study, answer any questions, review and sign IRB protocol and form for audio recording.

Introductory Protocol
You have volunteered to speak with me today because you would like to provide insights in instructional practices within the elementary classroom. Through this study, we hope to learn more about how teachers are implementing a more rigorous curriculum under the Common Core State Standards.

Because your responses are important and I want to make sure to capture everything you say, I would like to record our conversation today. I will also be taking written notes during the interview. I can assure you that all responses will be confidential and only a pseudonym will be used when quoting from the transcripts. A transcriptionist will transcribe the recordings, but the pseudonym will be used to label the tapes. I will be the only one privy to transcripts and information and the tapes will be destroyed after they are transcribed.

To meet our human subjects’ requirements at the university, you must sign the form I have emailed to you. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm (allow time to review form). Do you have any questions about the interview process or this form?

We have planned this interview to last approximately one hour. During this time, I have several questions that I would like to cover. However please feel free to bring up topics that you feel are related. Do you have any questions at this time?

Introduction to Interview
   Interviewee Background – I am Steve Lebel, a doctoral student at Northeastern University, my dissertation research centers around the instructional practices within an elementary classroom. Currently, I am a second grade teacher within our district.

Questions:

1. Tell me about your current position and your previous work experience.
2. Explain what the Common Core State Standards represent to you.
3. What does rigor mean to you?
4. Describe the resources you are using to create instructional strategies in the classroom.
5. Explain the steps you went into designing and creating a unit of instruction under the Common Core State Standards

**Additional questions may be appropriate to clarify or expand on themes developed in the research.**