The Transition to Common Core—One Middle School’s Story

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Abstract

The Attleboro Public Schools had two years to get ready for the 2013-2014 full implementation of the Common Core State Standards for Mathematics (CCSSM). However, each school district in Massachusetts has engaged in a different process to support the middle schools with their transition to the new standards (Davis, Choppin, McDuffie, & Drake, 2013). A qualitative case study design was used to answer the question, with respect to the transition to CCSSM standards, how does the Attleboro Public School District PD support middle school math teachers in making the transition to Common Core Standards as perceived by Attleboro educators?

The findings in Attleboro have been positive and the perception of staff is one of investment in what they do. There happened to be an underlining tone that teachers craved more professional development. Staff were clear on this point, and although they were in the midst of these curricular changes, they stated that the PD was still a critical part of moving forward. Further, staff found the PD very useful because they did see the connection from what they do as teachers to what they are learning in the workshops.

Another equally important finding was the fact that the teachers realized that the Common Core calls for rethinking the way in which we teach mathematics. This not only has called for a deeper understanding of the mathematics being taught but the attention to detail has teachers rethinking their comfort in their own personal knowledge of mathematics.

Keywords: Common Core State Standards, Teacher Professional Development, Perceptions of Professional Development, Mathematics, and Education Reform.
Chapter One: Introduction

Today, more than ever, we have an obligation to improve our schools and the greater educational environment (Duncan, 2009). There is a need to transform our educational systems because we live in an ever-changing, fast paced world where information is available almost everywhere and instantaneously. However, as Kaniuka (2012) notes, “school reform is not performed in isolation; rather, the context in which it occurs must be considered as to how it influences the implementation and ultimate success of the reform” (p. 327). One reform that is presently being implemented in education across the nation is the Common Core State Standards Initiative (CCSSI).

The CCSSI was adopted by Massachusetts on July 21, 2010 (Common Core State Standards Initiative, 2010), and it is officially embedded in the Massachusetts’s 2011 Educational Frameworks. Massachusetts is one of 45 states that have joined the CCSSI. The Common Core State Standards for Mathematics (CCSSM) frameworks offer the nation a shared and common mathematical standard for grades K through 12. The purpose of these standards is to:

…stress not only procedural skill but also conceptual understanding, to make sure students are learning and absorbing the critical information they need to succeed at higher levels - rather than the current practices by which many students learn enough to get by on the next test, but forget it shortly thereafter, only to review again the following year (CCSS, 2012, p. 1).

However, the adoption of these shared standards are not enough; an additional focus must also be on the implementation of these standards. As the National Governors Association (2013) has noted, “although the development of the [Common Core] standards in their widespread adoption
by states are a significant milestone in American education, successful implementation is necessary if the students across the country are to benefit” (National Governors Association, 2013a, p. 1).

The Attleboro Public Schools had two years to prepare for the full implementation of the CCSSM during the 2013-2014 school year. Even though it stands to reason two years is a sufficient amount of time to prepare, a recent study by Davis, Choppin, McDuffie, and Drake (2013) suggests that professional development (PD) in the adoption of the CCSSM nationwide is still lacking. In their report, the authors concluded that professional development needs to focus on pointing out new content compared with previous state curriculum frameworks… [In addition,] in the absence of CCSSM-aligned curriculum materials, teachers need professional development focusing on how to identify online materials to determine their quality and the degree to which they align with the CCSSM Content Standards and embody the CCSSM Standards for Mathematical Practice (p. 2).

Part of the reason why PD is lagging with respect to the adoption of the CCSSM may be because each district has engaged in a different process to support their schools in adopting the CCSSM (Baehr, Johnson, Mitchell, Nellhaus, & Reville, 2010). Because each school district has approached the implementation differently schools are not able to share resources and establish best practices. This leaves a dichotomy between districts with some of the nation’s schools having a successful PD plan for the transition in place, while other districts have either an inadequate plan or no plan at all. The lack of consistency across school districts noted by Baher et al. (2010) provides a basis for the question of whether there is adequate support in place with respect to PD in the Attleboro Public School District. In other words, does the Attleboro Public
School District have an adequate PD plan of action in place to support teachers as they make the transition to CCSSM standards?

Districts need to understand how the PD strategy that is planned within the Attleboro Public School District is being implemented at the individual building level this year, and how the implementation of the PD plan will impact all stakeholders involved in the CCSSM implementation process. As such, the purpose of this research was to investigate whether or not the district’s PD plan to support teachers as they transition to the CCSSM is helpful as perceived by Attleboro Educators.

The Attleboro district must remember that educating teachers about the CCSSM and supporting teachers in their implementation of these standards is critical (Walker, 2007). Currently, K-12 mathematics teachers in Attleboro are struggling with the new CCSSM guidelines because standards-based reform efforts in mathematics require many teachers to re-learn their practice so that they can help improve students’ understanding and mastery of mathematical ideas (Garet, Warner, National Center for Education Evaluation and Regional Assistance, & Institute of Education Sciences, 2011). Furthermore, “based on the idea that educators must accept and understand the reform and, in response, be willing to change their instructional practices” (Bostic & Matney, 2013; Desimone, 2013, p.59) the Attleboro district will need to understand how the PD that is being implemented at the individual building level this year will impact all stakeholders involved in the process of CCSSM adoption.

One of the barriers for implementation of CCSSI reform in Attleboro is teacher readiness (Cogan, Schmidt, & Houang, 2013). If Attleboro Schools do not address the needs of teachers and the barriers that prevent teachers from adopting CCSSI, then the district may ultimately see a decline in student achievement. One way that Attleboro is trying to avoid this situation is to
provide effective PD to its teachers. But is this really being done, and more importantly, do teachers believe this is being done? In order to answer this question, this descriptive case study examined the process of CCSSM adoption by the middle school math teachers in Attleboro, Massachusetts in order to ascertain how they believe that the PD they have received is (or is not) meeting their needs. Collecting feedback on the process of CCSSM adoption from multiple stakeholders allowed the researcher to use the data as evidence to back recommendations for how school districts could possibly better support the professional development needs of their teachers to implement the new Common Core Standards. It is hoped that these best practices can be used to inform an improved implementation plan for the CCSSM in the Attleboro Public School District.

Currently there is little empirical research regarding PD issues as they relate to the transition of Massachusetts school districts to CCSSM. In contrast is the body of literature (Davis, Choppin, McDuffie, & Drake, 2013; Drago-Severson, 2004; Garet et al., 2010; Massachusetts Department of Elementary and Secondary Education, 2013a; Massachusetts Department of Elementary and Secondary Education, 2013b) that documents the need for state and local assistance to help teachers with the implementation of curriculum reform. A recent study by Bostic and Matney (2013) concluded there needs to be more PD with respect to the CCSSM and its phased implementation. This study adopted the position that an increased understanding among teachers of the new CCSSM standards would help districts with the CCSSM implementation.

Districts, administrators, curriculum heads, school committees, teachers and community members of all Massachusetts school districts may be better informed about the current reform efforts, curricular decisions and PD offerings by being able to explore the Attleboro Public
School District’s ongoing efforts to support middle school teachers in their transition to the CCSSM. This study provides stakeholders with rich data that can be used to reflect, revisit and potentially reinvest time into this transition, as well as add to the scholarly literature regarding CCSSM and educational reform efforts.

**Significance of Research Problem**

As reported by *A Nation at Risk*, more than 40% of students are not prepared for college or the workforce (Mondale & Patton, 2001). With the adoption of the CCSSM, 45 states are now implementing a new “set of standards whose mastery will provide each student with the skill and knowledge to advance in study” (Kendall, 2011 p. 141). The CCSSM standards are “designed to be both challenging to students and coherent as a system, the Common Core benefits from and amplifies the effectiveness of good teaching” (Kendall, 2011 p. 434). With the current standards-based reform in mathematics being implemented, support for Attleboro district teachers is necessary and critical for program success and student achievement (Drago-Severson, 2004; Garet, Warner, National Center for Education Evaluation and Regional Assistance, & Institute of Education Sciences, 2011). Adding to the urgency of this matter, a recent study documented inconsistent PD while rolling out the CCSSM (Davis, Choppin, McDuffie, & Drake, 2013). This study added to the body of literature and provides evidence that it is necessary to have a consistent and transparent PD plan in the rollout of CCSSM in Massachusetts’ School Districts.

**Central Research Question**

The overarching research question that framed this qualitative descriptive case study was as follows:
With respect to the transition to CCSSM standards, how does the Attleboro Public School District PD support middle school math teachers in making the transition to Common Core Standards as perceived by Attleboro educators?

**Theoretical Framework**

A theoretical framework informed and guided the researcher through the literature review, data analysis and conclusions. Knowles (2012) Andragogical Process Model for Learning (AMP) was used as a framework to inform this study. The APM provided the researcher with the necessary theoretical lens by which to properly document what the staff in the Attleboro Public School District has in place to support middle schools as they fully transitioned to the 2011 Massachusetts Mathematics Frameworks with the Common Core embedded.

**Adult Learning Theory: Andragogical Process Model for Learning.** To explain this theoretical process model, one must first look to the andragogical content model. The andragogical content model delivers knowledge or skills that were predetermined in the forms of “lectures, readings, laboratory exercises, films, tapes, etc., and then develop a plan for presenting these concepts” (Knowles, Holton, & Swanson, 2005, p. 114). As stated by Knowles, Holton and Swanson (2005), the andragogical process is a set of procedures for involving the learners and other relevant parties in a process involving these elements: (1) preparing the learner; (2) establishing a climate conducive to learning; (3) create a mechanism for mutual planning; (4) diagnosing the needs for learning; (5) formulating program objectives (which is content) that will satisfy these needs; (6) designing a pattern of learning experiences; (7) conducting these learning experiences with suitable techniques and materials; and (8) evaluating the learning
outcomes and redesigning the learning needs (Knowles, Holton, & Swanson, 2005, p.114).

This study utilized the APM framework as a method to collect data on each given process. The following sections briefly describe each process associated with the model in which the researcher will organized and framed the study and created and used in the interview protocol.

**Preparing the learner.** While this is a relatively new category in the model, preparing the learner (Knowles, 1995) needs to be a focus when dealing with new information to deliver to adult learners. This addresses the idea that adults need to know why they are learning the material at hand. As a variable that affects the transfer of learning, participant characteristics (e.g., pre-training motivation) plays a role in predicting transfer of training (S. B. Merriam & Leahy, 2005). It can therefore be argued that if the adult learners are not motivated, they will not be likely to internalize new knowledge.

**Establishing a climate conducive to learning.** In order to have an atmosphere that will create a room full of learners, one must first have a climate that will allow people to feel safe. A positive physiological climate is one where mutual respect, collaboration, mutual trust, support, openness and authenticity, and pleasure are available and present to the learner (Knowles, Holton, & Swanson, 2005). The second feature of a climate that is conductive to learning is the physical climate, as “the physical environment requires provision for animal comforts (temperature, ventilation, easy access to refreshments and restaurants, comfortable chairs, adequate light, good acoustics, etc.) to avoid blocks to learn” (Knowles, Holton, & Swanson, 2005, p. 117). This environment was evaluated as part of the investigation.
Create a mechanism for mutual planning. This is a critical piece of the andragogical puzzle. The difference between an andragogical model and a pedagogical model is that in the andragogical view, the planners of learning take into account the adult learner. In most cases organizations will create committees that involve the learners as active planners. “Merely having a mechanism for mutual planning will not suffice. Members of the planning group must be treated in good faith, with a real delegation of responsibility in real influence in decision-making, or the process will backfire” (Knowles, Holton, & Swanson, 2005, p. 122).

Diagnosing the needs for learning. “Learners can share in small groups what they perceive their needs and interests to be regarding the acquisition of knowledge or skill” (U/K, p. 8). Doing so allows adults to feel like they are actively involved in the process. Moreover, the trainer or teacher will use information to proceed with the course content, ultimately trying to tie this information throughout. As Knowles states, “When learners understand how the acquisition of certain knowledge or skills will add to their ability to perform better in life, they will enter into even didactic instructional situations with a clearer sense of purpose and see what they learn as more personal” (Knowles, Holton, & Swanson, 2005, p. 124).

Formulating program objectives. Program objectives need to be presented at the learners level. These objectives can be stated “in terms of the desired accomplishments” (2005, p. 126) by involving the learner along the way. The fundamental premise on all of these processes is keeping the learner in the loop as they progress with their learning and or program design components (Knowles, Holton, & Swanson, 2005). If the learner does not know where they are going and why, the learner will lose the motivational factor for engagement.

Designing a pattern of learning experiences. This process element focuses on designing a pattern of learning utilizing different methodologies for how adults learn. From
working individually, in groups, or in larger masses of people, “the Andragogical Design Model involves choosing problem areas that have been identified by learners through self-diagnostic procedures and selecting appropriate formats” to deliver instruction (Knowles, Holton, & Swanson, 2005, p. 129). The pattern of learning experiences element defines the actions the trainer/educator must do in to present the material in a logical way that engages the adult learner.

**Conducting learning experiences with suitable techniques and materials.** This element can be boiled down to human resource management. In essence, one is the developer and must select the appropriate people to deliver instruction. In this case, “the single most critical aspect of the role of program administrator is to function as a developer of human resources development personnel” (Knowles, Holton, & Swanson, 2005, p. 130). This means that staffing is of the upmost importance and in order to have a successful program; in other words, the teacher matters.

**Evaluating the learning outcomes and redesigning the learning needs.** This area is just what it says: evaluation to determine how well one has done. Although there are several scholars that focus on program evaluation, the one who remains at or near the forefront is Donald Kirkpatrick and his ideas on the Four Levels of Evaluation. Kirkpatrick (2006) identifies a framework in order to evaluate training programs. Level 1, Reaction, relates to the participants satisfaction with the course. Level 2, Learning, will address the participants change in attitude and new knowledge of the content. The last level to be used is Level 3, Behavior, which aligns with the theory of Andragogy. Participants must have the desire to change and must be in a supportive environment to thrive (Kirkpatrick & Kirkpatrick, 2005; Knowles, Holton, & Swanson, 2005).
This framework was used to create an interview protocol aligned with Knowles’ APM. This model provided the lens in which the data was collected, examined, coded and analyzed. The researcher feels the APM provided the necessary information to start a conversation regarding the current implementation of the CCSSM. In the literature review, the researcher uncovered other aspects to adult learning and detailed the reform history and provided the necessary information regarding Massachusetts’ implementation plan for the CCSSM standards. This made an argument where it is necessary to study districts and the implementation process; specifically, what are the perceptions of teachers in the Attleboro Public School District PD concerning district support given to middle school math teachers in making the transition to Common Core Standards?
Chapter Two: Literature Review

Introduction

This chapter presents a review of the relevant literature. It focuses on describing and making sense of the process by which the Attleboro Public School district supports middle schools as they fully transition to the CCSSM this year. The literature review is organized into the following overarching sections: Adult Learning and Reform.

The ideas and concepts presented for this study were obtained from several sources, including dissertations, journal articles, books, research databases, and government and nongovernmental organization reports. The databases used for this literature review include ERIC, UMI Dissertation Abstracts, Pro-Quest, Science Direct and Emerald. The search items used for this study were curriculum reform, mathematics reform, adult learning, professional development, and Common Core State Standards for Mathematics.

In each of the following sections the researcher provides a detailed analysis and summary to engage in making sense of what needs to be in place organizationally and professionally for reform to take root. This review supports the data collection and analysis process of this study and provided the researcher a firm knowledge base in the literature for the study and specifically supports the discussion in Chapter 5 of this thesis.

Adult Learning

This section of the literature review will define the adult learner. For years it was thought “that as one aged, the ability to learn declined” (Merriam, 2004, p. 200). As Lorge (1944; 1947) concluded, this was not the case, and when time constraints were removed, adults did as well as younger people (Merriam, 2004). This provided the opportunity to solicit more research in the area of adult learning. Piaget was central to this work and his view of the “stages of cognitive
development [that] became the foundation for other models [of learning], some of which deal more explicitly with adults” (Merriam, 2004, p. 201).

Hansman and Mott (2010) define the adult learner as someone that has taken on “the social, psychological, and/or economic roles typically expected of adults in their cultures and collective societies,” as well as those “who engage in learning activities that may promote any sustained change in thinking, values, or behavior” (p. 14-15). Merriam (2001) goes one step further and states that adult learning is a philosophy of life long learning. Interestingly, there has been a continued debate regarding the differentiation between adult and child learning. In fact, this debate about adult learning theories will continue to grow because “the workforce is transforming in ways, due to technological, economical, societal, and global alterations” (Hansman & Mott, p.15) that has forced industry to downsize the workforce that ultimately increases the competition for jobs.

**Adult learners.** According to Zemke (1981), “adults can be ordered into a classroom and prodded into a seat, but they cannot be forced to learn” (p. 45). Adults need to be motivated to learn (Falasca, 2011; Hansman & Mott, 2010; Lieb, 1991; R. Zemke & Zemke, 1981). Motivating the adult learner will be a focus of research for as long as we continue to educate the adults in our society. Thus, motivational factors provide a guide to further the development of our programs and courses designed for our adults. These motivational factors of adult learning include (Lieb, 1991):

- Social relationships: to make new friends, to meet a need for associations and friendships.
- External expectations: to comply with instructions from someone else; to fulfill the expectations or recommendations of someone with formal authority.
- Social welfare: to improve ability to serve mankind, prepare for service to the community, an improved
ability to participate in community work. Personal advancement: to achieve higher status in a job, secure professional advancement, and staying abreast of competitors.

Escape/Stimulation: to relieve boredom, provide a break in the routine of home or work, and provide a contrast to other exacting details of life. Cognitive interest: to learn for the sake of learning, seek knowledge for its own sake, and to satisfy inquiring mind (Lieb, 1991, p. 2).

As cited by Hansman and Mott (2010), these factors were boiled down into three types of motivation for learners: “(a) Goal-oriented learners, who seek to achieve specific outcomes; (b) activity-oriented learners, who like to be engaged but did not necessarily care what the activity was; and (c) learning-oriented learners, who like to learn for learning’s sake” (p.15). In congruence, Lieb (1991) describes his set of characteristics of adult learners. He states that adults are autonomous, have prior knowledge and experiences, are goal oriented, are relevancy-oriented, and are practical. These characteristics are important to consider when creating, implementing and evaluating adult learning experiences.

**Barriers to adult learning.** The barriers of adult learning can be more persuasive than that of children. Thematic barriers of adult learning were explicit throughout the adult learning body of literature. There are two main barriers according to Falasca (2011): external or situational, and internal or dispositional.

The first barriers, which can be described as external or situational, are as follows:

- Lack of time, family commitments, rising cost of education, lack of access to technology,
- effects of aging (loss of vision, hearing), changes in health or life events (marriage, birth, death, change in job), forced to attend for job security (Cross, 2004; Falasca, 2011; Hansman & Mott, 2010; Lieb, 1991). The second barrier, which can be described as
internal or dispositional, can be identified as the following: anxiety associated with going back to school, the feeling of being judged academically by others (teachers, peers), staying focused, low aspirations, negative perceptions of adult learning (Cross, 2004; Falasca, 2011; Hansman & Mott, 2010; Lieb, 1991).

Despite the barriers detailed here, it is important to overcome these with meaningful experiences that keep these barriers in sight while designing PD programming and working with adults.

In summary, there are many other factors that effect adult learning and are specific to the learner. It is true that the adult learner will always have challenges and barriers, and that these motivational barriers will continue to weigh upon many adults in society. Currently, there is a void in the research on adults that do not participate in adult learning opportunities. According to Hansman and Mott (2010), “research should include nonparticipating adults in an effort to better understand their reasons for their nonparticipation and try to meet their needs as future learners” (p. 20). What we know about adult learning is primarily based upon research studies conducted on those who participate in adult learning or research opportunities. For example, according to the National Center for Educational Statistics (NCES) and Bureau of Labor Statistics:

- Adult respondents earning more than $75,000 had the highest participation rates, followed by adults earning between $50,001 and $75,000. The group that reported the least amount of participation earned $20,000 or less each year.
- The least participation in any formal adult educational activity was reported by those with less than a high school diploma or equivalent (22%), while those who reported participating the most (66%) already had earned a graduate or professional degrees.
• Nearly half of the new job growth in the first decade of the 21st century required college or other postsecondary education (Hansman & Mott, 2010, p. 19).

According to this data, barriers are stacked against those with less education in favor of those who have more educational attainment. These factors, although just a few, can limit the participation rates of adult learning opportunities. “The research has shown that adult learners of any age can learn and succeed in their pursuits if they are afforded the opportunity, assistance and support they need” (Falasca, 2011, p. 587).

**Adult Learning Theories**

There are many philosophies of adult-learning to consider; however, for the purposes of this study, this review discussed three: Situated Learning (SL), Communities of Practice (CoP) and Andragogy.

**Situated Learning Theory (SLT).** Situated Learning Theory acknowledges two ideals about learning. The first is that meaning is constructed with and through others; second is the understanding that meaning is solidified in context (Lave & Wenger, 1991). SLT states that “knowledge are not restricted to the individual personality and cognitive capacity of the leader – entrepreneur, but constitute predominantly social processes, situated in practice” (Theodorakopoulos & Figueira, 2012, p. 862). This “perspective meant that there is no activity that is not situated” and it is focused on the person receiving the knowledge within the world around them (Lave & Wenger, 1991, p. 33). Lave and Wenger (1991) give an example of situated or peripheral participation by using an analogy of children. They are, after all, products of their environment, which would make a case that learning is happening in situational or in peripheral instances.
Situated learning frames how learning is interconnected with the social environment for which it is lived. For instance, as Wegner states, “if learning occurs naturally then what is needed is not to create learning, but rather to create circumstances that make learning empowering and productive” (Theodorakopoulos & Figueira, 2012, p. 863). This coincides with the notion above that “emphasis on comprehensive understanding involving the whole person rather than ‘receiving’ a body of factual knowledge about the world; on activity and with the world; and on the view that agent, activity, and the world mutually constitute each other” (Lave & Wenger, 1991, p. 33).

In a recent study, Theodorakopoulos and Figueira (2012) investigated a small successful firm and concluded within a successful firm the leadership “entails the construction of an organizational community – a community of employees rather than a company of employees constrained by traditional hierarchal configurations” (Theodorakopoulos & Figueira, 2012, p. 862). Thus, the successful nature of the organization was based on the social interactions embedded within the social networks of its workers, such as communities of practice.

To further this concept of SL, Cope (1999) describes “the distinction between ‘knowing how’ and ‘knowing that’ ” (p. 850). This concept details that it is not enough to have the knowledge, but how it is important to know and be able to identify and use that new knowledge in the appropriate times and way. For example, in a study of nursing students it was described for the readers that nursing students could, “be perfectly aware that particular symptoms indicate a particular diagnosis but may be unable to recognize them in a real situation” (Cope, Cuthbertson, & Stoddart, 1999, p. 851). This is what Lave and Wenger (1991) explain as “abstract representations are meaningless unless they can be made specific to the situation at hand” (Lave & Wenger, 1991, p. 33).
In summary, SL provides a framework for learning in the environment that is lived. “Opportunities for learning are, more often than not, given structure by work practices...[and] where the circulation of knowledge among peers and near-peers is possible, it spreads exceedingly rapidly and effectively” (Lave & Wenger, 1991, p. 93). In the workplace, adults experience learning opportunities on a day-to-day basis. Situated learning takes into consideration that environment. The surrounding environment frames the learning and is closely related to Wenger’s (1998) Communities of Practice. In the next section, Communities of Practice will be explored and further explained to enhance what we know about how adults learn.

**Communities of practice (CoP).** The concept of CoP is a “theoretical framework for understanding the information sharing that goes on in a social practice in the ways in which this information sharing changes individuals’ level of participation in their identity within the community” (Lave & Wenger, 1991; Merriam, 2004, p. 210; Wenger, 1998). This framework can be set up into four premises:

- We are all social beings, knowledge is a matter of competence with respect to value enterprises, knowing is a matter of participating in the pursuit of such enterprises that is, active engagement in the world, meaning – our ability to experience the world and our engagement with (Le, 2009, p. 5).

Since the publication of *Situated Learning Legitimate Peripheral Participation* by Lave and Wenger (1999), there has been growing attention to the concept of CoP. According to Wenger (1998), we all belong to CoPs, whether it be work or play, they are all around us. May (2009) and Wenger et al.’s (2001) complete a description of CoP and define a common definition for their work. It states that people that work or share a passion about a topic will learn by engaging with each other through their close informal communication. This is because they find value in
what they are doing, further, it is through this informal time that they may share insights, troubleshoot and brainstorm issues that they are facing on a daily basis and create resources in order to overcome obstacles. In this description, you may identify many of our day-to-day activities. “They are so informal and so pervasive that they rarely come into explicit focus” (Wenger, 1998, p. 7).

Merriam (2004) further goes on to discuss how in a CoP, “some [participants] have more knowledge than others and have been more effective in adopting the behaviors and attitudes, or norms of the group” (Merriam, 2004, p. 210). This knowledge can be transferred “into the organization and vice versa” (Theodorakopoulos & Figueira, 2012, p. 863). The idea is to create optimal situations in order to have CoPs succeed at this level. “What is needed is not to create learning, but rather create the circumstances to make learning empowering and productive” (Theodorakopoulos & Figueira, 2012, p. 863). In districts where curriculum reform takes place, this suggests that a concerted effort needs to be placed on creating an environment conducive for this change to take root. Communities of Practice, as well as situated learning, take into consideration the environment and social aspects of adult learning. In the following section, the Androgogical debate will provide a deeper lens into the characteristics and assumptions of adult learning.

**Andragogy.** Knowles used this framework for adult learning as “it meant the art and science of helping adults learn, and was ostensibly the antithesis of the pedagogical model” (Knowles, Holton, & Swanson, 2005, p. 59). However, that statement was challenged by several authors (Davenport & Davenport, 0901; Houle, 1996; Merriam, 2001; Merriam, 2004) who instead felt that “Andragogy has been classified as a theory of adult education, theory of the adult learning, theory of technology of adult learning, method of adult education, technique of
adult education, and a set of assumptions...Perhaps these were just principles of good practice, or descriptions of what the adult learner should be like” (as cited by Merriam, 2001, p. 5). Although this lens focused on the learner, it provides us with some underlining assumptions in which we can use while working with adults.

Scientifically, Andragogy and adult learning are new areas of research, and much of what we know about these interlinked subjects is based upon assumptions and what we know from working with adult learners (Nadler & Nadler, 1990). However, this field is growing with empirical research to support such theories with more data. As researchers (Davenport & Davenport, 0901; Houle, 1996; Merriam, 2001; Merriam, 2004) have pointed out, there has been a concern regarding Andragogy as theory and that as a model just for adults.

Knowles et al. (2005) defines as Andragogy with his set of assumptions about the adult learner.

Adults are motivated to learn as they experience needs and interests that learning will satisfy. Adults’ orientation to learning is life-centered. Experience is the richest source for adult’s learning. Adults’ have a deep need to be self-directing. Individual differences among people increase with age (Knowles, Holton, & Swanson, 2005, p. 38).

Knowles (1980), after careful consideration, returned to his original work to clarify his position with regards to pedagogy and andragogy. Figure 1 on the next page depicts his assumptions. According to Figure 1, Knowles (1980) summarizes the differences as

Andragogy is premised on at least these four crucial assumptions about the characteristics of learners that are different from the assumptions on which traditional pedagogy is premised. These assumptions are that as individuals but sure: 1. their self-concept moves from one of being a dependent personality toward being a self-directed human being; 2.
they accumulate a growing reservoir of experience that becomes increasingly rich resource for learning; 3. their readiness to learn becomes oriented increasingly to the developmental task of their social roles; and 4. their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation towards learning shifts from one subject-centeredness to one of performance-centeredness (Knowles, 1980, p.45).

<table>
<thead>
<tr>
<th>The learner</th>
<th>Pedagogy</th>
<th>Andragogy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dependent. Teacher directs what, when, how a subject is learned and tests that it has been learned</td>
<td>Moves towards independence. Self-directing. Teacher encourages and nurtures this movement</td>
</tr>
<tr>
<td>The learner’s experience</td>
<td>Of little worth. Hence teaching methods are didactic</td>
<td>A rich resource for learning. Hence teaching methods include discussion, problem-solving etc.</td>
</tr>
<tr>
<td>Readiness to learn</td>
<td>People learn what society expects them to. So that the curriculum is standardized.</td>
<td>People learn what they need to know, so that learning programs organized around life application.</td>
</tr>
<tr>
<td>Orientation to learning</td>
<td>Acquisition of subject matter. Curriculum organized by subjects.</td>
<td>Learning experiences should be based around experiences, since people are performance centered in their learning</td>
</tr>
</tbody>
</table>

*Figure 1.* A comparison of the assumptions of pedagogy and andragogy following Knowles (Jarvis, 1985, p.51)

In summary, whether or not there is a finite answer determining Andragogy as a theory, the main point as it is a starting point for discussion. It also provides a framework for the adult learner. As this review of literature points out, Andragogy is a useful framework when dealing with the adult learner. “Andragogy is here to stay as one of the major landmarks in the development of adult learning theory…Andragogy captures general characteristics of adult learners” (Merriam, 2004, p. 204). Further, Situated Learning and Communities of Practice
define what effective learning environments for adult learning. This sets the stage for the current study.

**Educational Reform**

In the following sections, the literature will detail reform efforts that ultimately paved the way to the Common Core State Standards.

**Leadership.** Leaders have an impact on the way curricula changes are implemented (Merton, Froyd, Clark, & Richardson, 2009). It is the responsibility of the districts as well as the schools to successfully implement the reform efforts in a calculated and thorough way. Leading adults is a difficult yet rewarding job.

If teachers are expected to embrace the philosophy of mathematics teaching and learning that no longer rests on a foundation of certainty (that is, to model problem-solving and to welcome divergent thoughts and strategies), then educational leaders certainly must endeavor both to understand the kinds of discomfort that will emerge for these teachers and students and to help them work through such discomfort (März & Kelchtermans, 2013).

Kaniuka (2012) described teachers’ perceptions while implementing reform in two ways. First, teachers need to have a sense of certainty when doing something new. He states that the “desire for certainty seemed to be a strong motivator for these teachers to persist when at times they perceived this reform effort as daunting and uncomfortable” (Kaniuka, 2012, p. 341). Second, “doubt can lead to a desire to learn and do more” (Kaniuka, 2012, p. 341), which is encouraging while in the midst of this curriculum reform.

Moreover, district leaders must understand that reform implementation is a messy process. “Curriculum innovation and its implementation in actual classroom practices do not
flow predictably and automatically from the objectives of that innovation or from the policy measures it initiates, but it is nonlinear nature” (März & Kelchtermans, 2013). When teachers fail to have certainty, a sense of vulnerability and deflation could come to be (Kaniuka, 2012). Thus, resulting in reform products that do not mirror the policy maker’s vision. However, with the idea that this is a reflective process, teachers will go through a transition where the focus will no longer be on themselves and their abilities or inabilities to that of the students (Kaniuka, 2012). Additionally, when teachers saw changes in students, they viewed themselves differently. As such, “doubt can lead to a desire to learn and do more” (Kaniuka, 2012).

Irrevocably, there needs to be a concentrated effort on how the reform efforts are rolled out and supported within the districts. There needs to be a focus on rigor through content and pedagogy (März & Kelchtermans, 2013). Like Knowles (1980) describes in his Adragogical Process Model, it is important to design a pattern of learning experiences where experiential learning can play an important factor in adult education. The focus with the new CCSSM and the implementation of CCSSM will be on the specific content changes and pedagogical strategies in which to teach, with the aim being to deliver that new content in a way that the learner can then see what the changes actually look like and then transfer that information into the classroom (Walker, 2007).

**Teacher Professional Development**

Teacher professional development (TPD) has been a primary concern within the realm of education, especially when one takes into account that there is considerable controversy associated with the issue (Angus, 2001; Tyack, 1967). Tyack (1967) poses a simple yet highly salient question that frames the controversy succinctly: “what do teachers need to know in order to effectively work in the profession?” (p. 412). This section of the manuscript will explore the
controversy surrounding the issue of TPD by first providing a brief history of TPD. This will be followed by an overview of how TPD has been transformed during the current age because of calls for standards and accountability in the educational field.

Teachers in the United States are currently more educated and more credentialed than at any point in history (Angus, 2001). The way that teachers achieve professional developed today has become an important part of the educational process. As Tyack (1967) states, “to be a teacher, one must first be a scholar” (p. 412). This belief has not always been the central focus concerning the education, credentialing and professional development of teachers. In order to see where we are now, we need to look back at the profession as it relates to the growth of the teaching force in these United States.

In the mid-nineteenth century, education for teachers was promulgated primarily through what was known then as the ‘common schools’. These schools were funded by taxes, were free for students, and were primarily tasked with educating prospective teachers about democracy and citizenship (Mondale & Patton, 2001). The students at these schools were not as credentialed as they are now; in fact, many individuals from these schools who were selected to be teachers were often chosen on the sole criteria of a local minister who vouched for their good morality (Angus, 2001). Unfortunately, there was little to no oversight concerning the content that was being taught by the common schools.

Over time, the common schools evolved into what was then called the ‘normal schools’. The normal schools were some of the first institutions that were concerned with the professional development of teachers. Throughout the nineteenth century, these schools were largely separate from colleges and universities (Angus, 2001; Tyack, 1967). According to Tyack (1967), in the early twentieth century states began to regulate the qualifications of teachers by placing
regulations on the normal schools to ensure that the normal schools did what was necessary to guarantee that teachers were in fact qualified to teach. “The normal schools were teacher training institutions that, at least in their early years, provided what was essentially a high school education or basic first- and second-year college education to prospective teachers” (Angus, 2001, p. 5).

The late 19th and early 20th centuries also saw the use of teacher institutes as a means of training prospective teachers. Teacher institutes were a way to offer professional development to teachers so that they could quickly learn how to teach in public schools. These institutes typically limited their offerings to ‘short’ courses, such as curricula on “educational methods, principles, and techniques” (Angus, 2001, p.6) that teachers needed to be effective in the classroom. Teaching institutes were primarily taught by veteran teachers and mirrored what that veteran teacher was teaching in his/her own class (Meagher, 2011).

It was around the first few decades of the 20th century when many states made the change to require that teachers hold at least a high school diploma. “In response to this demand many normal schools in the twentieth century transformed themselves into four-year, degree-granting teachers’ colleges” (Tyack, 1967, p. 416). This had the effect of diminishing the effectiveness of the teacher institutes, given that the instructors at the teacher institutes were of lower quality than those found at the normal schools. In fact, the teachers who matriculated “from the normal schools that have developed into teacher colleges were more competent and advanced as compared to those teachers who graduated the normal schools… The teachers institute had become outdated and failed to meet the needs of college-trained teachers” (Meagher, 2011, p. 25). From here, the normal schools started to keep up with the demand for develop teachers (Angus, 2001; Meagher, 2011; Tyack, 1967).
Over time, the normal schools developed into what we currently know as the college and university system for training prospective teachers. The use of college and university curricula in the training and professional development of teachers has grown and evolved in part to ensure that professionally trained and credentialed teachers become members of the teaching faculty at local public schools (Tyack, 1967). Once graduated from a college or university, today’s teachers must continue their professional development activities as a function of the state and school district in which they work.

Currently, it is the local school districts and the various department of education at the state level which set the standards for teacher professional development. These standards often require recertification and coursework that is ongoing throughout a teacher’s career. It is now a requirement that teachers keep current in their content area, and certification requirements now exist in order for a teacher to teach specific content. In fact, teacher professional development is often mandatory, as is the case in the state of Massachusetts. Individuals with Massachusetts standard [teaching] certificates must engage in sustained professional development that strengthens professional knowledge and skills in order to meet the state’s new recertification requirements (DESE, January, 2000, p. 3). In the state of Massachusetts, teacher professional development can be obtained in a variety of ways. These include undergraduate and graduate coursework, department-sponsored initiatives, initiatives provided by districts and private providers, educator designed activities, and continuing education (DESE, January, 2000, p. 3).

Early philosophers. Reese (2001) notes that at the beginning of the 20th century, a different method of conceptualizing “the child, classroom methods, and the purposes of the school increasingly dominated educational discourse. Something loosely called progressive education, especially its more child-centered aspects became part of a larger revolt against
formalism of the schools and an assault on tradition” (p. 1). Interestingly enough, it was the thoughts and ideas of many European intellectuals, such as Johann Pestalozzi, Jean Jacques Rousseau and John Dewey, that directly influenced the way we think about education today and the way we practice education today. In other words, the ideas of European intellectuals still resonate within the sphere of education today.

In the 1700’s and 1800’s Jean Jacques Rousseau and Johann Pestalozzi put to paper ideas that influenced educational philosophy. Rousseau wrote *Ermile* (which is translated as *On Education*) in which he urged “for more humane treatment of the innocent child” (Reese, 2001, p. 8). Rousseau’s ideas were cutting-edge at the time, as he believed that children should be allowed to be a child and not simply another potential pair of working hands. When it came to children, Rousseau felt that they should “[in] this brief hour of life be free from yoke which nature has not laid upon it; leave the child the use of his natural liberty, which, for a time at least, secures him from the vices of the slave” (Reese, 2001, p. 1). In short, let the child be a child while he or she can, a practice that is still emphasized to some extent in kindergarten and early grade levels.

Pestalozzi held somewhat different views, as he felt that “children learn best by experience with concrete objects, guided by the maternal power of educators” (Reese, 2001, p. 12). All too many times in education today we see classes without instructional tools. As Reese states, “Too many teachers…worried about such trivial matters as a shortage of teaching apparatus; they lacked sufficient imagination” (Reese, 2001, p. 17). In schools today there is an emphasis for teachers to use concrete examples that help students make connections prior to moving on to abstract concepts, a point Pestalozzi would endorse.
John Dewey (Reese, 2001), who is also sometimes known as the father of progressive education, stated that “the workshop, the laboratory, the materials, the tools with which the child may construct, create, and actively inquire, and even the requisite space, have been for the most part lacking” (p. 22). In other words, Dewey is in agreement with the thoughts of Pestalozzi insofar as children need to connect actively with concrete objects. One of Dewey’s writings entitled *The School and Society & The Child and the Curriculum* provides a detailed view of his more progressive thoughts on education. In this work Dewey essentially argues that cultural shift must take place to move from a teacher-centered classroom to that of a student-centered classroom where students become the center of attention. In other words, “the child becomes the sun” (p. 24). This was a major shift in educational thought at the time, one which was akin to the ideas of Rousseau. From the teacher-centered philosophy, as in lecturing in class and dispensing knowledge, Dewey suggests a “drawing out,” or the creation of an environment in which students construct their knowledge by investigating through all of their senses as part of the process of being a child.

**NDEA of 1958.** The National Defense Education Act (NDEA) of 1958 was in response to the Soviet Union launching the first satellite into orbit. This event provided the United States with ammunition to put a law in place that funneled federal monies into school programs in math, science, and foreign languages. “Most of the money went to universities, but some dollars sluiced into the K–12 system to purchase equipment, renovate classrooms, train teachers, and develop tests and guidance programs. With that revenue came new rules and restrictions” (Finn, 2008, p. 9).

As Kessinger (2011) stated, the NDEA of 1958 “was designed to provide the country with specific defense-oriented personnel… it provided financial assistance through a
government-sponsored loan program for thousands of students who would enroll at colleges and universities in the 1960s” (p. 268). This was the point in education when schools first started to place students into specific academic tracks in order to fill the call for math and science majors (Finn, 2008). In other words, the NDEA act of 1958 is largely responsible for the practice of tracking in schools.

A Nation at Risk 1983. In April of 1983, The National Commission on Excellence in Education claimed that “our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world” (p. 9). The commission that issued this report built their case upon the notion that teachers were failing when it came to the preparation of their students. The report (United States National Commission on Excellence in Education, 1983) stated that

the people of the United States need to know that individuals in our society who do not possess the levels of skill, literacy, and training essential to this new era will be effectively disenfranchised, not simply from the material rewards that accompany competent performance, but also from the chance to participate fully in our national life (p. 10).

According to A Nation at Risk (United States National Commission on Excellence in Education, 1983), the teaching profession was failing for several reasons. These included the fact that too many teachers were coming from the bottom quarter of graduating high school and college students, that teacher preparation curriculum was weighted heavily with courses in ‘educational methods’ at the expense of courses in subjects to be taught, and that teacher salaries were so low that the job of teaching was considered unattractive to many. These facts combined into a ‘perfect storm’ where half of newly employed mathematics, science and English teachers
were not qualified to teach in their subject area at the time when the report was issued. Although many considered the report to be scathing, it also provided a possible solution to the issue: lifelong professional development and learning for teachers.

**No Child Left Behind.** No Child Left Behind Act of 2001 (NCLB) was based on the general principles of *Brown v. Board of Education of Topeka, Kansas* (United States Department of Education, 2004), the case in which the Supreme Court found it unconstitutional to segregate schools. NCLB “continues the legacy of the Brown v. Board decision by creating an education system that is more inclusive, responsive, and fair” (United States Department of Education, 2004). The US department of Education defines the act as follows:

The No Child Left Behind Act of 2001 (NCLB) is designed to achieve an ambitious goal: All children will be proficient in reading and mathematics by the 2013–14 school year. A key strategy for achieving this goal is accountability. NCLB holds schools and districts accountable for their students’ mastery of state academic content standards, as measured by state tests, including students with limited English proficiency (LEP) and students receiving special education services. NCLB accountability rests on several key premises: that clear definitions and targets for desired academic outcomes and English language proficiency will provide both incentives for and indicators of improvement; that identification of districts and schools not meeting their improvement targets will help focus assistance and interventions in places where they are most needed; that widely available information about student performance will enable parents, educators and other stakeholders to make informed decisions about how best to serve their students or children; and that targeted assistance will stimulate school and district improvement (United States Department of Education, Policy and Program Studies Service, 2007).
According to Bell (2012), NCLB was a great first step to remedy the issues first raised in the *A Nation At Risk* report of 1983, as NCLB provided higher accountability and highly qualified educators in front of our students. Bell also makes the claim that it is not the reform that is most important; rather, it is the strong quality control of our educators that is important. Henderson concurs with Bell and adds that having effective teachers in the classroom, a curriculum which supports rigorous standards and greater amounts of teacher professional development will result in a closing of the so-called “achievement gap” (Henderson, Lowery, & Bell, 2012, p. 26). Jennings (2012) offers that without NCLB, we would not be privy to how well our schools are doing with respect to the educational attainment gap, and that “teachers would not have available extensive data on student academic performance” (Henderson, Lowery, & Bell, 2012, p. 26) without NCLB.

While NCLB was a lofty goal, in September of 2011 the White House made an unprecedented announcement that effectively offered relief to schools and districts attempting to desperately make the annual yearly progress as identified by the state. Anne Duncan, the Secretary of Education, stated that one of her top priorities was “to help ensure that Federal laws and policies support the significant reforms underway in many States and school districts and do not hinder State and local innovation aimed at increasing the quality of instruction and improving student academic achievement” (Office of the Press Secretary, The White House, 2011, p. 1). This created an avenue for states to pursue help from the federal government. However, there was a caveat. In order to get this flexibility, states needed to transition to college- and career-ready standards and assessments, develop systems of differentiated recognition, accountability, and support, and evaluate teacher and principal effectiveness (Office of the Press Secretary, The White House, 2011, p. 1). Committing and creating plans with these categories in mind paved
the way for federal funding and the advent of a new set of standards that would be the first national standards in the US. These national standards are called the Common Core, and they were developed with the first category in mind; namely, being college-and career-ready (National Governors Association, Council of Chief State School Officers, 2012).

**Race to the Top.** NCLB, in conjunction with Race to the Top (RTTT), provides an opportunity for state and local government access to grant funding in order to support what President Obama stated as ‘stimulating the economy’. The way in which President Obama did this was through the American Recovery and Reinvestment Act of 2009 (ARRA), which was signed into law on February 17, 2009. President Obama designated ARRA as a way to “stimulate the economy, support job creation, and invest in critical sectors, including education” (U.S. Department of Education, 2009, p.2). ARRA grant funding provides $4.35 billion in grant programs designed to encourage and reward states that are creating the conditions for education innovation and reform. ARRA funds are also there to help states achieve significant improvement in student outcomes, including making substantial gains in student achievement, closing achievement gaps, improving high school graduation rates, and ensuring student preparation for success in college and careers. The funds are also intended to help states make and implement plans in four core education reform areas:

- Adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy;
- Building data systems that measure student growth and success, and inform teachers and principals about how they can improve instruction;
- Recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most; and

These rigorous standards require states to submit proposals that were either rejected or accepted based on the content. Once the proposal from a given state was received, it was matched against the selection criteria with a rubric. The proposals were then given points based on each of the overall criteria listed above. One of the criteria in the above list was standards and assessments, and as defined by RTTT, the states needed to comply with

a common set of K-12 standards means a set of content standards that define what students must know and be able to do and that are substantially identical across all States in a consortium. A State may supplement the common standards with additional standards, provided that the additional standards do not exceed 15 percent of the State's total standards for that content area (U.S. Department of Education, 2009, p.12).

This leads us to the Common Core State Standards Initiative. In the next section, the researcher will explore the Common Core with particular attention to mathematics and how Common Core standards will serve to better the education of our students.

**Common Core reform.** The CCSSM is a large-scale curriculum reform effort aimed at improving state standards throughout the nation. These standards are K-12 and aim to develop mathematically proficient students by the time they finish grade 12. In districts throughout the nation, administrators and teachers are working hard to make sense of the implementation of the Common Core State Standards for Mathematics. In this next section, the researcher will proceed to define the CCSSM.

**Common Core State Standards (CCSS) for mathematics.** Prior to defining the standard initiative we must first develop the context for which we are today. “The mathematics
students need to learn today is not the same mathematics that their parents and grandparents needed to learn” (Kilpatrick, Swafford, Findell, National Research Council, & Mathematics Learning Study Committee, 2001, p. 1). According to Schmidt and Houang (2012), the US has always been concerned for the state of mathematics education. They argue that both the Third International Mathematics and Science Study (TIMMS) and the Programme for International Student Assessment (PISA) provided sufficient evidence for low academic performance in comparison with our international counterparts which resulted in questioning the “nature of the curriculum” (Schmidt & Houang, 2012, p. 294). In essence, a dynamic shift in curricula focus will be at our doorsteps where we “address the problem of a curriculum that is ‘a mile wide and an inch deep’ ” (Porter, McMaken, Hwang, & Yang, 2011, p. 103). This statement by Porter et al. (2011) reinforces the understanding that “the Common Core State Standards focus on core conceptual understandings and procedures starting in the early grades, thus enabling teachers to take the time needed to teach core concepts and procedures well—and to give students the opportunity to master them” (Common Core State Standards Initiative, 2010).

In 2010 the National Governors Association Center for Best Practices (NGA) and the Council of Chief State School Officers (CCSSO) led the efforts of 36 states while they “developed collectively” the “United States first set of national standards to become a part of educational policy in a coordinated and comprehensive way” (Davis, Choppin, McDuffie, & Drake, 2013; Porter, McMaken, Hwang, & Yang, 2011, p.4). This group “committed to this work with representatives from 48 states, 2 territories, and the District of Columbia. The task engaged the talents and expertise of educators, content specialists, researchers, community groups, and national organizations” (Kendall, 2011, pg. 16).
The process in which the standards became what we see today began in 2009. The development process was broken into two distinct classifications: one was college and career ready. As stated earlier in this document, *A Nation at Risk* claimed more than 40 percent of students were not prepared for college or the workforce (Mondale & Patton, 2001). This meant that based on their entrance exams, a significant number of students were entering college needing to take either a remedial math or English class, both of which held no credit to the university (Mondale & Patton, 2001). This created the argument that our standards needed to start by addressing what should be done to ensure that people were college and career ready.

The second classification was K-12 grade level expectations. Given this scenario, “the 2000 U.S. Census found that up to 18 percent of school-age children had moved in the previous year” (Kendall, 2011, page 118). Thus, a high percentage of students may encounter different state standards and expectations for learner outcomes. It is reasonable to assume that prior to the CCSSM, a student in Massachusetts who transfers to a school in Rhode Island may, in fact, see a whole different set of learning standards. The CCSSM sets clear and high expectations for learner outcomes by the end of each year. The CCSSM create an opportunity nationwide for shared expectations, focus, efficiency and quality of assessments (Porter, McMaken, Hwang, & Yang, 2011).

**Critics of the CCSSM.** The Common Core State Standards have not received universally positive praise. They have been met with just as much resistance as support. These resistors have focused on two types of objections. One is top down, and the other is on the intensification on standards that result in more stringent accountability practices (Mathis, 2010). With top down accountability structures in place, teachers will feel pressures of the state and district leadership to make sure they have covered the requisite material for the state assessments
and lose the opportunities for those teachable moments. Teachers will now focus on a “narrow range” of content throughout the year and continue to stick to a timeline (Kohn, 2010; Mathis, 2010).

According to the state the authors of one study, those who hope that the Common Core standards represent greater focus for U.S. education will be disappointed by our answers. Only one of our criteria for measuring focus found that the Common Core standards are more focused than current state standards...Some state standards are much more focused and some much less focused than is the Common Core, and this is true for both subjects (Porter, McMaken, Hwang, & Yang, 2011, p. 115).

However, there is agreement (Cobb & Jackson, 2011; Desimone, 2013; Mathis, 2010) that national standards can be a good thing. Yet the emphasis remains on piloting these standards and providing time for reflection and continuously revisiting the implementation and PD teachers are receiving. “Implementing the CCSSM should be the focus of improvement oriented investigations that can inform the development of effective implementation models” (Cobb & Jackson, 2011, p. 185). To further substantiate Cobb’s (2011) statement in a recent study, it was discovered that “teacher preparedness to teach the CCSSM topics is not uniformly distributed across the states. Some states have considerably more teachers at every grade indicating that they are prepared to teach the CCSSM than other states” (Cogan, Schmidt, & Houang, 2013, p. 8). In order to set the stage for this study, the researcher will describe the current state of the Massachusetts implementation with a brief description of their implementation plan.

Massachusetts implementation plan in conjunction with RTTT and the CCSSM. Currently, Massachusetts Department of Elementary and Secondary Education (DESE) has a
RTTT plan that has identified four objectives. These objectives puts Massachusetts in a position where students can expect an education that will prepare them to succeed not only in a K-12 setting but also in college or career field upon successful completion (Baehr, Johnson, Mitchell, Nellhaus, & Reville, 2010). Each of these four objectives has incorporated both RTTT funding and an implementing strategy for the CCSSM. The objectives and timeline are outlined below.

1. In Massachusetts, develop and retain an effective, academically capable, diverse, and culturally competent educator workforce.

   This objective provides the opportunity to refine our expectations of administrators and teachers alike. Not only will this objective provide an opportunity to revisit and revise the evaluation tool, it will also help to hold people accountable for high quality work. To further develop the work the DESE will work with a task force of stakeholders to develop a new statewide framework for teacher and principal evaluation in which student performance will be a major factor. We will provide training and support to ensure that teachers understand the new evaluation framework and to ensure that administrators, principals, and other evaluators have the tools and supports they need to conduct comprehensive annual evaluations, provide meaningful feedback to both teachers and principals, and use evaluation results to inform personnel decisions” (Massachusetts Department of Elementary and Secondary Education, 2013b, p.10).

2. Provide curricular and instructional resources that support teacher effectiveness and success for all students.

   This objective deals primarily with the new assessments and standards. The prior sections of this literature review detailed information regarding the CCSSM, and in this
information one can see that the state is working to meet all of their objectives. Further, “Massachusetts is currently part of two multi-state consortia working to secure federal funding for the development of a new multistate student assessment program based on college and career readiness standards” (Massachusetts Department of Elementary and Secondary Education, 2013b, p. 10).

The plan to implement the CCSSM in Massachusetts included the following timeline in Figure 2.

<table>
<thead>
<tr>
<th>School Year 2011-2012 Partial Implementation</th>
<th>School Year 2012-2013 Near Full Implementation</th>
<th>School Year 2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Numeracy/literacy conference</td>
<td>• Model curriculum units and performance assessments for piloting</td>
<td>• Teaching and Learning System with model curriculum units and performance assessments</td>
</tr>
<tr>
<td>• Make available free high quality resources (e.g., PARCC Content Framework)</td>
<td>• New standards for ELL and new science standards</td>
<td>• Other frameworks documents incorporate new standards</td>
</tr>
<tr>
<td>• Additional online Exploration Activities</td>
<td>• MA cadre of PARCC Educator Leaders</td>
<td>• Facilitate sharing of best practices</td>
</tr>
<tr>
<td></td>
<td>• New PD courses focused on math practices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Curriculum alignment PD</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 2. Massachusetts Implementation Timeline (Massachusetts Department of Elementary and Secondary Education, 2013b).*

Each school year, the DESE will provide ongoing support such as the Curriculum and Instruction Summit, Race to the Top Funding, targeted support regionally, online presentations, webinars PD and networks (Massachusetts Department of Elementary and Secondary Education, 2013b). This support will be provided throughout the transition and into full implementation. It is the districts responsibilities to stay current with the DESE and ways in which to support the transition.
3. Concentrate great instruction and supports for educators, students, and families in our lowest performing schools.

In order to continue to close the achievement gap “and dramatically improve the dropout rates, we must do nothing short of transforming our lowest performing school” (Massachusetts Department of Elementary and Secondary Education, 2013b, p. 14). In addition, DESE would like to build up our community partners in a way that will support the “social emotional supports that ensure students enter the classroom ready to learn, an expanded school day and/or year, and effective use of data to support tailored instruction (Massachusetts Department of Elementary and Secondary Education, 2013, p. 14).

4. Increase our focus on college and career readiness for all students.

Along with the implementation of the CCSS, Massachusetts is establishing what they call the MassCore.

MassCore requires four years of English and math, three years of history and a lab-based science, two years of the same foreign-language or proficiency in a language other than English, one year of an arts program and five additional “core” courses such as business education, health, and or technology (Massachusetts Department of Elementary and Secondary Education, 2013b, p.17).

With these alignment teachers, administrators and support staff will be exposing our students to rigorous college and career ready benchmarks. These benchmarks will be aligned to the higher educational institutions “so students who successfully complete MassCore will also meet the entrance requirements for state public colleges” (Massachusetts Department of Elementary and Secondary Education, 2013b, p.17).
To tie this all together, as the Cogan, Schmidt and Houang study (2013) suggests, the reality is that districts throughout the nation will be required at some point to implement reform efforts (standards, implementation plans etc.). With these plans not being “uniformly distributed” (Cogan et al., p.8) the focus for research should be on how districts are coping with this change and what are they doing. Thus, a case study on the Attleboro Public Schools in Massachusetts would start this discussion regarding this reform implementation.

Throughout this literature review, topics such as adult learning provide the necessary foundation to define the adult learner in terms of the educational agenda that is moving forward. Without this knowledge, the researcher could not connect the dots post data collection. In addition, this review will provide a foundation to create the interview protocol, which is based upon the literature themes, outlined and connects back to the theoretical framework. What we do know is that reform implementation is not uniform, and that teacher buy in comes from the social context for which it is lived. Merriam (2004) stated it nicely by noting that “it is highly unlikely there will ever be a single theory that can encompass all that we know about the adult learning…numerous approaches to adult learning expand our understanding of this complex phenomenon and how about understanding informs our practice” (Merriam, 2004, p. 216).
Chapter Three: Research Design

Introduction

Districts throughout the nation had two years to prepare for the 2013-2014 full implementation of the Common Core State Standards for Mathematics (CCSSM). According to the National Governors Association (2013b), “Research suggests that increasing teachers’ content knowledge is the most important in-school factor for improving student achievement. For the CCSS to have a positive effect on student achievement, teachers must know the material and be prepared to deliver the content” (National Governors Association, 2013b, p. 1). If we understand how middle school educators of a single district use the supports that have been provided to them by their district, then we can better inform the PD and what added supports may be needed.

Purpose Statement

The study has examined the process of CCSSM adoption by the middle school math teachers in Attleboro, Massachusetts in order to ascertain how their perceptions concerning the PD they are receiving is (or is not) meeting their needs.

Positionality Statement

As the primary researcher, I would first like to situate myself in the current educational environment as not only a middle school assistant principal (within the Attleboro Public Schools), but also a mathematics consultant that works with the Massachusetts Department of Education through Teachers21. My mathematical expertise is focused on the mathematical practices that are embedded in the CCSSM.

I understand my many biases regarding implementation and philosophies of teaching and learning; however, it has been my intent to better understand the needs, opportunities and
perceived barriers for training and implementation of the CCSSM for middle school mathematics teachers in Massachusetts. It is also important to note that this is my second year in the district and that being a direct supervisor for some participants in the study may bring an uneasy feeling. I have done my best to eliminate these thoughts by discussing the role of confidentiality and importance of the study as we gain an insight with this transition. The participants have been reassured that this is not mandatory and that they may opt out at any time.

Additionally, Frykholm (2004) states that if teachers are expected to embrace a philosophy of mathematics teaching and learning that no longer rests on a foundation of certainty, then educational leaders certainly must endeavor both to understand the kinds of discomfort that will emerge for these teachers and students and to help them work through such discomfort (p. 130).

This statement clearly identifies me, as the researcher, in the field of mathematics education. As a teacher and leader of mathematics, I often rested my beliefs upon the thought that good teaching and learning comes through a lens of uncertainty thus providing students with the opportunities to engage in dialogue that challenged yet supported their curiosity as mathematicians. I also understand that change is difficult and is often felt as discomfort.

It is my job as an instructional leader to help support the implementation of the CCSSM. It is also critical to understand where teachers are in the process because “teaching is a cultural activity. We learn how to teach indirectly, through years of participation in classroom life, and we are largely unaware of some of the widespread attributes of teaching in our own culture” (Stigler & Hiebert, 1999, p. 11). As a leader, to change this very culture, we need to provide powerful learning experiences for our teachers. Through careful modeling of best practices and
proper PD, we can move away from the teacher-centered classroom and move to a more student-centered classroom. As Dewey (2001) notes,

> It is a change, a revolution, not unlike that introduced by Copernicus when the astronomical center shifted from the earth to the sun. In this case the child becomes the sun about which the appliances of education revolve; he is the center about which they are organized (p. 24).

**Research Design**

This study utilized a qualitative approach that is descriptive in nature. As Creswell (2007) states, a qualitative study is “...the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem” (p. 37). This researcher has explored the ways in which the district supports teachers’ in the first full year of the implementation of the CCSSM. The constructivist paradigm that the researcher holds is congruent with the purpose of this case study as well as the theoretical lens. Its premise is based on meaning making through social interactions, which is why an instrumental case study was selected as the vehicle to investigate Attleboro educators as they transition to the CCSSM (Creswell, 2009). Ponterotto (2005) defines the constructivist paradigm as the ability to find deep meaning about the lived experiences of others. This is done through a reflective yet interactive and deductive process, which is how the researcher worked throughout this study. Further, the collection of field observations, coupled with school memoranda concerning CCSSM provided the researcher the triangulation of data that informed the discussion section of this thesis. These memos “can't perform other functions related to data analysis, such as reflection on methods, theory, or purposes…memos not only capture your analytical thinking
about your data, also facilitate such thinking, stimulating analytic insights” (Maxwell, 2005, p. 96).

**Research Tradition**

The researcher determined that a descriptive, qualitative case study design was the best vehicle in order to analyze and describe the support provided middle school teachers in their implementation of the Common Core in the Attleboro Public School district. This design can be described as “where the researcher focuses on an issue or concern and then selects one bounded case to illustrate this issue” (Creswell, 2009, p. 246). Furthermore, “case study research is a qualitative approach in which the investigator explores a bounded system for multiple bounded systems over time, through detailed, in-depth data collection involving multiple sources of information, and reports a case description case based themes” (Creswell, 2007, p. 73). By describing the supports and individual responses from each participant the researcher paints a picture of this full transition as it happens during the 2013-2014 academic school year.

**Participants**

The participants in this study were purposefully selected from the researchers school district. To be selected, the participants had to have been in the district at least one full year. More specifically, they also needed to be in the same position as they held in the previous year. The case study focused on the staff from one middle school as well as including the central office staff. The following staff was selected from the district: the assistant superintendent, the district mathematics director, one building principal, one math coach and eight math teachers. Purposive sampling is the ability to use personal judgment to select participants (Fraenkel & Wallen, 2009, p. 265).
However, the impact on the external validity, which is the ability to generalize the study’s findings beyond the scope of this site (Yin, 2009), needs to be addressed. The way in which the researcher minimized the flaws in the ability to generalize was to ground the study in the Andragogical Process Model: instead of looking at the “case as a sample, [one] should think of it as an opportunity to shed empirical light about some theoretical concepts or principles, not unlike the motive of the laboratory investigator in conceiving of and then conducting a new experiment” (Yin, 2009, p.40). The Andragogical Process Model as a framework allowed the researcher to ground, connect, and report out given information on the data collected from the participants through this lens.

**Recruitment and Access**

As a member of the district that was studied, recruitment and access of participants came through the Superintendent of Schools. Once given successful authorization, the researcher reached out to the central office staff, the building principal, math coach and teachers. All participants decided to take part in the study and were compensated for their time and effort with a 10-dollar gift card to a local coffee shop. Further, while they participated in the study, the researcher accommodated the needs of each participant by offering interview times during the school hours and within the planning times of the school as requested by the staff member. The researcher also traveled to meet each participant within their own environment and/or classroom in order to accommodate his or her needs. Participant recruitment materials and IRB consent forms were completed and are referenced in the appendix of this proposal.

**Protection of Human Subjects**

The protection of human subjects is imperative as all of the participants remained anonymous throughout the entire write up process and pseudonyms were used. The aim of this
study was to describe and make sense of the process by which the Attleboro Public School
district in Massachusetts supports middle schools as they fully transition to the CCSSM this year.
By no means was this an evaluation of the district, school, or teachers as they implement these
standards.

Further, the researcher went through a rigorous process to ensure that all participants are
ethically protected. To do so, a “formal approval…will come from an institutional review board
(IRB),” and as such, “the board’s review will cover the objectives and design” of the study (Yin,
2009, p. 78). This researcher utilized the following process and protocols proposed by Yin. All
participants had to sign an informed consent “alerting them to the nature of [the] case study and
formally soliciting their volunteerism in participating in the study” (Yin, 2009, p. 78). This
process described the researchers role within the district and the high degree of confidentiality
the researcher employed during the study. Each participant was made aware that everything that
was said between the participant and the researcher was solely for use in this case study and was
not used in an evaluative nature, nor, was any repercussions upon completion of their time in the
study.

**Data Collection**

This case study used semi-structured interviews as a way to collect the data. As Saldana
(2009) suggests, the following characteristics were needed in the interview:

- It is flexible and open-ended in style. It tends to focus on people’s actual experiences
more than general beliefs and opinions. The relationship between interviewer and
interviewee is crucial to the method (Saldaña, 2009, p. 3).

The interviews for each group of participants were slightly different due to their district role with
the transition of the CCSSM. The researcher used the same questionnaire for the central
administrators, building principal, mathematics coach and teachers. This tool was piloted in an elementary school prior to conducting the study in order to affirm useful results upon commencement of interviews with the aforementioned groups. Upon signing the informed consent that is included in the appendix, the researcher, whom will act as the interviewer, engaged in this process at each of the participant’s location of choice. The researcher ensured that all participants’ names and any other information that could identify them would remain anonymous. Throughout the interview process, the researcher used an Apple iPhone in order to record the interviews. The iOS device “can produce excellent recording quality, and audio files can be downloaded directly to a computer enabling the use of special transcription software” (King & Horrocks, 2010, p. 45). The interviews took no more than 90 minutes and had a maximum of twenty-six questions. The researcher never went over the allotted time. At the conclusion of the interview, the researcher thanked the participant for their responses and a formal thank you was sent by mail shortly thereafter.

**Data Storage**

Data storage was an important part of the research process. The researcher stored the data in four separate places in order to protect the study. The researcher used a laptop, two external hard drives, and the Dropbox cloud service. The ability to store locally and in the cloud has provided the researcher with added security. The raw data, interview recordings, spreadsheets, and all other related documentation will be saved for five years upon completion of the study.

**Data Analysis**

The researcher transcribed the audio recordings and prior to analyzing the qualitative interview data, interviews were organized to generate themes that arose from the data. Barney
Glaser and Anselm Strauss have developed this process of coding in 1967. Since then, Strauss and Juliet Corbin have developed this process leading up to 1990. This process is framed by the primary research question in which themes can emerge.

For the coding of the interview data, the researcher employed the use of a coding scheme that is commonly associated with the analysis of open-ended data. Specifically, the researcher used open coding, axial coding, and selective coding to analyze the collected interview data. The process of using these coding steps is as follows.

**Open coding.** During the open coding, the data was categorized, analyzed minutely, and subjected to a thorough read in order to effectively identify key words, phrases and/or themes. In essence, the researcher was immersed in the data in order to understand it better. As Neuman (2000) describes, open coding “brings themes to the surface from deep inside the data” (p. 422). A good way to think of open coding is that it is the ‘first pass,’ or ‘first read,’ the researcher did to get a good feel for the data. In order to obtain a good appreciation of the data in open coding, Strauss (1987) suggests four basic guidelines:

1. Keep in mind a specific set of questions when reading the data;
2. Analyze the data minutely (i.e., scrutinize it);
3. Frequently interrupt the coding of the data to write notes on ideas, notions or thoughts that arise as a function of reading the data;
4. Never assume the relevance of any variable (for example, age, sex, race social class, etc.) unless the data supports it.

Once key words and phrases have been extracted from the data through the process of open coding, axial coding, or the process of developing coding frames, can occur.
Axial coding/coding frames. During axial coding, connections were made between the key words, phrases and themes developed by open coding (Strauss & Corbin, 1990). Axial coding was essentially a ‘second pass’ or ‘second round’ of data analysis (Neuman, 2000). As Neuman (2000) notes, axial coding allows a researcher to make connections between themes that emerged in the open coding process. Neuman goes on describe how axial coding provides the data analyst with an opportunity to focus on the initially coded themes more than on the primary data itself. As part of axial coding, initially coded observations were cross-referenced for any notable similarities and/or discrepancies and then compared across the themes to see how each observation was either similar and/or different from one another.

Berg and Lune (2012) offer a similar viewpoint concerning axial coding to the one put forward here. However, Berg and Lune refer to axial coding as developing coding frames. Although essentially the same as axial coding, the use of coding frames allows for a more broadly based connection between the themes developed between open coding. In other words, axial coding tends to have an unlimited number of potential connections between themes; in contrast, coding frames tend to limit the number of connections developed among themes discovered in open coding. As coding of the data progressed, the use of both axial coding and the development of coding frames were both considered.

Selective coding. Selective coding was the third aspect of qualitative/inductive data analysis. It was essentially a ‘third pass’ through the data to see if the previous codes developed in open and axial coding were sound from a theoretical standpoint. In other words, the patterns, themes and codes that were developed from the data were examined in the context of the relevant literature/theory to see if connections can could be made between the data and the literature (Berg and Lune 2012). Neuman (2000) argues that selective coding can be used to see if the
major themes and/or concepts are either (a) relevant within the context of the research, or (b) can be used to build up an explanatory framework (i.e., theory).

**Trustworthiness**

“In qualitative research, there is more of a focus on validity than reliability to determine whether the account provided by the researcher and the participants is accurate, can be trusted, and is credible” (as cited in Creswell, 2007, p. 211-212). In this instrumental case study, the researcher incorporated the use of member checks. This is “a frequently used approach, in which the investigator takes summaries of the findings (e.g., case studies, major themes, theoretical model) back to key participants in the study and asks them whether the findings are an accurate reflection of their experiences” (Creswell, 2007, p. 211-212). By doing so, increasing the likelihood of accurately portraying the participants within the case. Furthermore, member checks relate, “to the accuracy of the data [and] may take place “on the spot” in the course, and at the end, of the data collection dialogue” (Shento, 2004, p. 68). As Creswell (2007) states, “in the entire qualitative research process, the researchers keep a focus on learning the meaning that the participants hold about the problem or issue, not the meaning that the researchers bring to the research or writers from the literature” (p. 39). In the end the researcher was in pursuit of an accurate portrait of the process by which the Attleboro Public School district in Massachusetts supports middle schools as they fully transition to the CCSSM this year.

As the researcher previously detailed, interviews were carried out with the participants. In order to increase the trustworthiness of the interview questions and the protocol used, the researcher planned a pilot process that tested the intended interview (Shento, 2004). By including different stakeholders within the district, the researcher was able to describe the process of the transition to the CCSSM from a variety of perspectives.
Another way the researcher strengthened this case was to give the participants “opportunities to refuse to participate in the project so as to ensure that the data collection sessions involve only those who are genuinely willing…” (Shento, 2004, p. 66) to take part in the research process and thus, providing honest and accurate information in order to paint a precise picture of a district transitioning to the CCSSM (Shento, 2004, p. 66).

**Limitations**

Creswell (2009) notes that using an instrumental case design is associated with limitations. First, as Creswell states, one such drawback occurs when the researcher examines only one the subunits in a case and fails to return to the larger case as a whole. The researcher was able to maintain the school as the case because by doing so the researcher was able to maintain the focus on district support and the transition to the CCSSM. The subunits within the district are factors to the phenomena being studied, thus, keeping the attention on the district will protect the participants from fear of being the emphasis.

The second limitation is caused by the nature of the research. By doing a qualitative study, much of the case was decided by the interpretations of the researcher. To further that, “a case study involves an inference every time an event cannot be directly observed (Yin, 2009, p. 47). The researcher conducted semi-structured interviews that considered second hand information being delivered by the participants. It was then the researcher’s duties to do the best while coding and interpreting this data.

Another such limitation is the degree to transferability this study has to the broader educational context. This study looked at one district in Massachusetts and the results of the replication in any other district could potentially yield different results. These results, however,
would be of great value and should someone wish to replicate this, the district would certainly learn from the process.
Chapter Four: Report of Research Findings

Introduction

According to the Association for Supervision and Curriculum Development (ASCD), “the 2012-13 school year is a pivotal time for implementing the Common Core State Standards, as a critical mass of teachers begin to assimilate the standards in their classrooms” (2012). Forty-three states have adopted standards that require each school district to provide the necessary foundational work and professional development needed in order to successfully implement these changes to the state frameworks. Through a series of interviews, this study investigated one middle school in order to gauge whether or not the professional development (PD) offered within the district met the staff’s needs to implement CCSS. This chapter will detail the interview themes which are organized to answer the research question with the goal of informing future professional development within both the district and the state.

Study Context

State level context. The state of Massachusetts has adopted the Common Core State Standards (CCSS) that are now currently imbedded into the new 2011 Massachusetts State Frameworks. These standards, according to the Massachusetts Business Alliance for Education (MBAE), are set forth to ensure that students will have the skills needed for post high school success - whether it is a college or career. With the emphasis on the new framework, the state has identified a process to provide districts with professional development opportunities in order to aid in the successful adoption of the new framework.

In order to fully understand the magnitude of this roll out, one must look to the timeline in order to see the bigger picture. According to the ASCD Projected Common Core State Standards Implementation Timeline (2012), in 2011, educators from adoption states started to
develop awareness of the new changes in the frameworks. Later in 2011 and early 2012, professional development focused on the “deeper understanding of the standards; educators dabble with the standards in classroom instruction” (2012, p. 12). Moving forward to the 2012–2013 school year, the CCSS were implemented on a wide scale effort throughout the state, and there were sponsored opportunities to share and communicate what works and what is not working by the state of Massachusetts. By the 2013–2014 school year, districts made the transition and it was expected that all teachers used these standards and were held accountable to them. In the 2014-2015 school year, common assessments will be rolled out and used for accountability purposes (ASCD 2012, p. 44).

**District level context.** The Attleboro Public Schools began implementation during the school year 2011-2012. During that year, math professional development included multiple sessions on the changes in the new standards. The district used PowerPoint presentations provided by the DESE; these presentations included sessions on rigor, coherence, clarity, and focus of the new standards. Every middle school math teacher participated. Elementary teachers also participated in a combination of a study on the math standards and ELA standards.

During the 2012-2013 academic year, all math teachers participated in math professional development on how the standards have changed and in what ways the Attleboro curriculum would adapt to implement these changes. The district hired consultants from the American Institute of Research (AIR) and the Educational Development Center (EDC) to present information to the teachers on how these new standards should impact how they teach students.

During the 2013-2014 school year, all middle school math teachers participated in a course, developed by the EDC, on the Standards for Math Practice. The focus of this course was on strategies to teach math content. Elementary math teachers had the option of choosing PD
sessions on Anchor Charts, Number Talks, and manipulatives, all of which are strategies to develop an understanding of math content in the new standards.

Finally, Attleboro employs the use of instructional coaches in both mathematics and English Language Arts at each of the middle schools within the district. This provides an avenue for any district initiative such as the CCSSM to be disseminated throughout the schools with identified supports. This transition has heavily depended upon the knowledge and the significant role the coaches play at each of the middle schools.

**School level context.** Coelho Middle School in south Attleboro is the site of this research project. Coelho happens to be the largest of three middle schools in Attleboro and houses an autistic as well as a behavior program for the district. It is located near the Rhode Island border and serves approximately 650 students in grades five through eight. When you walk into the school, you can see student work and character traits plastered over the walls such as perseverance, hard work and pride. This sets the tone for not only the students but for the adults in the building as well. There is a feeling of shared ownership regarding academic achievement. Teacher voices can be heard from 6:50 am up until 6:00 pm on most days. On Tuesday and Thursday afternoon students can participate in various after school activities that range from math help to intermural sports run by the staff. On any given Tuesday or Thursday, you will see up to 70 students participating in the activities set up by the school.

The leadership in the building is clearly defined and evident. All teachers and students are held accountable by the high expectations held by the principal. The teachers also depend on the support and assistance that the coaches provide. Their guidance and leadership provide the framing to encourage the planning within the school. This has provided the foundation for a positive school culture that is open to change and optimistic about the transition.
The teachers in the building vary with experience, from teachers with 1-5 years experience to those teachers that have been teaching for 15-20 years. There is very little turnover of staff in this middle school and most have been working together for years.

**Answering the research questions.** In the following section, the researcher will provide the emerging themes supported by direct quotes to answer,

How does the Attleboro Public School District PD support middle school math teachers in making the transition to Common Core Standards as perceived by Attleboro educators?

**Thematic Analysis**

The thematic analysis details the participants’ perspectives that were derived from the investigation in Attleboro. Each of these themes will be illuminated and used as a basis for recommendations within the district. The four major themes that were identified through this process is as follows in Table 1:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub Themes</th>
</tr>
</thead>
</table>
| **More professional development** | • Training is necessary.  
• Proactive PD.  
• Teachers providing the PD and curricula resources.  
• Focused and meaningful PD opportunities within the district. |
| **Retooling the focus of teaching** | • Another way of teaching.  
• Deeper mathematical background needed to teach now.  
• Attention to detail, deeper mathematical focus. |
| **Issues associated with the rollout** | • Teacher coaches as support.  
• Math committee.  
• Parents not informed. |
• There is a team, but who is on the team?
• Do we need to know the research?

<table>
<thead>
<tr>
<th>Desire for more time</th>
</tr>
</thead>
<tbody>
<tr>
<td>• More time to plan.</td>
</tr>
<tr>
<td>• Time to collaborate and un-pack the standards.</td>
</tr>
<tr>
<td>• Not enough time built into the day but when we plan it yields results.</td>
</tr>
</tbody>
</table>

Table 1. Thematic Overview

More Professional Development and Training Needed

The first theme presented here is the degree to which Attleboro educators all felt that there needed to be more professional development and training. Within this theme, there were several components: training is necessary, Attleboro was proactive in its PD, the PD was focused and meaningful PD opportunities.

Training is necessary. Understandably, new standards require a new understanding of where they came from and how they should be applied. Teachers were very clear that they wanted training and more time to collaborate and plan for these new frameworks. Teachers also were in support for the training they had received to date. For example, as Katie explained,

Training is huge. I remember the role out of the common core, I can remember sitting in a workshop at the [middle school] Library, I think two years ago, they handed us the big books [new standards], and we could not decipher them. They were seemingly written by PhDs for PhDs and even somebody with math knowledge, I had no clue on what they were saying. Now we've been teaching it for two years, I really feel, there's a very strong foundation for what was written and I guess I appreciate more what was written.
Janice continued to add, “we use probably 40% of what we had before and 60% is all new gatherings”. This adds to the urgency of finding resources to help teachers keep up with the demands of the CCSSM.

Not only was training necessary, it is important that the district provided proactive professional development and not just a “one shot” workshop.

**Proactive PD.** It was very clear in the interview data that the teachers thought that Attleboro was on the proactive side when considering the Common Core adoption. Frederick recalls the first time the CCSSM were discussed:

> We spent a couple PD days just unpacking all the standards. We went through all the standards, and really analyzed what they were and what they weren’t. That was really helpful. We got to work with other math teachers, and just went through all the standards and made a comparison to the old ones. Also, just really understand what they are.

And Katie similarly comments on, stating

> It was a complete paradigm shift. I do think that Attleboro is definitely in the forefront paving the way to wholeheartedly adopt common core, and implement common core the way that it was meant to be implemented.

This attitude was espoused by many of the teachers that the researcher interviewed. In that same vein, teachers discussed the fact that they knew that the district was invested in the CCSS. Carol said, “you can tell by the way things are being organized that they know that the prize is common core, we’re moving towards that”. The vast majority of the respondents had that feeling during the interview. Others stated how they thought the district was in a good position and told staff that if they wanted to go to related professional development outside the
district and that the district would support it. Janice spoke about the EDC and how they were going to be a supportive network as they braced for full implementation. Richard stated that the district “offered a number of professional development workshops that have aligned themselves with the Common Core State Standards or the frameworks, offering math teachers professional development with the EDC”.

Along the lines with proactive PD, the majority of the respondents mentioned the fact that this was the first time they received focused PD where this was not an isolated workshop and that the professional development was to be over time and focused on the CCSSM. Carol responded,

As far as the professional development, I can’t think of a professional development that we haven’t had that hasn’t addressed these common core initiatives, trying to get towards that. I’m happy with the professional development that we’ve had and I think it has gone into a deeper understanding, a way to get into a deeper understanding for the kids.

Kevin also noted that

We started doing professional development right away. As soon as those standards came in, we started with professional development with the teachers on what the common core standards were, what they meant in the classroom, how they were developed and all the background, so that it wouldn't just be, "oh, here's another change."

This was accentuated with Richard stating, “It’s not just three days a year, it’s ongoing professional development for the staff”. This has been also been evident with the teachers as they discussed meeting as building math teams to discuss the implementation. Katie stated, “I’m
proud to be an Attleboro, I really am. I know that we are the race horses coming out, lead of the pack with the race to the top” and Gabriella said, “By this point, whereas a lot of teachers now are just learning about the Common Core, I have a pretty good understanding of what it is”. Many teachers made reference to neighboring districts and how the teachers have not had the experiences as they have had.

**Teachers providing the PD and curricula resources.** Many teachers also made reference to how their colleagues were and are a critical part of the learning in this environment. Without teacher teams and sharing of professional materials and opinions, teachers would not grow nor implement these standards as successfully as they feel they are. Another facet that was explained through the interview process was how teachers and coaches were part of the training and delivery of the PD in the district.

Richard continued,

> It’s been teachers providing PD in instructing other teachers about the Common Core. We have a number of teachers that are on fellowships throughout the state about the Common Core and implementation.

The teachers also spoke about how important it was to see a peer doing the presenting, as it provided “a reason to buy in” and that the trainings were not led by someone that has “lost touch with the classroom”. Again, that was common upon respondents, that it was critical that they respected the presenters.

Many of the respondents made mention of curriculum teams that comprised of teachers, coaches and administrators that led some development and vision work for the district implementation of the Common Core. That work was then passed down to the coaches and they
led the building based work between the district level PD that they were receiving. As Christopher said,

We've worked with the Math coach over the past 2 years. We started implementing last year and the curriculum committee had developed binders that were given to us and it's been relayed in our Math meetings and PDs to help us transition into the common core.

Primarily the math coaches in each of the middle schools have led the PD between district sessions. All teachers mentioned that they benefited from this work. Again, it is important to mention that all of the teachers respect and look up to this particular coach, which may or may not effect teacher “buy in”.

**Focused and meaningful PD opportunities within the district.** Teachers felt that for the most part the district and school had time set aside to have focused and meaningful PD opportunities. For instance Tamika stated,

One thing we've been doing is creating curriculum binders with mapping and pacing. We're sort of easing into it. We've had it over the last few years. I've been on the math curriculum committee. We're trying to develop it slowly and implement it so that everybody does feel comfortable. There's been professional development days last year that were devoted to this. This year has been more along the EDC course where we spent a lot time with the mathematical strategies. They're taking their time. I don't feel like they're just pushing it on us to say, "Here, let's just make this switch."

These meaningful activities in the eyes of the staff are the PD days, curriculum committees and the EDC course, which was developed to be taught over the course of the year. Staff also felt
that everyone was on the same page when it came to implementing, and that everyone knew it would take a lot of work. And yet, the teachers aligned themselves to such comments like Frederick,

> There's a lot of things that need to be learned, and there's only so much you can do in the first year or second year. But, they have had PDs, and they're available if you have questions.

The availability of administrators, coaches and other teachers were evident. Jonathan stated,

> We try to create engaging experiences that are meaningful to them that have take-aways that have practical applications. It’s not all just theory or a march through what the document says, but gives them things that they can actually use in their classes. Then we create materials and supports that are actually going to be helpful.

The evidence supports that focused and meaningful PD was an important part of the transition.

**Retooling the Focus of Teaching**

The second theme presented by the Attelboro educators was retooling the focus of teaching. The components under this theme were: another way of teaching, deeper mathematical background needed to teach now, and attention to detail, deeper mathematical focus.

**Another way of teaching.** The new frameworks currently call for more student ownership in mathematics, one that requires more open-ended problem solving where there may not be just one answer to a problem but perhaps many. In fact, it would call for classrooms to showcase this as a standard for mathematical practice. As Katie related this experience back to when she was learning math,
When I grew up learning about math, it was more about the plug and chug the process, do what I say, just plug it in. I always wondered why…I strongly remember one day in class, I asked why, and I was told to shut up and just do it…I was very inquisitive, I always wanted to know the why.

This respondent was very pleased about the way the standards took a deeper look at why the mathematics work and less relying on the procedural aspects. Teachers felt that there is so much information that needs to be marinated and not enough time to do so. Teachers were also concerned about the preparation of students during the transition, especially as it relates to how parents would adapt to help students with these new benchmarks for student learning.

**Deeper mathematical background needed to teach now.** Katie continued, “a downfall is the fact that teachers have to completely relearn how to teach the material, and that it's not a plug and chug”. This teacher was alluding to the fact that now the new frameworks are calling for flexibility in teaching math, multiple solution strategies and helping facilitate communities of learners rather than “standing and delivering” the material at the front of the room. In addition, teachers also felt that the standards required another level of understanding of the mathematics. A teacher or a parent that has a surface level understanding may not be able to fully appreciate and understand these standards relative to someone with a deep mathematical background. “Somebody who is not knowledgeable, they may seem not as clear” which unfortunately, in their opinion, would hinder their performance as a teacher. In addition to the understanding is the perception. Kyle made a comment about perception and said,
I think somebody who is not in education, or if we're talking specifically about the math and not knowledgeable about the math, I think they could probably perceive them a little differently.

In the staff’s mind, people could tend to get caught up in the minutia of the standards and miss the big ideas resulting in loss of the main objective. A call for a deeper understanding and more attention to detail with regards to the standards is a certain change for all. Everyone felt that this was an important factor to the new Massachusetts frameworks whereas before, we taught formulas and now we are trying to derive the reasons why formulas work. As Katie responded,

It allows to teachers to dive down into the breath of the material for students, to give the students the access, to learn why the math is what it is. It's not just a surface area formula, it's understanding that surface area is covering an entire three dimensional object.

This, as the participants explained, is a change from the traditional “drill and kill” mentality.

**Attention to detail, deeper mathematical focus.** The narrowing of focus in the standards in each grade was thought to be beneficial by each of the participants and that the new standards as Tamika stated, “narrowed the focus… while definitely deepening the level of understanding that’s required in each standard”. In addition, a common language has emerged through the adoption of the new standards. The staff in this middle school has stated that a positive note from this movement can be summed up with what Albert said, “that it has forced/encouraged all teachers at the same grade level to kind of be on the same page… addressing the same standards because we are working with the common core”.

**Issues Associated With the Rollout**
**Teacher coaches as support.** During the interview process it was noted that all respondents at one time spoke about coaches being one of the primary methods where information regarding the CCSSM were disseminated. Richard noted that

I think one of the biggest things is giving teachers coaches so they can model for the teachers about what the Common Core looks like and how to effectively implement that, which then translate to effective teaching of our students.

And Gabriella stated,

The ability to work with the math coach and collaborate with my fellow fifth-grade colleagues and work together to come up with well-structured lessons and things that really do kind of adhere to the Common Core.

These comments were made to the researcher and spoke to the importance of the work that the coaches do in the district, but more importantly at this one middle school.

**Math committee.** The idea of the math committee has been called into question. The researcher probed to see what the committee is and what it is that they do? Kyle, who works on the committee, explained that they

Would go through, unit by unit, and look and match every single thing up to a Massachusetts standard, the new standards, so right down from mental math to math message to every single math box. Then we had to look at the district, the progress checks. Look at those; make sure that they're aligned. If not, remove questions, added in questions, and so forth, so we've had several full days even during the summer. We've looked at district common assessments. We've created them from that perspective, so tons of hours, tons of hours go into looking at that.

It kind of was twofold because first we looked at everyday math and how it met
[the standards], and then once we've gone through, then we realigned and actually created units that took apart everyday math and focused on the math content or the concepts specifically, so all the multiplication and division were done together in the same unit. All the geometry, all the measurement, and so forth, so it was two huge undertakings over the past few years.

This committee work provided the schools and teachers direction. This work was led by the math coordinator and according to the interview data, many teachers were either not sure of how to get involved or wanted more information from the group. Janice stated,

I think that because the Common Core Standards are new, I would have like to see a little more communication so we know what are the other struggles, are the people having the struggles that we’re having? It’s been a little more isolated this year, I think but I’m hoping that it goes back because we used to have a lot more communication.

Kyle also stated,

a curriculum committee of two is certainly not ideal. You'd really like to have one from each school, one teacher represented from each school, I think, on the curriculum committee along with a math coach to really, truly ... I don't know ... to make best use of that committee and having all the brains around the table at once and so that communication piece of why certain things were chosen and why things were not in the conversations.

Again, the teachers felt positive about the efforts however, wanted to be included more or to have an ongoing process to get involved on the committee work.
Parents not informed. The majority of the teachers felt that the families did not have the skills and knowledge about the new standards to help their students grow. Christopher said, I've noticed this year, parents are on kind of on the negative side of it. They consider it a new Math. They see how we're approaching it differently and because they didn't learn that way, they have a negative attitude towards how their children are learning. That's getting kind of a struggle we are seeing where parents don’t want their kids doing it the way we're asking them to and explaining their reasoning. They don't think it's important to do so. I think that's been kind of the negative side as they are not informed as to why we're doing this now.

This has been an apparent roadblock this year with parents teaching their children how they were taught. In fact, one example used was the Pythagorean Theorem in which students needed to understand the way it worked as opposed to just plugging A, B and C into the formula. The students needed to prove the theorem and understand the practicality of using the formula rather than just another rote problem where the students had no context to it.

There is a team, but who is on the team? All participants had knowledge that the district did have a curriculum team, and for the most part the team had a vital role in the implementation. More importantly, this team had representatives from all over the district and was a position that anyone could apply for. That being said, many teachers lacked the knowledge about who were the sitting members and how they could be apart of the teams.

Of those teachers that had a good grasp of the committees, Richard described the committee as there were curriculum committees that were established. They’re part of our lever committees, and those curriculum committees have taken professional
development, they are creating units, common assessments to give to the teachers to help them implement the Common Core. Based on those units, it’s the teachers directive to create lessons to address the unit’s objectives. There’s a variety of different teachers. There are coaches, the curriculum coordinators, teachers that comprise the curriculum committees. Every year there’s new people that are added to the curriculum committees and people that are … choose not to be on the curriculum committees.

This rich detail that one person had was not representative of the group, in fact, many did not know much about them. Carol, referring to the committees, was reluctant to say

I don’t know what happens with it but I do know that there’s some type of a committee that’s a stirring committee, for lack of a better term, that they probably bounce ideas off each other and they roll with what they come up with as a common agreement. I don’t know [how they were asked to be on this committee]. I have no idea how they were asked. I’m fine with whatever they’re doing. If I was asked, if it worked into my schedule I would probably say yes. If not, that’s fine too, it’s okay.

Kyle stated,

It's unfortunate, when we say committee, you think it's a huge committee, but it's really only a committee of two, but I know that they would have loved to have more on the committee, but again, it had to do with time, subs, money, and everything else, so these committees basically represented a teacher and a coach for each grade level.
This comment alludes to the committee producing good quality work and that teachers would want to volunteer their time to have a chance to be apart of this.

As far as the consensus of the teachers, it was clear that they not only respected the work but it was valuable work. Many of the teachers alluded to how the reason they were so successful was due to those sitting committees. Another success was through the math coordinator for the district. This person was charged with the creation and evolution of these working groups. Kyle continued to described this as

Yeah, it was definitely a team. Obviously the team was led by our curriculum coordinator. She, in turn, had the math coaches that were very, very involved, went through a lot of training, a lot of workshops up at Bridgewater…she was very proactive in making sure that we were knowledgeable, that the coaches were knowledgeable and prepared.

Overall the participants could all agree that there was a working group that helped with the implementation of the CCSS. However, discrepancies arose regarding who was on the teams, how to get on the teams and the communication of the work the team did.

Do we need to know the research? Throughout the data collection process, the researcher noted that the majority of responses noted that the research behind any of the changes was not communicated, or if it was, not communicated effectively. Frederick said, “Yeah, I don't know. They never really talked a lot about the research per say” Albert also stated, “I don’t remember that discussion. I won’t say that they didn’t do it, it just doesn’t stick out in my mind.” To further, Richard stated,

Most of the staff that have taken part in the PD … are probably unaware of the research behind it, but working with the EDC and laying the foundations, there is
historical research that aligns the PD with the purpose of it. Most of the research is probably unbeknownst to many of the staff here, but the research in how effective it’s been implemented probably hasn’t been done.

This has left many teachers just accepting the information they receive at PD for face value and believing that what the district has planned will benefit them. The following response is an example of what the researcher gleaned from the data, Carol commented:

Yeah, I think it’s researched based and I’m sure, in what I see, the binder that we look at, I’ve seen that the credit has been given to those particular research think tanks, whatever. They’re being recognized as far as where they get their information from.

Whether it is explicit or implicit, the research for the PD is called into question from the teachers at this middle school. However, it has not stopped them from doing the best with what they have.

**Desire for More Time**

The third theme identified by the participants was a desire for more time. The components under this theme were: more time to plan, time to collaborate and un-pack the standards, and not enough time built into the day but when we plan it yields results.

**More time to plan.** Every participant agreed with the point of view that more time was needed by teachers to plan. Participants noted that efficient use of time during the day to meet the obligation of curricula planning is hard to come by. During the course of the day, staff deals with the day-to-day operations of their classroom. From taking attendance to correcting the latest open response, teachers have said that time is very limited when it comes to planning. Katie suggested that administrators should “maybe just understanding that we're all human. You
can't implement 60 different things, you have to prioritize”. The idea of multiple initiatives came up throughout the interview process and the CCSSM is just another “thing” that the staff had to deal with. However, the difference between the other items they had to implement, they all understood that the CCSSM were here to stay. At this point even the administrators understand that the teachers are under enormous stress. Richard stated, “If we overwhelm and overburden the teachers, they’re not going to be effective in the classroom” was stated by one administrator who said the key to a successful implementation is working on less with more passion than taking on too much.

In terms of planning, it was also determined that there was not a lot of structured planning times besides the one time per week they work with a coach. This time was understood to be voluntary however; the researcher concluded that it would be frowned upon by administration if they did not show up regularly. That message still did not take away value in those meetings. The main gripe is that the staff would like more time and schedules of their colleagues to be aligned so that planning can happen with other math teachers on their grade level and cross grades 5-8. To put it in perspective Carol said:

I’ve created a personal time to plan with colleagues. It’s not really given to us through in the day. I have a little bit of a challenge in that because I teach both 7th and 8th grade, I am partnering with my 8th grade colleague to plan and we do that after school on Tuesdays during our so-called personal time. The 7th grade we meet on Wednesdays after school and we do our planning for that following weekend at that time.

Not to say this person frowned upon staying after the school hours: in fact, this person stayed late all most every day. However, not every teacher has this person work ethic.
Another issue seemed to be the planning times built into the schedule. This school has a few teachers that teach multiple grades. In this situation, they may not have the opportunity to plan with other grade level content teachers that they teach. This leads to teachers struggling to get together and or finding times where it is mutually accepted time to get together. Carol further explains their situation as follows:

What’s a little inconvenient as far as the 8th grade teaching situation is, I have the same planning time as the 8th grade teachers. I don’t have the same planning times as the 7th grade teachers. I feel as though I’m probably doing a better job with 8th grade than I am with 7th grade because I haven’t had as much time with the collaboration. I’ve created the time on my own.

Again, this was communicated as inconvenient not as impossible. Thus, leading the researcher to believe the staff is working on this communication piece.

**Time to collaborate and un-pack the standards.** As important as the coaches are, an area that is continuously resurfacing is the need and want to collaborate and un-pack the standards. As Christopher stated,

They've given us opportunities to collaborate and to work with the new material. We've done a lot with the standards for Mathematical practice as part of the common core. We've been allotted opportunities to meet and talk about it [CCSSM]. One of our grade level teachers on the curriculum committee so she will come back and share it with us, which is good because we can’t all be there.

The positive comments about planning and need for more time to plan was evident throughout the interview process. Every staff member said this time was irreplaceable and was well spent,
and that they wanted more time to do so. Carol reinforced the planning and noted that the committee work:

I think with the professional development it’s a collaborative thing, we’re all going through it together and we’ve got the same questions. Just talking to each other and bouncing things off each other, things that we tried or things that didn’t work, things that did work, things that somebody else used that worked. It’s a nice give and take, nice little discourse that allows us to move in the right direction. I think it’s been healthy that way. We’re not on our own, we can see that we’re all together.

Kyle further noted that

I would definitely say they’ve provided the teachers with lots of opportunities to understand, to talk about, to discuss, to question the new standards. They’ve also given plenty of opportunities, I feel, in committee work, where people can step up and really get involved to know more about the standards. I also find that the district has been excellent in if you wanted to go to other workshops that focused on that, that they support it. I just like how they even brought in outside people through PD and had them talk about it, so kind of a whole bunch of different ways.

Although many made mention of the committee work and how important it was, there were still many that did not know how to get involved or who was on each committee. Furthermore, there was an overwhelming consensus that more time and better communication was needed for the implementation of the CCSSM. Generally, there was not enough time built into the day for
common planning and also that when they plan, the time spent planning yields tremendous instructional materials.

**Not enough time built into the day but when we plan it yields results.** Teachers were very vocal about the importance of planning with their grade-alike colleagues as well as their vertical math colleagues, i.e., planning with grades 5 – 8 math teachers. Some teachers made a point to discuss how extremely busy they are with the day to day operations and Tamika said:

As far as planning goes, we plan on a weekly basis. We sit down. A lot of times we'll take the Common Core Standards out and say, "What is it that we have to be able to do? What are those goals?" As well as we sit down with the upcoming assessments and say, "How are we going to make sure we get there?" Look at what tools we're going to need, what materials, and then we plan that way. He and I have basically made time every week. Then, like I said, we do some of these professional development times. There's really no time in the system unless you make it yourself.

This person elaborated to say that they would meet after school when all parties could agree to meet. This type of planning was not consistent but between the school hours it was very difficult to get the time to sit down and have this type of conversation. Another Carol goes on to say,

I’ve created a personal time to plan with colleagues. It’s not really given to us through in the day. I have a little bit of a challenge in that because I teach both 7th and 8th grade, I am partnering with my 8th grade colleague to plan and we do that after school on Tuesdays during our so-called personal time.

As the researcher found out, the teachers did have planning opportunities through the week. They met with the coaches on a “voluntary” Wednesday meeting. All of the teachers took
advantage of this meeting; however, with this meeting being led by the coach, teachers did not have the opportunity to create their own agenda of what they wanted to do. CCSSM and district directives led this meeting. Christopher described her planning:

Within our 5-day schedule, we have one day. It's not a mandatory meeting but we do choose to meet with her almost every Wednesday as long as they're not testing or something. We'll meet with the Math coach with that one. All the other times we meet, we work on our own. Giving up planning periods or staying after school or we've met on weekends and worked to get lesson plans done. Things like that.

This has shown the demand for planning and yet a lack of time communicated by the teachers. If not formally meeting, it seems that the teachers find ways to communicate. Katie described it as, Hallway conversations, how are you doing, this is what I ... I just did that lesson yesterday, this is what I found the great strengths or the great weaknesses or the next time I'm going to teach us, this is what I'm going to focus on. I guess an a formal hour every week, supplemented by lots of informal discussions.

Overall, the teachers have the drive to meet and would like to see more formal time built into the school day.

Summary

The data suggest that overall, respondents are generally happy with the rollout of the CCSSM in the Attleboro Public School District. That said, there are several issues that were associated with the rollout that bear greater scrutiny. In short, the educators who participated within this study perceived the districts rollout as a work in progress and that could stand a few notable improvements. These points are discussed below.
**Work in progress - theory versus practice.** The positive note in the interviews is that the majority of the teachers and administrators were very reflective and thought that although it was a daunting task, Attleboro did a very good job at this transition and with minor revisions moving forward will be in a good position in Massachusetts. As Katie has put it, “I think that as we continue to evolve, in the district that the flow [of information] will continue to funnel down”.

For instance, one teacher who thought that the implementation was going well, wanted to hear from others what to do or what will it look like in my class. Carol stated,

> There’s times that I would love for them to say, “Hey, look. This is what you want to do. You want to take this and apply that to this particular strand.” or “You want to do this to this particular unit.” Sometimes I’d like that but then there’s other times I’m following that pacing or the design that they’re trying to get us to do. I’m, “This isn’t working too good, I want to do what I …” I want a little flexibility too.

This mentality was voiced from many of the respondents. That they not only needed the district to support them with resources and training but also allow them the flexibility as teachers to make instructional day to day decisions based on their students needs.

Also, many teachers voiced that they would like to see how these new standards look inside other classrooms, as well as that PD provides them with more resources that they can use in the classroom. It was clear that although the PD is informative, there is a difference from what you hear in a workshop and that of what it looks like in the classroom. Another example was when Gabriella discussed the PD they received,
We learned about the eight standards of mathematical practice and how we can identify it within the classroom, how we can teach it to our students to strengthen their reasoning and their arguments and their critiquing of others. I would say we didn't learn specific, okay, do this in the classroom, but we've learned how to identify it and kind of incorporate it, I guess, into our lessons.

This thinking was evident in the other responses and details the difficult task of learning something new that was dictated by the state. This also reflects how well a respondent was doing with their implementation, specifically in the infancy stage of this movement.

Participants are happy with the rollout. As one participant spoke about the roll out, they spoke not only about having colleagues in other districts but as what they read about and detailed that Attleboro has taken the initiative on the implementation of the CCSSM. Kyle explained,

I am proud of ... I am really happy with the way Attleboro has been so progressive with this and the way we've navigated through some very rough seas in this implementation. I can't say enough about the math coordinator and the coaches and the fact that they've planned so much behind the scenes that I don't think anybody truly knows how much work goes into the planning of the PDs.

Jonathan added,

I read about other communities that are struggling with this. We’re lucky I guess here. I think everybody recognizes it as what we had to do, and then rolled up their sleeves and got right into it. It think it’s been a real team effort. [the math coordinator] has provided some real leadership on that and I think that’s a big factor.
Further, Carol stated

Once again, I go back to the hearsay from [named school district]. I don’t think they’re getting any help or if they’re getting help it’s coming late and it might be too late to get to the party, I don’t know. I think we were proactive and it’s been coming through where I can use it. It hasn’t been late, it’s been clear, it’s been helpful, it’s been resources, it’s been good. I don’t know if it’s great but I think it’s been good.

This was the general consensus from the group. Although positive, there was one respondent who held a slightly negative view. Albert stated that there was no money being invested and staff were just told what to do.

I feel that the district was less than helpful because I feel that they were given a mandate. We’re rolling it out. We’re starting September 6th. We are not investing any type of money into this material-wise or professional development-wise, so it was sink or swim.

Based on the others responses, this comment did not align with the themes the researcher collected. However, this information needed to be represented.

**Improvements.** Based on the theme that there was still work to be done and improved on, many of the participants spoke about the need to have the administrator’s involved in the process and more common planning time for teachers and staff to meet.

Again, at the end of the day, administrators will be evaluating teachers based on what the administrators know about what math teachers need to do. This was an area where teachers would like to see more time and money be funneled into. The participants were clear that they
were concerned about evaluation and the professional judgment the administrators have. In fact, Kevin said it nicely:

More professional development with principals and assistant principals before we even started [roll out would have helped]. We did a little bit with the principals and assistant principals, but I think we should have done more. In fact, the night we did the math night, recently, over at [another middle school], some of the principals came. And I thought, "That's okay, if the principals are there, and not many parents, because the principals need to hear it as well." They're so busy, they don't have time to embrace it like we do…A lot of it they don't know, so, I think we should have done more professional development with them.

This was an important piece of data to highlight. The teachers have a daunting task to implement these standards and yet professionals that may or may not have the background to most effectively do so will evaluate them.
Chapter Five: Discussion of Research Findings

Problem and Significance

As reported by A Nation at Risk, more than 40% of students are not prepared for college or the workforce (Mondale & Patton, 2001). With the adoption of the CCSSM, 45 states are now implementing a new “set of standards whose mastery will provide each student with the skill and knowledge to advance in study” (Kendall, 2011, p. 141). The CCSSM standards are “designed to be both challenging to students and coherent as a system, the Common Core benefits from and amplifies the effectiveness of good teaching” (Kendall, 2011, p. 434). With the current standards-based reform in mathematics being implemented, support for Attleboro district teachers is both necessary and critical for program success and student achievement (Drago-Severson, 2004; Garet, Warner, National Center for Education Evaluation and Regional Assistance, & Institute of Education Sciences, 2011). Furthermore, to add to the urgency of this matter, a recent study has documented inconsistent PD while rolling out the CCSSM (Davis, Choppin, McDuffie, & Drake, 2013). Thus the need for the current research project was even more critical as it has already been documented that the inconsistencies in PD can affect the rollout of CCSSM in Massachusetts’s school districts.

The Attleboro Public Schools have had two years to prepare for the 2013-2014 full implementation of the Common Core State Standards for Mathematics (CCSSM). However, each school district in Massachusetts has engaged in a different process to support the middle schools (Davis, Choppin, McDuffie, & Drake, 2013). It is important to understand how middle school educators in Attleboro utilize the supports provided by the district for implementing CCSSM. Gaining this understanding may provide some insight into their perceptions of the usefulness of the professional development they received. Gaining this understanding may also
yield insights into the kinds of supports that could be helpful to middle school educators elsewhere. This study therefore attempted to discover what the Attleboro Public School District in Massachusetts has put in place to support middle schools as they fully transition to the 2011 Massachusetts Mathematics Frameworks with the Common Core embedded.

Discussion of Findings

**Professional development.** Although the findings in Attleboro have been positive and the perception of staff is one of investment in what they do. There happened to be an underlining tone that teachers craved for more professional development. Staff was clear: although they were in the midst of these curricular changes, they stated that the PD was still a critical part of moving forward. Further, staff found the PD very useful because they did see the connection from what they do as teachers to what they are learning in the workshops. The teachers clearly articulated to the researcher that the district was focused on this reform as opposed to the ‘one shot’ workshops and PD that does not focus on the mission of the district. This type of PD typically leads teachers astray as they do not see the importance or the “why” in their learning.

Another facet in the findings was the staff’s perception regarding the PD. The staff found the PD very proactive and detailed that there was more teacher “buy in” because teacher leaders led many of the trainings along side with big educational think tanks such as the EDC. This coupled with the districts focused PD plan, led to the teachers to believe that what they learned through those workshops were in fact going to be useful in the

**A deeper understanding in mathematics.** Another equally important finding was the fact that the teachers realized that the Common Core calls for rethinking the way in which we teach mathematics. This not only has called for a deeper understanding of the mathematics being
taught but the attention to detail has teachers rethinking their comfort in their own personal knowledge of mathematics.

In addition, teachers felt as though this standards initiative has called for teachers to relearn the way in which they teach math. Because the standards call for deeper knowledge in mathematics, teaching students would require less ‘stand and deliver’ and more mathematical discourse between students and teacher which is a major shift from the traditional math classroom. Although, this could be considered a hurdle, this was perceived in a positive light and the teachers feel as though they have gained a better understanding themselves because of these explicit changes in the frameworks.

**Issues associated with the rollout.** The major concern articulated by the staff was pertaining the mathematics committee work. This is a group of teachers, coaches and the district coordinator who are charged with all the districts curriculum work and in addition, rolling out the new frameworks. Although this math committee has the daunting task of creating and relaying material though out the district, it seemed as though there was lots of confusion regarding who was on the team and how they could become apart of that working group. As stated in the findings, many of the teacher responders would join the team if the opportunity arose. That being said the teacher ‘buy in’ would raise exponentially if they had more opportunities to become engaged in the process. Whether your colleague two doors down from you is participating, or you yourself gets involved, you increase the credibility of the group.

In another vein, the time to do all this planning and training was a healthy concern. While teachers creatively addressed the time restraints, many of the teachers carved time into their personal time outside the school day in order to meet and plan with others. This staff did
not have much time dedicated to plan during the day; however, the staff also stressed the importance of having more time established within the building hours.

Additionally, the training of administrators was a concern for all. In schools throughout the nation, teachers are being evaluated on the implementation of these new frameworks. The questions, in the findings, are these administrators trained? Do they know what they are looking for in the classroom? This concern is critical because as earlier stated; there is a call for a deeper mathematical mind in the teaching and learning in our classrooms. That being said, is there opportunities for the administrators to get involved?

**Discussion of Research Findings with Regard to the Theoretical Framework**

With reference to the theoretical framework used in this study, an Adult Learning Theory Andragogical Process Model (APM) for Learning provided the lens that was used to investigate Attleboro. To review briefly, APM is a set of procedures for involving the learners and other relevant parties in a process involving these elements: (1) preparing the learner; (2) establishing a climate conducive to learning; (3) create a mechanism for mutual planning; (4) diagnosing the needs for learning; (5) formulating program objectives (which is content) that will satisfy these needs; (6) designing a pattern of learning experiences; (7) conducting these learning experiences with suitable techniques and materials; and (8) evaluating the learning outcomes and redesigning the learning needs (Knowles, Holton, & Swanson, 2005, p.114).

The research findings of this current study have aligned with the theoretical framework used by the researcher. As referenced above, there are eight elements to consider when working with adult learners. These eight do not necessarily need to be present; however, what was gleaned
from this study is that the more elements present, the more successful the implementation of the CCSSM in the Attleboro district.

To speak to that more specifically, the researcher is making a case to recommend a new process for the math committee work in Attleboro. What was found in the present research project is that there was little transparency in the current process, a fact which decreased the effect of efforts to implement CCSSM. Many staff members had a very basic knowledge of their role, but did not know how to become involved. That particular component of implementation would fall under the APM’s guidelines of (1) establishing a climate conducive to learning and (2) create a mechanism for mutual planning. The researcher noted that some of these elements happen to overlap. This is not to say that implementation was not successful; rather, the researcher is only making a claim that it would have been more successful with these elements.

The next area of concern in line with APM is the questionable planning built into the day. The APM’s element of creating a mechanism for mutual planning was critical in the planning and implementation of the CCSSM. The teachers claimed that they wanted more training and more time to collaborate and plan for these new frameworks. This aligns with the APM, which clearly identifies that there needs to be time set aside for planning. Furthermore, Knowles (2012) claimed that in order to successfully implement change in adults, time needs to be planned in order to account for “individual differences among people increased with age; therefore, adult education must make optimal provision for differences in style, time, place, and pace of learning” (p. 39). Based on the researcher’s interviews, there were a wide range of adult learners, and this should be taken into account when planning PD.

The last area of concern identified in the current study centers around the APMs element of designing a pattern of learning experiences. Administrative training is a must, and the
findings suggest that in an attempt to get a district on the same page, the administrators may not have the knowledge that would aid them in the implementation or evaluation process. As referenced in the APM, the need to have qualified human capital is a must. Many teachers made reference to how their colleagues are a critical part of the learning in this environment. Further, the teachers also spoke about how important it was to see a peer doing the presenting, as it provided ‘a reason to buy in.’ Teachers also spoke about the need to ensure that the trainings were not led by someone that has ‘lost touch with the classroom.’ As Knowles (2005) explains, “the centrally crucial factor and program operation seems to be the quality of faculty resources…most often you have to train them yourself, for both pre-service and in-service educational programs” (p. 130).

The Attleboro district has supported the growth of teachers and teacher leaders (coaches), and the findings confirmed the teachers felt the information that they were learning through the process was worthy of learning. However, the findings did not suggest that there was programming for just administrators. That being said, the administrators are charged with not only the day-to-day operations of the building, but also with providing guidance and oversight regarding teaching and learning. Without the proper background, it does not seem reasonable that with the great demands of these new standards, that the administrators would be able to know, in depth, what these standards should look like and/or sound like in a classroom.

Discussion of the Findings in Relation to the Literature Review

The following section presents the researcher’s findings that are linked to the current literature, which is presented to answer the overall research question. The overall research question that was asked examined how does the Attleboro Public School District PD support middle school math teachers who are making the transition to Common Core Standards as
perceived by Attleboro educators. A point-by-point exploration of the findings associated with this question is detailed below.

**More professional development and training.** The CCSSM calls for an increase in the mathematical rigor. As Liebtag (2013) discusses, in order to achieve this goal, there needs to be a deeper understanding and more attention to detail on the part of teachers in order to be successful teaching their students. This understanding of the standards is critical to the rollout of the CCSSM. If teachers do not fully understand what the standards, then how will they be able to plan and implement them? Liebtag (2013) quotes Kohl (2006) when noting that “to play well you have to know the standards – not because they make you a better performer but because it provides a common language that allows you to collaborate with others” (p. 59). With the implementation of the CCSSM, concerns were expressed by Attleboro teachers regarding the depth of knowledge students need to acquire through the use these standards. Teacher success and ultimately the success of student achievement hinges on a teacher’s complete understanding of the standards. With that, teacher training is a factor in the success and or failure of this initiative. Porter, McMaken, Hwang, and Yang (2011) state that “[these] standards claim to be, among other things, internationally benchmarked (p. 103).” This claim seems to address the old argument that mathematics education has been, for the most part, a surface level effort that does not dive into the depth that students need to understand all of the nuances of mathematics.

To further the need for training, Knowles (2012) discusses the idea that “adults need to know why they need to learn something before undertaking to learn it” (p. 63). The literature also points to the negative perception of professional development. According to Zemke (1981), “adults can be ordered into a classroom and prodded into a seat, but they cannot be forced to learn” (p. 45). Adults need to be motivated to learn (Falasca, 2011; Hansman & Mott, 2010;
The findings certainly suggest that the Attleboro teachers were motivated to learn and thus are looking for more time to plan.

This phenomenon also connects to Knowles APM, a finding that was articulated by the district when the school department, as well as the commonwealth, provided information sessions in the first year of adoption. These sessions helped to provide a baseline for teacher’s basic understanding of the changes coming and the catalyst for the change that was to happen. The state also provided time for all educators time to share their input and comment on the drafts of the standards. It was very clear in the interview data that the teachers thought that Attleboro was on the proactive side thus resulting in a more motivated teacher when considering the Common Core adoption. Some examples of this can be found in the work the district did during the first year. According to district administrators, they spent that year unpacking the standards and detailing a CCSSM timeline for implementation. The district also provided staff with details and offered time to look at how the mathematics curriculum would change over time. By providing these opportunities, teachers had more buy in to the process and wanted to have more time to develop and deepen their understanding of the new standards.

A new vision of teaching. As teachers gained a new understanding of the standards, they also gained a new understanding for the facilitation of learning that takes place. The new standards call for more student ownership in mathematics, an approach that requires more open-ended problem solving where there may not be just one answer to a problem but perhaps many. This is a shift, as the students must at times take control of their own learning in order to solve real world problems through the use of critical thinking. But in order to deepen the understanding of teachers to make this shift, it is important to understand why a new philosophy of mathematics education is important.
If teachers are expected to embrace the philosophy of mathematics teaching and learning that no longer rests on a foundation of certainty (that is, to model problem-solving and to welcome divergent thoughts and strategies), then educational leaders certainly must endeavor both to understand the kinds of discomfort that will emerge for these teachers and students and to help them work through such discomfort (März & Kelchtermans, 2013).

When teachers fail to have certainty, a sense of vulnerability and deflation could come to be (Kaniuka, 2012). Thus, there is a need to prepare educators for the depth of knowledge these standards require.

In fact, a deeper mathematical background is needed to teach in a way that provides students with the flexibility to ‘get messy’ in the mathematics. Teachers need to guide their students and facilitate learning as opposed to merely lecturing. Teachers need to be “sensitive to the flow of mathematical discussion and intervene judiciously… they permit students to pursue a range of solutions because complex problems, by nature, do not have immediate answers… the transfer of responsibility from the teacher to the student” (Montague & Jitendra, 2006, p. 48).

This is a change in the prevailing paradigm, which has considerable debate; however, Attleboro's teachers have embraced this task that aligns with the idea “that educators must accept and understand the reform and, in response, be willing to change their instructional practices” (Bostic & Matney, 2013; Desimone, 2013, p.59). This was an area in which the teachers felt they needed more help; however, they were still motivated because as a few staff members explained they learned much more by this pedagogical stance.

**Issues associated with the Rollout.** One of the main issues related to the rollout was brought to light through the discussion had by the math committees in Attleboro that completed
much of the curriculum work. This committee worked to provide the schools and teachers with direction by disseminating the group’s work at each individual school. This work was led by the math coordinator, and according to the interview data, many teachers were either not sure of how to get involved or wanted more information from the group.

Again, the teachers felt positive about the efforts made by the district; however, they wanted to be included more and to have an ongoing process to get involved in the committee work. This idea of transparency is necessary to get teacher ‘buy in’. This fits into the idea that “what is needed is not to create learning, but rather create the circumstances to make learning empowering and productive” (Theodorakopoulos & Figueira, 2012, p. 863). The productive work of committee is a positive aspect of the implementation, but making the process more available may provide the prospect of creating an opportunity to empower those that may be craving a more inclusive process.

Planning time was another area of concern that was gleaned from the data. Guskey (2009) explains how “educators need time to deepen their understanding, analyze students’ work, and develop new approaches to instruction” (p. 497). He further details that PD needs to have follow up after delivery. Attleboro has provided a yearlong training program offered through the EDC. This training was for all math teachers in the district, and during the year in which data was collected, the researcher saw how the district provided time to revisit what was learned. The schools had the opportunity to work with the math coaches in terms of planning ways to implement the content that what was taught in their classes.

The last area that had a strong response concerns administrative participation. Administrative participation is important in education, as it is “one way to create a positive job climate is to involve bosses in the development of the program” (Kirkpatrick & Kirkpatrick,
Kirkpatrick goes on to say that administrative participation increases the level of motivation from the employees. The participation from administration helps as it promotes a common language for all staff. In addition, the Association for Supervision and Curriculum Development (ASCD)(2012) notes how instructional leaders, principals must know and understand the shifts associated with the common core state standards. Be fully versed in how to support the teachers as they act those changes. Better align initiatives such as teacher evaluation and common core implementation seamlessly for their staffs (p. 34).

The bottom line is that at the end of the day, the building administrators were using their judgment to hire, supervise and fire staff. It is the utmost importance that the administration be versed with the current curricular changes, for they are the gatekeepers for all our students that walk through their doors.

**Limitations of the Study**

By choosing a case study, the researcher had the opportunity to utilize his role within the school to build on the context of the study. Conducting interviews with staff may have been influenced by the role of the researcher, which is a notable limitation. On the other hand, being able to interview and see the transition before the researcher’s eyes provided a powerful insight an outsider would not have. As Yin (2009) notes, “a case study involves an inference every time an event cannot be directly observed” (p. 47). By being a colleague, the inferences reached by the researcher need to be carefully analyzed to be sure no biases were intertwined with the data collection and analysis. Throughout the interview process, the researcher therefore referred to participants for member checks to assure that what the researcher noted was the accurate detail of the interviews.
Another limitation is the degree to which this study can be transferred to the broader educational context. This study is looking at only one district, and at only one school in Massachusetts within this district. The results of the replication in any other district would certainly yield different interpretations. These results, however, are of value and should someone wish to replicate the current study, the district would certainly learn from the process. Because this study looked at only one school within the district, the generalizability could be called into question. However, as the researcher will recommend later, the replication of this study on a larger scale in a larger district could generate a larger pool of data that could ultimately help refine the specific needs for quality professional development of teachers during this transition to the CCSSM.

Recommendations

The theoretical framework, as provided by APM and the current literature, provided the framework for distilling the findings in support of the three recommendations below. These recommendations are in response to the areas in which the researcher found problematic or a challenge. Thus, the following recommendations have carefully attended to and address the perceptions that are not clear or slightly negative in regard to the implementation as carried out by the district. These recommendations will give the district the opportunity to change and/or address the perceptions to move the district forward with the continued development of teachers. The two areas where the data determined a need to address is (a) establishing a climate conducive to learning, and (b) creating a mechanism for mutual planning. The researcher believes that these two areas are critical in any new learning. While the researcher has identified three areas for recommended improvement, there is overlap between the APM elements of
creating a climate conducive to learning and mutual planning. The two recommendations are addressed at length below.

**Recommendation one: Address the committee work.** Although participants in the system had knowledge of the working groups, many did not know who was involved, nor did they know how to get involved. This resulted in some negative perceptions of what this group has done to date. The idea of transparency is critical for the continued success of Attleboro. It is the belief that the more one knows about what is going on, the more likely the change will take root.

In the case of the Attleboro district, teachers are mandated to listen to what the committees tells them and implement the changes because the principals and administrators are making implementation a directive. Conversely, if teachers had more knowledge or were more involved in this process, or even a deeper understanding of why they are making those choices, then the changes may be more easily digested. As the APM states, a successful climate is one where mutual respect, collaboration, mutual trust, support, openness and authenticity are available for the learner (Knowles, Holton, & Swanson, 2005). In order to have any of those criteria present, one must know who is on those working groups, how to become more involved. At Attleboro, this is currently not the case.

One way to address this shortcoming is to look at ways to elicit more involvement and provide multiple opportunities per year to have the committees provide detailed reports to each of the schools during in-service or faculty meeting. This will increase the number of teachers involved, the visibility of the working groups, increase communication, and provide opportunities to get involved thus resulting in teachers having more trust in those that are ultimately making curricular decisions for their classrooms. Thus, the staff’s perception may
drastically change to show a real delegation of responsibility and real influence in decision-making (Knowles, Holton, & Swanson, 2005, p. 122).

**Recommendation two: More planning built into the school day.** The theme of needing more planning time was present throughout most of the educational readings and interview data. Planning time in schools is a must, and in most cases, schools do not do a great job of having the opportunity for mutual planning. According to Liebtag (2013), the CCSSM is a national opportunity to provide a common language to start this mutual planning. This is an opportunity for districts nationally to work together to find ways to create school schedules that allow for maximum planning times.

Although Coelho had voluntary planning meetings set up on Wednesdays, attendance could not be mandated and the coaches would facilitate based on who showed up. Those that attended the meetings felt that the meetings were beneficial; however, they wished for more time with their colleagues to continue the work. What resulted in many cases was that the teachers made use of their time after school. This was non-contractual time in order to get their planning done. This planning for the most part was superficial planning and did not get into the detail to which was needed for the CCSSM.

This resulted in a negative perception of what the school had offered for planning times. For instance, one teacher stated that they wanted the school to get more creative with the schedules and wanted them to create more common planning opportunities for grade a like teams.

**Recommendation three: Administrative training.** Kirkpatrick (2009) makes a point to detail that it is important to have supervisors trained along with the employees. Throughout the data collection period, it was noted that many of the participants described a need for the
administration to be on the same page as the teachers. As Fullan (2008) describes it, in order to be a good manager, you need to be a good teacher first. To speak to that, one with no knowledge of the CCSSM would not be an effective leader in this time of change. Another aspect of administrative training would be to have administrators from each school on the math committee in order to help with the consistent message to be sent from the entire group.

These recommendations have been carefully crafted by taking into consideration the current literature, the theoretical lens used to frame this investigation, and the empirical findings. Attleboro has had a successful implementation; however, any successful organization should continue to revise their current PD system in order to change with the times. In terms of the three areas that were recommended, the researcher believes that if those areas were revamped, the perception and motivation would increase from the staff.

**Implications for Further Study**

Derived from the limitations of this study, Attleboro, specifically Coelho, was involved in a qualitative study in order to answer to the researchers question. Currently, there have not been many studies regarding the transition to the CCSSM on a large scale. It would be in the interest of the greater educational community to use the foundation of this study to replicate it on a larger scale. Further, to maximize the generalizability of any future investigations in this area, the designing of a quantitative study that would take a larger view of the transition would help add to the field of education.

In addition, future researchers should consider individuals within the organization and look specifically at the following demographics: (1) time in education, (2) highest degree the participant holds and (3) specific role within the organization (math coach, teacher, administrator, union representative for the building) to gain a deeper look at the perceptions of
the individual within the organization. This lens would provide the researcher the opportunity to examine their perception as it relates to their specific role.

**Conclusion**

In the end, this study has provided a glimpse into the perceptions of the staff regarding what the Attleboro Public School District in Massachusetts has put in place to support middle schools as they fully transition to the 2011 Massachusetts Mathematics Frameworks with the Common Core embedded. This study allowed the researcher the opportunity to grow as an educational leader as he examined the educational environment to which he works in order to understand the elements of the APM and what needs to be in place for curriculum change to take root.

In addition, themes generated in this study have been analyzed and provided the basis to recommend the next steps for the Attleboro Public Schools. These recommendations are based on the current literature, the theoretical lens used to examine the findings, and the empirical findings themselves. While it is sometimes difficult to enact change in education, it is important to consider that adults will learn when the proper stage is set through quality PD.

In this particular study, it has been determined through the findings that Attleboro has had a successful transition to the CCSSM. In addition, it was noted that the staff had, in general, a positive outlook and perception of the work that the district has done. Another factor that positively affected the transition was the mathematics coach placed in this middle school. It was noted that their work had positively affected the transition to the new frameworks. Further, the staff all agreed that Attleboro was ahead of the curve and other districts were looking to Attleboro as leaders.
Furthermore, the staff detailed that the district was more narrow in their focus by providing more thoughtful and detailed professional development that was not a “one shot deal” and was over a period of time to address the changes that were taking place. This positive perception has led to a more motivated staff that is willing to go above and beyond to make time to plan future developments. That being said, the areas in which the district could enhance the transition were identified as more PD, planning time and more administrative leadership.
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Appendix A
Permission Letter Superintendent of Schools

March 15, 2013

Mr. Sheehan and Mr. Sawyer,

As you know, as the assistant principal of Coelho Middle School, part of my responsibilities includes overseeing and supporting the transition to the Common Core State Standards. My interest in the ways districts support this transition has become greater as my studies continue as a doctoral candidate at Northeastern University, where I am currently planning on conducting a study that describes the process by which the Attleboro School District supports the middle schools with the implementation of the Common Core State Standards for Mathematics. This study would require data to be collected from both administrators and teachers who participate in the transition. Therefore, I am requesting permission to elicit participation in this study from these administrators and teachers.

This case study will allow me to describe the process by which teachers’ and administrators’ implement the Common Core State Standards. I plan on interviewing study participants.

I believe this case study will only serve to benefit the Attleboro Public Schools, as it should indicate both strengths and weaknesses of the transition, allowing for further refinement of the implementation.

If you have any questions regarding this study, please contact me directly at (774) 644-0679 or via email at souza.f@husky.neu.edu, or the chairperson of my committee, Dr. Sara Ewell at Northeastern University, S.Ewell@neu.edu. Thank you in advance for your time. I look forward to hearing from you regarding this request for permission.

Sincerely,

Frederick Souza, Jr., M.Ed.
Assistant Principal
Coelho Middle School
99 Brown Street
Attleboro, MA 02703
Doctoral Candidate, College of Professional Studies
Northeastern University, Boston
Appendix B

Permission Letter from the Superintendent of Schools

Northeastern University Institutional Review Board
Human Subject Research Protection
950 Renaissance Park
Northeastern University
Boston, MA 02115-5000

March 17, 2013

To Whom It May Concern in the NU IRB,

As the Superintendent of Attleboro Public Schools, I am committed to the implementation of the Common Core for the faculty and staff. Frederick Souza, Jr., a student in the College of Professional Studies at Northeastern University, will lead a research project that will document these efforts through the data that he will collect during his doctoral research project.

I am eager to support the efforts of Frederick’s research, as we look to support the transition of the Common Core State Standards. I am aware that this research study will involve the following:

- Administrators will participate in one digitally audio-recorded interview that will approximately total ninety minutes, and take place at a convenient location for those participating, and a convenient time for those participating.
- Teachers and Coach participate in one digitally audio-recorded interview that will approximately total ninety minutes, and take place in a convenient location for those participating.

I understand and consent to this research project, its involvement with Attleboro Public School staff and all phases of data collection. As the Superintendent, I will provide the researcher with the necessary space and time within the school day for the data collection. I am available for contact if any further clarification is needed.

Regards,

Kenneth Sheehan
March 15, 2014

Dear Colleagues,

As many of you know, I am currently pursuing my doctorate in education from Northeastern University, and, as part of this, will be conducting a research study beginning this spring of 2013-2014. My study will describe the process by which the Attleboro School District supports the middle schools with the implementation of the Common Core State Standards for Mathematics.

I am currently looking for administrators, teachers and coaches at the middle school level that participate in the transition to the Common Core State Standards that would be interested in participating in this case study. The purpose of the case study is to examine the process of CCSSM adoption by the middle school math teachers in Attleboro, Massachusetts in order to ascertain how the PD they are receiving is (or is not) meeting their needs. Involvement in this study would involve participation in interviews for administrators, teachers and coaches and giving permission to the researcher to collect field notes taken by the researcher during face-to-face meetings of administrators, teachers and coaches from this spring and forward, as data.

Please be aware that agreeing or not agreeing to participate in this study will have no reflection on your work within the Attleboro Public Schools whatsoever. Also, any participation in the study will be completely confidential; names and other personal information will not be used.

Please respond via e-mail to souza.f@husky.neu.edu if you are interested or have any questions. Thank you in advance for your time.

Frederick Souza, Jr.
Appendix D

Signed Informed Consent Document

Northeastern University, College of Professional Studies

Investigator Name: Frederick Souza
Title of Project: The Transition to Common Core—One Middle School’s Story

Informed Consent to Participate in a Research Study

Why am I being asked to take part in this research study?
You have been asked to participate since you expressed an initial interest in participating from a request letter sent in April 2013.

Why is this research study being done?
The purpose of the case study is to understand how middle school educators of a single district utilize the supports that have been provided to them.

What will I be asked to do?
The researcher will be looking for you to participate in the following ways:

1. Participate in face-to-face interviews that will be audio taped (administrators, teachers and coaches)
2. Allow use of research field notes from interviews dating from April 2014 onward as data

Where will this take place and how much time will it take?
Face-to-face interviews will last approximately ninety minutes. These interviews will take place at the participant’s middle school at a convenient time and location.

Will there be any risk or discomfort to me?
There are no known significant risks involved in being a participant in this study.

Will I benefit by being in this research?
Benefits will include the opportunity to reflect on your own growth as a participant in professional learning communities, and the opportunity to aid in refining the program for future participants, benefiting yourself and the Attleboro Public Schools at large.

Who will see the information about me?
Your part in the study will be completely confidential. Pseudonyms will be used for all study participants. Only the researcher will be aware of the participants' identities. No reports or publications will use information that can identify you in any way.

If I do not want to take part in the study, what choices do I have?
You are not required to take part in this study. If you do not want to participate, do not sign this form.

What will happen if I suffer any harm from this research?
There are no known significant risks involved in being a participant in this study.

**Can I stop my participation in this study?**
Participation in this study is voluntary, and your participation or non-participation will not in any way affect other relationships (e.g., employer, school, etc.). You may discontinue your participation in this research program at any time without penalty or costs of any nature, character, or kind.

**Who can I contact if I have questions or problems?**
Frederick Souza, Jr., M.Ed. Sara Ewell, Ph.D.
Coelho Middle School College of Professional Studies
99 Brown Street 50 Nightingale Hall
Attleboro, MA 02703 Northeastern University, Boston
E-mail: souza.f@husky.neu.edu E-mail: S.Ewell@neu.edu

**Who can I contact about my rights as a participant?**
If you have any questions about your rights as a participant, you may contact_______. You may call anonymously if you wish.

**Will I be paid for my participation?**
There will be a $10 gift card to a local coffee shop.

**Will it cost me anything to participate?**
There is no cost to participate in this study.

I have read, understood, and had the opportunity to ask questions regarding this consent form. I fully understand the nature and character of my involvement in this research program as a participant and the potential risks. Should I be selected, I agree to participate in this study on a voluntary basis.

________________________________________________________________________
Research Participant (Printed Name)

________________________________________________________________________
Research Participant (Signature) Date
Appendix E

Souza Interview Protocol (45-90 minutes)

Good morning and welcome! Thank you for participating in this study. Again, this study is strictly confidential. The purpose of the case study is to examine the process of CCSSM adoption by the middle school math teachers in Attleboro, Massachusetts in order to ascertain how the PD they are receiving is (or is not) meeting their needs. By participating, you would aid Attleboro Schools in improving and refining the professional development system in regards to large-scale reform efforts. Ok, let’s begin.

This interview is scheduled to last approximately 90 minutes and will be recorded. All information I receive in this interview will be strictly confidential and your names will not be linked to your answers. Upon completion of the data analysis the transcribed materials and audio will be destroyed.

1. What grade level/content area do you teach?
2. For how long have you been teaching?

Preparing the learner.

3. What are some positive aspects and strengths of the Common Core?
4. What are some negative aspects and deficiencies of the Common Core?

Establishing a Climate Conducive to Learning.

5. In your opinion, what has this district done to support the implementation of the CCSS?
6. In your opinion, what has this district done as you create a learning environment?

Create a Mechanism for Mutual Planning.

7. Have you had time to plan with other colleagues?
   Prompts
   Describe
8. When have you had this time?
   Prompts
   How does mutual planning impact your instructional practice?
Diagnosing the Needs for Learning.

9. Did the PD connect the CCSSM to your classroom and your students?
10. Did the PD use research to back the changes to the frameworks?

Formulating Program Objectives.

11. Was there a team of teachers that helped with the formulation of the districts directives in regards to the CCSSM?
12. Were they presented to you in a user friendly way?

Designing a Pattern of Learning Experiences.

13. How did the district lay out the transition and acquisition of new knowledge related to the CCSSM?
14. Was the learning experiences designed to be over time?
15. In your opinion, did it help you in your classroom?
   Prompt how do you know?

Conducting Learning Experiences with Suitable Techniques and Materials.

16. Who provided the training?
17. Do you feel they were qualified?
18. In your opinion, did they do a good job presenting material?

Evaluating the Learning Outcomes and Redesigning the Learning Needs.

19. Do you feel that the district was helpful in your implementation?
20. In your opinion, what did the district do well?
21. In your opinion, what did the district not do well?
22. In your opinion, what would you have changed about the implementation?
23. Is there any other information you would like to share?

Thank you for participating in this interview. Again, everything you said will be kept confidential and will be protected so not to reveal your name.