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Parents and the Common Core State Standards for Mathematics

Rebecca Anne Roberts

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of

Master of Arts

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## ABSTRACT

### Parents and the Common Core State Standards for Mathematics

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As the majority of the nation has adopted Common Core State Standards for Mathematics (CCSSM), studying parents' resistance to these standards becomes vital in improving parental involvement and support of school mathematics reforms. Using Schoenfeld's (2011) model for decision making as a framework, an online survey and six interviews were conducted. The results of the survey showed that parents' resources related to student experiences and the mathematical methods students are performing are affecting their resistance toward CCSSM. The survey results also showed that parents' orientations related to the difficulty of the standards and politics affects their resistance toward CCSSM. The interview results inform the mathematics education community of what parents view as CCSSM and the goals, orientations, and resources that affect parents' resistance toward CCSSM.

Keywords: [CCSSM, Common Core, Common Core State Standards for Mathematics, mathematics education, policy, reform, parents]

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## CHAPTER 1: BACKGROUND

If families and other members of the public do not understand the intent of, and rationale for, improvement in mathematics education, they can halt even the most carefully planned initiatives. *Principles and Standards* was written with the hope that the conversations it engenders will ultimately generate widespread commitment to improving mathematics education. As part of this effort, it is the responsibility of the education community to inform the general public and its elected representatives about the goals and priorities in mathematics education, thereby empowering them to participate knowledgeably in its improvement. (NCTM, 2000, p. 378)

A key to improving school mathematics is for parents to participate willingly and knowledgeably in its [mathematics education] improvement (NCTM, 2000). However, school mathematics reforms are often met with resistance (Usiskin, 1999) and in some cases extreme confrontation from parents.

Perhaps resulting from the apparent need to improve United States international test scores, the reform movement known as the Standards Era began in the late 1980's (Klien, 2003). The reaction to this reform movement, known as the Math Wars, is one example of what often occurs in reactions to changes in school mathematics. Usiskin (2010) stated that the rebellion to this standards era was "strikingly similar" (p. 35) to the reactions in prior school reform efforts. Although there was a strong public opinion that there needed to be clear and focused standards, there was public resistance to programs based on NCTM's *Curriculum and Evaluation Standards* (Klien, 2003). Klein stated that

Parents who worried that their children were getting unsound educations from NCTM aligned mathematics programs did not give much credence to education research findings or the advice of education experts.... Perhaps the general attitude of parents was best captured by Jaime Escalante, the nationally famous mathematics teacher immortalized in the film *Stand and Deliver*, when he said, "whoever wrote [the NCTM Standards] must be a physical education teacher." (2003, pp. 201-202)

Parents had clear issues with many of the changes during the standards era. Some of the issues originated from the unfamiliar appearance and inaccessibility of the mathematics to parents. Some parents felt disenfranchised because they could not help their students (Schoenfeld, 2004). Parents began organizations that were against the attempts to reform mathematics. In California a group of parents was even successful in changing state legislation that essentially halted the progression of school mathematics reform (Schoenfeld, 2004). In considering NCTM's vision of successful school mathematics, these parents were doing the exact opposite: hindering the progression of mathematics education by stopping reform attempts in their tracks.

Currently schools in 43 states and the District of Columbia are transitioning to the Common Core State Standards in Mathematics (CCSSM) (CCSSI, 2012). The development of CCSSM was coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers (CCSSI, 2012). Since the adoption of CCSSM began four years ago, implementation has begun in the majority of mathematics classrooms. The current president of the National Council of Teachers of Mathematics (NCTM) 2012-2014, Linda Gojak describes CCSSM standards as the next step in school mathematics:

[CCSSM] are a call to take the next step... they are the result of more than 30 years of careful, thoughtful examination of what school mathematics should include if students are to be ready for college or for a career path that they may decide to follow. These standards have the potential to ensure a quantitatively literate citizenry. They are the next step in helping educators be smarter about how we offer all students opportunities to be successful in mathematics. (Gojak, 2013)

However, as seen in the Standards Era, calls to the "next step" have been made in school mathematics but often have had little impact or lasting change (Usiskin, 1999).

Since the adoption of CCSSM, there has been major resistance from parents. In essence, parents have joined forces against CCSSM. There are multiple websites, blogs and social media pages dedicated to opposing the CCSSM document (e.g., [www.utahnsagainstcommoncore.com](http://www.utahnsagainstcommoncore.com),

[www.flcommoncore.net](http://www.flcommoncore.net), [www.facebook.com/pages/Stop-Common-Core-in-California/436128033134967](http://www.facebook.com/pages/Stop-Common-Core-in-California/436128033134967), [www.facebook.com/IdahoansAgainstCommonCore](http://www.facebook.com/IdahoansAgainstCommonCore)). These websites are just a few examples of groups against CCSSM (see Appendix A) where both parents and teachers are petitioning against this document. However, this resistance is not NCTM's (2000) vision for better school mathematics in the United States.

Focusing on the Utahns Against the Common Core website, some members have stated their various reasons for not accepting or resisting the implementation of CCSSM. The following excerpts are examples from concerned parents/grandparents whom are members of this group. Their names are given as they are on the website.

Rich: I do NOT want ANY child to be “common”; I believe they are FAR better than that. To even think that ANY member of government let alone a parent would want their child to be “common” is ridiculous. I have two grandsons who are in Kindergarten and ALREADY read above the Third grade level but they cannot be advanced because it is against policy. This is utterly stupid and damaging to BOTH them and our society! No wonder so many kids cannot read or write well by the time they graduate from High School and, educators, stop making excuses! The teacher should be teaching and allowing kids to rise up! And stop holding them back. Kill this entire Common Core bunk NOW!!! (Utahns Against Common Core, 2013)

Dannette: Unfortunately, liberal progressive indoctrination is in over 2,000 schools nationwide now — even before Common Core kicks in. Common Core will take it to a whole new level and likely more than double the number of schools that will indoctrinate our children. (Utahns Against Common Core, 2013)

Heather: My 6th grader is really struggling with the Common Core math. In the past, there have been 2 or 3 different levels of math, now all kids are taught exactly the same curriculum. I am terrified that if he can't handle or keep up with the math in 6th grade (despite me sitting with him for an hour each day helping him with his math homework) then what is going to happen to him in high school? (Utahns Against Common Core, 2013)

Bob: There is no Constitutional authority given to the federal govt. over education; it is a State and local issue totally. All education authority and funding being exercised by the feds is USURPATION; it is SOCIALISM at its UGLIEST. All that States need to do is 1-

refuse federal funds; 2 – ignore federal education controls. That’s the Constitutional path to liberty as the Founders intended. (Utahns Against Common Core, 2013)

Each of these individuals state different reasons for being against CCSSM. It seems that Rich’s concern is that CCSSM makes children common, something he believes is damaging to society. Dannette is afraid that CCSSM will indoctrinate our students with liberal ideals. Heather has a student that is now struggling in math (she perceives it is because CCSSM signifies everyone will be using the same “curriculum”) and is concerned that he will continue to struggle with mathematics throughout his schooling. Bob holds the belief that CCSSM is a way for the socialist movement to obtain more power or authority. In essence CCSSM gives the federal government a power that is against the United States Constitution. The next chapter will explore different reactions to reform initiatives, but specifically focus on how the political stance against CCSSM is unique to the reactions against the CCSSM reform effort.

### **Research Questions**

A glance into organizations like Utahns Against Common Core reveals that there are parents against CCSSM. In fact, it can be concluded that there are many concerns and reasons for resisting CCSSM. The mathematics education field is aware that parents are concerned about CCSSM and their students’ learning. The field has attempted to address these concerns through position statements from multiple organizations (e.g., Mathematical Association of America, College Board). One such statement reads:

If the U.S. is to return to a position of leadership in college completion and prepare students for high-skills jobs in a global economy, it is essential that states, schools and higher education develop a consensus concerning the skills and knowledge required for success in college and beyond. The common core state standards are an important first step in developing this consensus with rigorous and clear criteria that will provide a road map for success in rigorous college readiness programs. (Education News & Insights, 2009)

As Klein (2003) suggested, these statements from mathematics education experts seem to hold little credence with parents. Without understanding how and why parents have concerns, the positions statements will mean nothing. What we need to know, but do not know is *how* and *why* these parents came to their decision to resist CCSSM. As seen in California during the Standards Era, organizations have the potential to stop school mathematics reform efforts in their tracks (Schoenfeld, 2004). Parental concerns have been voiced and parental concerns continue to be voiced; however, parental concerns are often overlooked (Peressini, 1998a). If reform in school mathematics is sought, the field must understand and attend to parental concerns, specifically the root of their concerns. In order to get parents involved willingly as NCTM (2000) suggested in a knowledgeable fashion, there by empowering the parents, the field must understand their decision to resist CCSSM. By understanding parents' resistance toward CCSSM, the mathematics education field will be better able to provide parents the knowledge and support they often lack in school mathematics reform attempts. The purpose of this thesis is to investigate parents' decisions to resist CCSSM. The research questions for this study are:

- (1) What do parents view as CCSSM?
- (2) How do parents' goals, orientations, and resources affect their decisions to resist CCSSM?

## CHAPTER 2: LITERATURE REVIEW

### Parental Involvement

It is well documented that K-12 students in the United States struggle to understand mathematics (Hiebert et al., 2005; OECD, 2003) when compared with other countries. Sheldon and Epstein (2005) found that most often the explanation for why students struggle with mathematics is related to one of the following: the mathematics curriculum and instruction, students' attitudes about mathematics, student readiness and background characteristics, and level of support for mathematics in home environments. The authors describe efforts to improve students' mathematical learning including improving mathematics curriculum, teacher education, and school wide/district wide programs, while very little attention is given to building the connections between school and families as a component of mathematics reform.

Despite the little attention parental involvement has received, researchers have shown that there is a strong correlation between student achievements in general and the level of parental involvement (Peressini, 1998b). Researchers have found that parental involvement increased student health (Chavkin, 1993), fostered positive attitudes towards school (Sattes, 1985), increased student productivity (Swap, 1993), and improved the percentage of children who were proficient on mathematics achievement tests when the parents used at-home mathematics focused activities (Sheldon & Epstein, 2005). Despite these findings, others have argued that parental involvement is not important (Romberg, 1984); in fact parents are often portrayed as “stumbling blocks for reform in mathematics education” (Peressini, 1998a, p. 567). However, the parental involvement that is suggested along with mathematics reforms and the actual reality of parental involvement in mathematics education reform are often quite different (Bloch & Tabachnick, 1994).

Peressini (1996) and Graue and Smith (1996) investigated parental involvement and reactions to mathematics reform attempts during the early 1990s in local schools to understand how parents were involved in the reform efforts. Peressini (1996) investigated parents' level of involvement and reactions to mathematical reforms within three schools, specifically, the change in mathematics curriculum, pedagogical practices, and even uses of technology. Graue and Smith (1996) investigated parents' knowledge of mathematical content and parents' knowledge of their child's understanding of the mathematical content as changes in the mathematics curriculum were made. They used assessments as a tool to discuss these types of knowledge. These researchers found that despite a variety of levels of parental involvement, parents often have concerns that were not addressed when school mathematics reforms were attempted.

Peressini (1996) studied parental involvement and subsequent parental reactions using semi-structured interviews in three urban schools that informed parents of various changes in the mathematics program and analyzed the differing parental reactions to school mathematics. Peressini's study focused on the "schools that have made significant efforts to enhance the quality of their mathematics program" (1996, p. 9). I take an individual look at parent reactions in these schools describing reactions that were unique to each school and then describe some common parents' reactions that were similar across schools.

At the first school, which was an urban/suburban school, the mathematics department kept the parents informed about the differences and/or changes in the curriculum through parent nights (i.e., where parents come get information about the curriculum and ask questions), and occasional letters. The mathematics department was recognized for its attempts at an integrated and unified approach to teaching mathematics, their use of technology, individualized student progress, as well as their mathematics curriculum. They had quite a unique mathematics

curriculum that was employed. Most parental concerns at this first school stemmed from courses the students were taking and whether or not the “tracks” challenged students appropriately, which Peressini identified as the main parental concern that students were not appropriately challenged. Even though the mathematics department at this school informed the parents of the curriculum changes, the parents still voiced concerns. To address this concern the school allowed parents to have the final say in the mathematics course their child was placed, which sometimes led to student setback or failure.

The second school, an industrial city school, involved their parents by having parent math nights (i.e., where the parents came and participated with the mathematics) and provided newsletters. The reform at this school focused on redefining student mathematical experiences including a rewritten geometry curriculum and a technology based Algebra curriculum (including real-world applications). The school piloted a new Algebra curriculum that focused on real-world applications for algebra for which all freshman in the school were enrolled in the course. The parents at this school did not have much power in changing the school mathematics program; however, the math nights provided parents the opportunity to experience the mathematics for themselves. At this school, Peressini found most parents were content with the mathematics department, and essentially with the reform, but one concern that was voiced was that there was no textbook for some of the courses. Even though parents attended math nights and experienced the mathematics, the parents felt they were not able to help their children with their homework particularly because they did not have textbooks as a resource. As seen in this school, a concern that parents had is that not having a textbook makes it more difficult for them to assist their children learning the mathematics.



The third school, a large urban school, sent out newsletters, published a magazine called Math Times to keep parents informed, held information meetings at the beginning of the year, and held parent teacher conferences throughout the year. The reform at this school focused on adopting new pedagogical practices including using manipulatives and having students work in cooperative groups. Parents in this school left the responsibility of their children's mathematics education to the school, but many parents expressed a desire to be better informed about the mathematics program. The parents felt their child's education should provide their students with the opportunity to obtain a good job in the future yet, some parents expressed concern that this perhaps was not happening.

In each of these three schools there were differences among the level of parental involvement at each school with each of their reform efforts. Yet two common concerns were identified as common among all three schools. First, parental concerns stemmed from being misinformed by sources outside of the mathematics department or parents misinterpreting the changes. In other words, the parents did not understand the rationale for the reform attempts or the changes that were occurring. A second concern was parents did not recognize the mathematical content their children brought home and became frustrated when trying to assist their children because they did not have the resources (e.g., textbooks). This led to parental concern with the content of the mathematics their students were learning. Peressini (1996) stated:

Most of the parents at the three high schools we visited realize that their children are encountering more and different kinds of mathematics than they did during their own school years. By and large, parents are unsure of the rationale, content, classroom activities and expected outcomes of this "reformed" mathematics instruction and how curriculum change might affect their children's' later life opportunities. As a result, the enhancement of school mathematics creates tension for many parents as they attempt to make sense of their children's mathematics experiences. (p. 20)

Although parents were informed of the different reforms in their schools by the mathematics departments they still had concerns related to these reforms. Yet these same parents wanted to help their students succeed in learning the mathematics that was being taught.

Graue and Smith (1996) investigated parents' knowledge of mathematical content and parents' knowledge of their child's understanding of the mathematical content as they made changes in the mathematics curriculum. The reformed curriculum was designed specifically to address the National Council of Teachers of Mathematics' Standards (NCTM, 1989; NCTM, 1991). The study was conducted in a largely white, middle class community with parents of middle school children. The authors found that parents had vast knowledge of their children's school life. The authors took a sociocultural stance to conclude that the parents' interpretation of the reform was influenced by historical, professional, and cultural context. Often the parents based their views of school mathematics and how their student progressed in the mathematics program on their own past cultural experiences. Graue and Smith (1996) stated:

If we hope to change what happens in schools, we must work for a fundamental renegotiation of the roles that parents... play out in children's schooling... We need to ponder the social and political consequences of the practices we propose, developing what Ellwein and Graue (1996) call a web of responsibility for making assessment work for all students and their families. (p. 25)

The authors found that parental involvement was an effective ways of changing schools, but merely informing parents about new practices was not enough. Rather, parents' views of the classroom, learning and teaching would need to change, which would require more than informing parents of changes. In taking the sociocultural factors into account, Graue and Smith (1996) concluded that parental roles need to be redefined in school mathematics and that there may be a potential political nature to school mathematics reform.

These two studies provide examples that despite attempts to inform parents about mathematics reforms, they still have concerns and negative reactions to reforms. Pritchard (2004) discussed how parents' attitudes, beliefs, and understandings of mathematics or mathematics education all influence parental involvement and perception of school mathematics. He further explains that hostile learning environments may be created due to possible discrepancies between school and home perceptions of mathematics, persistent negative attitude, or parent's anxiety over their child's mathematical performance. Peressini (1998a) suggests that the mathematics education community has not provided parents a formal arena to voice their interests and values; that perhaps parents continuing struggles with mathematics reform, and their demands that school authorities listen to them will continue unless they are provided with such an arena. He continued

Because [parents] are not knowledgeable of their school's mathematics education regime of truth, [parents] do not have any ownership of the reform agenda that is being implemented. Instead, they are forced to try to make sense of their children's mathematics education, and in this process they find that the new programs do not seem to match their own experiences with school mathematics. (Peressini, 1998a, p. 576)

While parents are often overlooked (Peressini, 1998b) they are an important part in the education equation. Parents are interested in their students' success in school mathematics. They often voice concerns over their students' school mathematics for a variety of reasons that may be based on cultural, historical, professional and/or political contexts. The Mathematics Education Community (MEC) has attempted to investigate the connection between parents and student success in mathematics, yet the results have not led to a strong connection between schools and parents nor have they created an environment where parents can voice these concerns.

## Mathematics Education Community

The MEC continues to conduct research on student and teacher learning, with the goal to help all students learn and succeed in mathematics. Mathematics education reforms are attempts to change or modify the school system based on what is learned from research about how students learn in order to better assist students with success in and understanding of mathematics. In this section I describe the “standards” reform era and discuss the history behind the development of CCSSM.

In the early 1980’s United States students performed poorly on standardized tests (Klien, 2003). The Second International Mathematics Study (SIMS) assessed eighth grade students across twenty countries including the United States (Travers et al., 1985). The results from SIMS showed that between 1962 and 1982 student achievement in the United States declined. Students performed at the median level in algebra, arithmetic, and statistic but near the twenty-fifth percentile in geometry and below this in measurement.

These dismal student results led to recommendations for changes in school mathematics with the release of two national reports during the 1980s. First, the *Agenda for Action* (NCTM, 1980) recommended that problem solving become the focus of school mathematics, basic skills were defined to encompass more than computational fluency, students were to study more mathematics in school, and a flexible curriculum should be designed to accommodate the diverse needs of students (Fey & Graeber, 2003). Another report commissioned by the U.S. Secretary of Education, shortly after *Agenda for Action* was released, *A Nation At Risk* (National Commission on Excellence in Education, 1983), caught the public’s attention (Klien, 2003). This report exposed how the future of the nation rested on the education of its children. *A Nation At Risk* predicted that the United States would lose economic and political races against the Soviet Union

and China. The report focused on the “failure” status of the United States education system and provided recommendations for reforming high school mathematics included a three year requirement, up from two years, for mathematics where graduates should (a) understand geometric and algebraic concepts, (b) understand elementary probability and statistics, (c) apply mathematics in everyday situations, and (d) estimate, approximate, measure, and test the accuracy of their calculations (National Commission on Excellence in Education, 1983). Other recommendations included the suggestion to update, improve, revise, and make available new and more diverse textbooks, assigning more homework and spending more time engaged in school work, improving the preparation of teachers, and that leadership and fiscal support be provided (National Commission on Excellence in Education, 1983).

These reports (*Agenda for Action* and *A Nation At Risk*) paved the way for *Curriculum and Evaluation Standards for School Mathematics* (National Council of Teachers of Mathematics Commission on Standards for School Mathematics, 1989), which provided fuel to the standards reform era in school mathematics (Usiskin, 2010). NCTM outlined new goals for students including students will learn to value mathematics, will become confident in their own ability to do mathematics, will become problem solvers, will learn to reason mathematically, and will learn to communicate mathematics. The four standards in this document include Problem Solving, Communication, Reasoning, and Mathematical Connections. This publication soon brought about its revision and updated document *Principles and Standards for School Mathematics (PSSM)* (NCTM, 2000). *PSSM* is one of the most widely known set of reform standards. This document includes six principles that are fundamental to high quality school mathematics: equity, curriculum, teaching, learning, assessment, and technology. The standards, or descriptions of what students should know and do, within the document include five content

standards: number and operation, algebra, geometry, measurement, and data analysis and statistics and five process standards: problem solving, reasoning and proof, communication, connections, and representations. Thus began the standards revolution in school mathematics.

Just thirteen years later, schools in 43 states and the District of Columbia have transitioned to the Common Core State Standards for Mathematics (CCSSM), a common set of mathematics standards for K-12 students across the United States. The release of the No Child Left Behind Act (2002) renewed the public's attention toward national standards (Goertz, 2012); however, each state continued to have their own set of mathematics standards that did not allow all students the opportunity to learn the same mathematics (Reys, 2004). In 2009 the Council of Chief State School Officers and the National Governors Association began working on a common set of standards for mathematics. CCSSM was developed using the best state standards; experiences of teachers, states, leading thinkers and content experts; and feedback from the public (CCSSI, 2010). The Obama administration has been supportive of the resulting standards and though the federal government cannot institute a national curriculum, the administration provided support for these standards through a grant solicitation (Race to the Top) for states to acquire funding to implement CCSSM (Porter, McMaken, Hwang, & Yang, 2011). However, only states that had adopted CCSSM were authorized to apply for these funds. Adoption of these standards meant that the state agreed to use 100% of the standards with the right to add more standards if they were needed.

The goal of the CCSSM is to make mathematics curriculum more focused and coherent in the United States (CCSSI, 2012). Heck, Weiss, and Pasley (2011) described the purpose of the new standards:

To help ensure that *all students* will be prepared to succeed in society and in our global economy, the CCSSM are intended to align with expectations for both college and career

readiness. These expectations include studying rigorous content benchmarked to international standards; focusing on deeper study of fewer topics than has generally been the case in mathematics education in the United States; and attending to coherence by connecting ideas within and across topics. (p. 1)

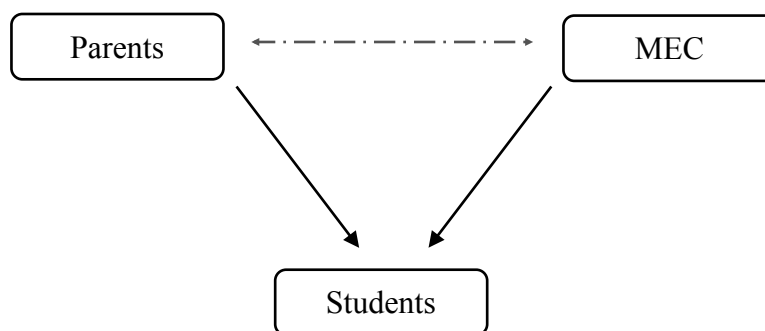
The mathematics education community has voiced their support of the CCSSM. NCTM (2010) supports the standards goals, definition of knowledge and skills laid out in the document. In fact NCTM representatives participated as reviewers and provided suggestions on drafts of the document. The College Board has also been a strong advocate and assisted in developing CCSSM. They state that “The goal of the Common Core State Standards – to establish a common set of rigorous expectations to prepare students for college and career readiness – strongly reflects the guiding missions and values of the College Board, as well as of our programs and services” (Vasavada, Carman, Hart, & Luisier, 2010). A joint position statement distributed by NCTM, The National Council of Supervisors of Mathematics (NCSM), The Association of State Supervisors of Mathematics (ASSM), and The Association of Mathematics Teacher Educators (AMTE) states that CCSSM are “welcome milestones in the standards movement” (NCTM, NCSM, ASSM, & AMTE, 2010). These organizations state that they support the goal of CCSSM and that the principles and positions of their organizations are echoed in the central elements of CCSSM. These include (1) students developing mathematical practices of solving problems, making connections, understanding multiple representations, communicating their thought process, and justifying their reasoning; (2) students gaining conceptual and procedural knowledge; (3) curriculum reflecting what researchers have found about the way children learn mathematics; (4), teachers providing opportunities for students to reason and make sense across mathematics curriculum and students need to believe that mathematics is worthwhile and doable.

Since the 1980’s the mathematics education community has had a large focus on school

mathematics standards with the intent to support students in learning mathematics. As school mathematics is currently in transition with the adoption of CCSSM, a new set of mathematical standards, the mathematics education community has come together to support the CCSSM document and has had an impact on the final version of CCSSM.

### **Mutual Goal – Student Success**

Parents and the mathematics education community (MEC) share mutual goals for students, they both seek for student success in and “understanding” of mathematics. If this is the case, then Figure 1 would represent the goals and intentions of parents and the MEC for K-12 students. The lines in the figure represent parental or MEC actions that lead to student success. While parent and MEC actions may and should be different (NCTM, 2000), the end result, that of student success is the same (thus the different lines meet representing student success). Peressini (1998a) has identified that the connection between parents and the MEC is weak, sometimes broken, and often is not as reforms have intended. This is represented in Figure 1 by the dotted line.



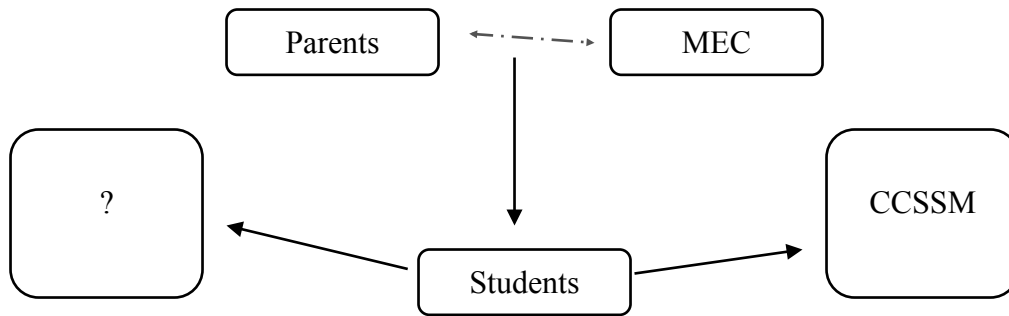
*Figure 1.* Expected outcome understanding parents and MEC have seemingly mutual goals.

In the previous chapter I discussed a variety of parents who voiced their concerns about CCSSM (Utahns Against Common Core, 2013). Despite their voiced concerns, these parents all have goals for their students ranging from short term goals such as helping their children with homework, to the long term goal of their children being successful in mathematics. The MEC



also has goals for students. These goals include student understanding of mathematics and that students are successful in mathematics so they are successful in college or in their career choices (CCSSI, 2010). In considering goals we can see the parents and MEC agree that student success in mathematics is important and something worth aiming for.

Although parents, like MEC, want their students to succeed there is major resistance from parents toward CCSSM (see Appendix A). While at the same time, NTCM, the College Board and other major national MEC organizations have expressed support of CCSSM. This suggests that Figure 2 may be a more accurate representation of how parents and MECs goals are affecting students. Similar to Figure 1, the lines in this figure represent the parent and MEC actions that lead to student success. Figure 2 represents how parent resistance to CCSSM is pulling their students in one direction (away from CCSSM) while the MEC is pushing for student success through CCSSM and thus in a different direction. As mentioned earlier, parents' beliefs, attitudes, and understandings of mathematics/mathematics education influence their involvement and perception of school mathematics (Pritchard, 2004). The question becomes: Should parents' goals, beliefs, attitudes, and understandings align with the MEC's goals, beliefs, attitudes, and understandings in order for a Figure 1 to occur? We also must consider how learning about parents' reactions to CCSSM can and should help the MEC strengthen the connection between parents and the MEC. The answers to these questions are unknown; however, we can begin to answer them by investigating parents' goals, beliefs, attitudes, and understandings of those who decide to resist CCSSM.



*Figure 2.* Depiction of parents and MEC in relation to CCSSM.

### **Three Factors of Decision Making**

Schoenfeld (2011) argues that an individual's goals, orientations, and resources play a major role in the decisions he/she makes each day and developed a model for how these three factors model an individual's process of decision making. Schoenfeld applies his model to teacher decision-making, but shows how it can be meaningful outside of teaching. In particular he stated that it can be applied to any goal-oriented decision. Consider the relationship between the individual being modeled (in my study the parents as decision makers) and Schoenfeld's model in Figure 3. Every individual has resources, goals, and orientations that influence their decisions and how they act every day. The model of the individual contains representations of their resources, goals, and orientations. The model may not map out all the individual's resources, goals, and orientations, but the model uses those resources, goals, and orientations that are important in the decision making process.

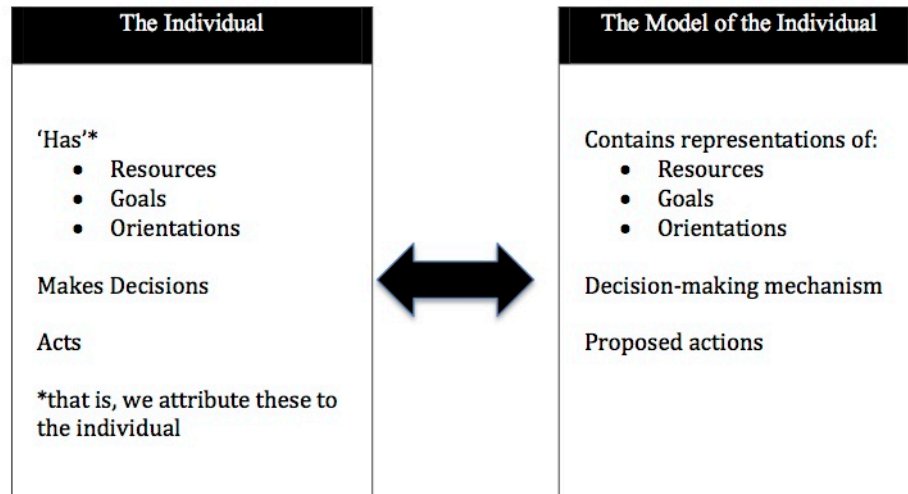


Figure 3. Relationship between Schoenfeld’s model and the individual.

Schoenfeld (2011) identified three factors (goals, orientation, and resources) that influence the decision making process. Goals are something someone wants to achieve. Goals can be immediate or long term, they can productively work in combination with each other or can create tension among each other, and goals can be conscious or unconscious. No matter what the goal is, Schoenfeld argues that goals are nearly ubiquitous and suggests that most human behavior can be characterized in ways that are consistent with one’s goals. Orientations are defined as ones beliefs, values, dispositions, preferences, or tastes. Orientations, or how people view the world, “shapes the very way they interpret and react to [things]... people’s orientations influence what they perceive in various situations and how they frame those situations for themselves” (Schoenfeld, 2011, p. 29). Schoenfeld (2011) focuses on knowledge as a resource but recognizes other resources such as social and material (e.g., focus groups, textbooks, time). Knowledge is defined as “the information that he or she has potentially available to bring to bear in order to solve problems, achieve goals, or perform such other tasks” (p. 25). Though there are many different types of knowledge, it is a factor that influences the decision making process.

## **Parents and the Three Factors of Decision Making**

Schoenfeld (2011) determined that his model can be used in any goal-oriented decision. Parents' reactions to reforms are indeed goal oriented (Peressini, 1996; Graue & Smith, 1996) and therefore this model can be applied. In this section I explain the usefulness of Schoenfeld's model when studying parents' decision making. Using parents comments from Utahns Against the Common Core website (Utahns Against Common Core, 2013) I demonstrate how goals, orientations, and resources are factors that may affect parents' decision making process. Later I will take a look at how these factors interact with each other in the decision making process.

In determining parents' goals, we can begin to characterize and better understand their behavior. Parental goals are not easily accessible on the various websites opposing CCSSM. Parents seem to allude to some goals they may have for themselves and for their children. Heather states, "My 6th grader is really struggling with the Common Core math... I am terrified that if he can't handle or keep up with the math in 6th grade (despite me sitting with him for an hour each day helping him with his math homework) then what is going to happen to him in high school" (Utahns Against Common Core, 2013)? Based on this comment I conjecture that Heather has a goal for her son to be successful in mathematics. However, there may be other goals that Heather has not expressed in this comment and those goals may be influencing why she is resisting CCSSM more than the goals that I found in her comment. The point here is that while Heather's goals may influence her perception of CCSSM, there is no way to identify if the particular goal I identified is representative of the goals that she has for her son without talking to her.

Parents' orientations are important in studying their decision-making process for resisting CCSSM. There is evidence that orientations towards culture, politics, mathematics, and

education, affect parents' reactions to mathematical reforms (Peressini, 1996; [whatiscommoncore.wordpress.com](http://whatiscommoncore.wordpress.com); Graue & Smith, 1996). On Utah's Against Common Core, Bob mentions that states should "refuse federal funds" (Utahns Against Common Core, 2013). Based on this statement Bob may believe that power in education should stay within the states or he may mean that only in this particular case, the case of national standards, should states refuse federal funds. We can extract other orientations from Bob's statements and other parents on these websites, but, again the orientations extracted may not be representative of Bob's orientations. The MEC has not determined how parents' orientations interact with their goals and resources in understanding the decision making process to resist CCSSM. Through interviews I will be able to better understand how and if parents' orientations affect their decision making processes.

Parent resources can also be determined through these online comments. Consider the parent Rich that was mentioned in the previous chapter, when he stated:

I do NOT want ANY child to be "common"; I believe they are FAR better than that. To even think that ANY member of government let alone a parent would want their child to be "common" is ridiculous. I have two grandsons who are in Kindergarten and ALREADY read above the Third grade level but they cannot be advanced because it is against policy. This is utterly stupid and damaging to BOTH them and our society! No wonder so many kids cannot read or write well by the time they graduate from High School and, educators, stop making excuses! The teacher should be teaching and allowing kids to rise up! And stop holding them back. Kill this entire Common Core bunk NOW!!! (Utahns Against Common Core, 2013)

It seems as though Rich believes that the word "common" in Common Core State Standards means that a goal for CCSSM is for students to become equal by "holding them back." Perhaps he lacks knowledge for the definition of "common" here or maybe he has a clear idea of what "common" means and is merely trying to lead others to oppose CCSSM as he does. He may not understand the purpose of CCSSM. There is no way of telling without specifically asking Rich to

expound on his thoughts. However, this example shows that parents' resources, especially knowledge of CCSSM, mathematics or the education system are important to consider when studying parents decision to resist CCSSM. However, it is important to note that parent resources are not the only reasons they make decisions. Parents, like any other, will combine their resources with their goals and orientations to come to a final decision to resist CCSSM.

### **Decision Making**

So far I have discussed the three factors of decision making. This section aims to explain how Schoenfeld (2011) describes the interaction between these factors. We can see the interaction of these factors in a simple case of a mathematics tutor. Consider this statement:

If achieving something was important enough to the tutor, doing so became a top-level goal, and the tutor pursued it. When that goal was satisfied or displaced, new paths were chosen to meet new goals. Goal prioritization was based on what the tutor felt or believed to be more important for the student or for the interaction, and once goals were prioritized, the tutor acted by implementing resources selected in the service of those goals. (Schoenfeld, 2011, p. 9)

In this example, the tutor uses his/her orientations to decide what is most important for the student or for the interactions between student/tutor. Therefore, the tutor prioritizes goals based on their orientations, and then used his/her knowledge to accomplish their goals.

Consider some possible goals, orientations, and resources and how they may affect parents decisions to resist reforms. A long term goal that most parents have for their children is that they are successful in mathematics. An immediate goal that parents may hold is they want to help their child with a particular math problem. Sometimes parents' immediate goals may not be achieved because they do not possess the proper resources to help their student, while other times parents goals may be hindered by their orientations. An orientation parents may hold is "because I was never good at math my child will never be good at math." This orientation will conflict with the parents' goal of their child being successful in mathematics. Other orientations may be

that parents value or do not value school mathematics. Often parents' orientations are influenced by the resources that parents have available to them. Some parents may not have the knowledge needed to see the usefulness of school mathematics and therefore they do not value it. Parents may also lack materials or time they need to assist their children in learning the mathematics. The lack of resources may interact with the parents' goal of student success in such a way that parents become frustrated.

Lisa Jackson is a member of the Utahns Against the Common Core Facebook page. She has created a group called U.S. Citizens Against the CCSSM, actively comments about her frustrations with CCSSM, and has openly rejected these standards. Consider Lisa's statement from the Utahns Against the Common Core Facebook page on October 2<sup>nd</sup>, 2013:

The very randomness of the math I am supposed to teach my daughters and son, is crazy! They are supposed to skip genuinely useful & important skills, to tell us some random math thing that will not help them with life, in any way! This is so pointless. It makes me feel frustrated and helpless. (Utahns Against Common Core, 2012)

Let us consider what goals, orientations, and resources Lisa might hold based on the above comment realizing that without more information we are speculating how the goals, orientations, and resources influence this concerned parent's decision to resist CCSSM. First, Lisa has goals for her children, yet from her statement we can only identify that she wants her children to be successful in mathematics and learn useful mathematics. Second, Lisa seems to have an orientation that mathematics should be useful. Lisa expresses her desire or orientation to teach her children mathematics, based on a belief that teachers are unable to teach her children so she is required to do this. Lisa also expresses an orientation that there are particular "useful and important skills" that are not taught as part of CCSSM. Third, we consider two scenarios related to Lisa's statement. The first scenario is that Lisa simply lacks knowledge required to be aware of the usefulness (or meaningfulness) of her children's mathematics. The second scenerio is that

Lisa understands the mathematics, but her orientations (or even goals) lead her to believe that the mathematics is not useful for her student. Either way, a barrier (which could be her knowledge, orientations, or goals) is blocking her from seeing the usefulness of the mathematics her children are learning. Now let us consider how these factors interact. Though Lisa holds an orientation that mathematics should be useful, she lacks the resources/knowledge to know how the mathematics in CCSSM is useful. Also due to the lack of knowledge/resources of CCSSM mathematics, she is unable to help her children, and therefore feels her children will not be successful in mathematics. This lack of knowledge/resources not only affects her ability to achieve her goals of helping her children be successful in mathematics and learn useful mathematics, but this lack of resources is in conflict with her orientation that mathematics should be useful. As I speculate about Lisa's goals, orientations, and resources and how they may affect her decision to resist CCSSM, I recognize that there may be other goals, orientations, and resources that are involved.

This chapter focused on parental involvement in school reform literature and Schoenfeld's model of decision making as it relates to parents' decisions to resist CCSSM. In doing so I first explained how parental involvement, though important, is often over looked by the MEC. In doing so it became evident that often parental concerns about new reforms are not addressed and that parents are even considered a stumbling block in reform efforts. Next I showed that the MEC is largely in support of CCSSM, that how parents and the MEC have goals for student "success", yet something else is causing parents to pull students in the opposite direction than the MEC as CCSSM is implemented. By using Schoenfeld's model I described how identifying parent's goals, orientations, resources, and the possible interactions between these three factors in parent statements can affect their decision to resist CCSSM. Using these



ideas, the next chapter describes the methods used to identify parents' goals, orientations, and resources in hopes of modeling their decision making to resist CCSSM.

### CHAPTER 3: METHODS

This thesis aims to identify the goals, orientations, and resources that affect parents' decisions to resist CCSSM in a similar method that Schoenfeld (2011) models the decision making process. This study was a case study of parents who resist CCSSM to assist the Mathematics Education Community (MEC) in identifying what factors influence parents' resistance to school mathematics reform. The purpose of doing so is to bridge the connection between parents and MEC by increasing MEC knowledge of parents' goals, orientations, and resources and as a result strengthen the communication between parents and the MEC. In building a stronger connection, the goal is to have both parents and MEC pushing students to accomplish similar goals through a similar process (CCSSM). I gathered data from 35 individuals from an online survey and chose six of those individuals to follow up with using semi-structured interviews to determine how their individual goals, orientations, and resources interact to make decisions and then act on those decisions.

To investigate the goals, orientations, and resources that affect parents' decisions to resist CCSSM, I used semi-structured interviews with parents of students currently in the school education system. Many researchers appreciate the strength of semi-structured, open-ended interviewing as a tool in qualitative research. Drever (1995) suggests that semi-structured interviews are a promising research tool for small-scale, qualitative, case study research. Brenner (2006) describes how an open-ended interview "takes advantage of the format by asking informants *how* and *what* questions that cue informants to give their perspective in their own words" (p. 363). This also allows for the interviewer to clarify, extend, and encourage the participants through probing. There has also been success with semi-structured interviews in determining parents' views of school mathematics (Peressini, 1996; Graue & Smith, 1996).

## **Participants**

The participants for my study were members of two online Facebook pages based in two states in the United States. One state was a conservative state located in the North West and the other was a more liberal state located in the Eastern United States. The different states were chosen based on Facebook page administration's cooperation and obtaining contrasting states (e.g., big population vs. small population, conservative vs. liberal). Participants were asked to participate in the study by posting a message on the respective Facebook pages that described the study and had a link to an online survey. This online survey focused on items pertaining to participants' goals, orientations, and resources as they relate to school mathematics and CCSSM. The participants were asked at the end of the survey if they were willing to participate in one 30-45 minute interview.

Interview participants were chosen using multiple criteria. First, the participants needed to give permission at the end of the survey. A total of 15 of the 35 participants who answered the survey agreed to be interviewed. Next, I selected participants for the interviews based on the results of the survey, identifying participants who had different goals, orientations, and resources to get variation of data across the interviews. Next I selected participants who had children in elementary and/or middle grades, this included participants who had children in overlapping grade levels as well. The last criteria was to select three participants from each of the two states.

## **Data Collection**

This study used mixed methods that consisted of an online survey and individual interviews with six parents. The survey provided the answer to research question (1) What do parents view as CCSSM? One purpose of the online survey was to gather initial qualitative data that was later used for the interviews and to also obtain permission to interview the parents. The

interviews were meant to discuss more in depth six different parents' goals, orientations, and resources and to determine what the participants considered to be CCSSM.

**Survey.** The online survey (see Appendix B) took participants approximately 15 minutes to complete. The survey asked for general information about the participant such as where they live, their gender, and the grade level(s) of their children. In order to answer the first research question about what they consider to be CCSSM I asked two questions. The first question asked parents what the CCSSM document is and the second asked what is the purpose of the CCSSM document. I then asked for reasons they do not support CCSSM and what concerns they have in relation to CCSSM. These questions were designed to elicit any orientations or resources parents had that were directly related to their resistance of CCSSM. I then tried to see if parents had any positive feelings toward CCSSM in the next set of questions. To elicit parents' goals I directly asked what goals for school mathematics they have for their children. I also included a set of questions designed to get at parents resources. These included asking for any experiences related to CCSSM, how they had learned about CCSSM, and a checklist for other resources. The final question asked if they would be willing to participate in the interview and for some contact information.

**Pilot interviews.** Before collecting data, I performed three pilot interviews. The purpose of these interviews was to not only practice the interview protocol and the flexibility in my questioning, but to also determine which questions produced rich responses and which questions needed to be revised. The original interview protocol did not seem to get at parents goals for their children like I hoped. I placed the goal questions at the beginning of the interview so that I could refer back to the participant's responses throughout the interview. In addition to asking what parents viewed as the top priority for school mathematics, I included a question asking

what parents viewed should be their top priority in relation to school mathematics. I also removed questions that asked parents for the interaction between certain orientations, goals, and resources. The purpose of doing this was that parents had a difficult time expressing this interaction and the questions were not productive.

**Interviews.** At a length of 30-45 minutes, the interviews were a semi-structured protocol (see Appendix C) and consisted of open-ended questions (Brenner, 2006). Brenner (2006) describes that in these interviews the interviewer and the interviewee are both in an ongoing process to make meaning and that this will allow me as a researcher to enter the interview with a list of questions and be able to “follow up on and unexpected topics... that emerge during the interview” (p. 362). One goal of the semi-structured protocol was to provide a means to discuss the interaction of parents’ goals, orientations, and resources. These discussions aided in the modeling of the decision making process. Each interview was audio recorded and I took notes of important comments made while conducting the interviews.

The interviews began by asking participants how many children they had in K-12 schools and what grades they would be entering in the next school year. I then asked about a specific response on the online survey related to their goals for their children. The purpose of the initial questions was to set the stage for participants to talk about CCSSM in a meaningful way to them, while also gaining more information about their goals. The second question also aims at participants discussing their views and understandings of actual mathematics and how it relates to CCSSM.

### **Data Analysis**

Data collected from the online survey was both quantitative and qualitative. The analysis focused on how participants’ resistance to CCSSM was influenced by their goals, orientations,

and resources. I analyzed the survey in three passes. On the first pass I took each answer and determined which of the three pieces of Schoenfeld's (2011) decision making model, Goals, Orientations, and Resources were present. Some answers contained a mixture of two or three pieces of the model. The second pass I began to code the participants' answers more specifically. For goals I coded the type of goal (e.g. student being challenged, learn basic math skills) that were discussed. I determined whether orientations were political, mathematical, or education related and what types of resources (e.g., student experiences, parents inability to help) were mentioned. The third pass I took a quantitative look at the specific orientations and resources. I did counts for the specific types of orientations and resources. I then took a qualitative look at the orientations and resources that were most common. What I did here was look at how these orientations and resources influenced parents' resistance toward CCSSM.

**Coding goals, orientations, and resources.** In deciding whether a statement included a goal, orientation, resource, or combination of these pieces of Schoenfeld's (2011) model, I focused on the definitions Schoenfeld provides. I took multiple sentences that discussed the same ideas and considered which pieces of the model were included. Consider the following text from one of the participants:

1        *Yeah I've been involved in the school. I have seven kids and five of them have gone*  
2        *through the school and then my last two, I have been the PTA president, I've taught*  
3        *at the school, I have been kind of aware of you know I've always kind of paid*  
4        *attention to what's going on. So I knew a little bit, I heard a little bit about Common*  
5        *Core. But when I really started to get concerned is when my daughter came home*  
6        *from school, and this is when she would have been a 5<sup>th</sup> grader, and she was told*  
7        *that they had to read all non-fiction books to help get them ready for the tests that*  
8        *were coming. And when I told my daughter that I would go talk to her teacher and,*  
9        *I'm sure she had misunderstood, she said no mom we have to read these because the*  
10       *government said so. And that right there was a red flag to me. Why are these kids*  
11       *being taught that they have to fear the government? That the government tells them*  
12       *they have to...*

I identified the first two sentences (lines 1-4) as resources used to make decisions about the Common Core, because she discusses her social experiences and experiences are a type of knowledge (Schoenfeld, 2011). These resources include having had many children in the schools, serving as PTA president, and teaching in the schools. The next three sentences (lines 5-10) explain another type of resource, that of student experiences. The statement “*that right there is a red flag to me*” indicates the participant’s disposition towards something and therefore is categorized as an orientation (Schoenfeld, 2011). This was categorized as an orientation that students should not fear the government. No goals were identified in the excerpt.

To determine whether a statement was a goal the statement must include something the parent either wants or does not want their student to achieve. For example:

*I want them to be able to graduate from high school and be able to, in which whatever they want to go into, be able to understand math and not be confused by math.*

This statement includes four goals. First, the parent wants her child to graduate high school. Second, she want her child to go into or do whatever they want to. Third, she wants her child to understand math. Fourth, she does not want her child to be confused by math.

Transcripts of the interviews were made from the audio recordings and qualitative analysis of the transcripts focused on Schoenfeld’s (2011) three pieces of decision making. I first determined where the parents’ responses fit within the pieces of Schoenfeld’s model. I took each utterance and determined whether they were describing a goal, orientation, resource or a mixture of two or all three. I then compared the six participants to determine what goals, orientations, and resources were common among the majority of the interview participants.

## CHAPTER 4: RESULTS

This chapter examines the results of the survey and interview data collected to answer the following research questions:

- 1) What do parents see as the Common Core State Standards for Mathematics (CCSSM)?
- 2) How do parents' goals, orientations, and resources affect their decisions to resist CCSSM?

First I report on the survey data collected, including a description of the sample of the survey participants and some initial findings among survey responses. Next I briefly describe the six interview participants. I then discuss the findings from across the six interview participants. I specifically report on the common goals, orientations, and resources across the six interview participants.

### **Survey Results**

The purpose of the survey was to gather initial data, which was used to determine the interview questions and participants. The survey yielded responses from 35 participants from the two states. Table 4.1 displays the gender of the participants and the number of participants that have students in elementary school (K-6), junior high school (7-8), or high school (9-12). Approximately 29% of parents who responded to the survey had at least two children in the elementary grades (K-6). Another 29% of parents had at least one student in grades 7-12.



Table 4.1

*Number of Participants by Grade Level of Students and Genders of Participants*

Characteristic	Pennsylvania	Idaho	Percent
K-6	15	12	77%
7-8	3	3	17%
9-12	3	4	20%
Total	21*	19	
Male	1	2	9%
Female	18	14	91%
Total	19	16	

\* Total is different from total amount of participants because some participants had students in multiple grade levels

Table 4.2 displays the initial resources and orientations common among the majority of the participants in the survey. The most common resource was related to parents' knowledge. The majority of respondents reported that CCSSM prescribe the methods to perform the mathematics. Student experiences, or experiences parents had with their students in relation to school mathematics was the next most common resource on the survey. Two common orientations included political orientations and the idea that the mathematics or the standards were too difficult for the students. The political orientations included concerns that the federal government was too involved in education, and that CCSSM was meant to be a money gain for various companies (e.g., Pearson).

Table 4.2

*Common Resources and Orientations Across Participants in Survey Results*

Code		Pennsylvania	Idaho	Total	Percent
Resources	Student Experiences	11	9	20	57%
	Parent's Knowledge	14	10	24	69%
Orientations	Difficulty	11	7	18	51%
	Political	9	10	19	54%

The survey partially answered the first research question: What do parents see as CCSSM? When asked what the CCSSM document was according to their understanding, only

40% (14/35), of the participants stated CCSSM was a set of requirement that students had to reach. While approximately a quarter (9/35) of the participants stated they did not know what the document was, another 26% (9/35) discussed the implementation process of CCSSM, and 9% (3/35) had responses that did not fit in any category. That is 60% of participants had limited understanding of the CCSSM document.

When asked about the purpose of the CCSSM document, the participants discussed a wide range of ideas. Table 4.3 shows the stated purposes among the survey participants. The most common response was CCSSM was meant to standardize mathematics across the country. It is interesting that although CCSSM states college preparation to be a purpose, only a small percentage of participants stated that CCSSM was meant to help student be prepared for college. The survey also provided an initial data collection that allowed follow up questions to be utilized during the interviews, which I discuss in the following sections.

Table 4.3

*Participants Purposes for Common Core State Standards Document*

Purpose	Pennsylvania	Idaho	Total	Percent*
Standardize Mathematics	5	7	12	34%
Don't Know	4	2	6	17%
Standardize Instruction	4	1	5	14%
Higher Level Thinking	2	2	4	11%
Government Control	2	1	3	9%
College Prep	1	1	2	6%
Other	1	4	5	14%
Totals	19	18	37	105%

\*Percentages do not add to 100 because some participants stated multiple purposes

### **Interview Participants**

Interview participants were chosen based on their location, their survey responses and the grade level of their students. I chose an equal number of participants from each state to help determine if the participants' location made any difference in their goals, orientations, and

resources. I focused on parents who had children in elementary, junior high, and a mixture of the two in order to cover the most parent types.

This section provides a brief introduction of the six interviewed participants, with a focus on participants' resources, what grade levels their students are in during the 2014-2015 school year, contextual information that helped in analyzing their interviews, and the location of residence. I also provide a nickname to help remember the participants as I discuss them throughout the chapter.

Alice<sup>1</sup>, the *Three Elementary Students Mom*, is the mother of three elementary students, one in Kindergarten, one in grade 4 and the other in grade 6. Alice's resources include many frustrating experiences trying to help her grade 4 student with her homework and her grade 6 student's experiences with getting bored and losing interest in the multiple methods he has to learn. Alice's resides in Idaho.

Linda, the *Homeschool Mom*, is the mother to seven children. Five of her children have graduated from K-12 school, but her last two are middle school students in grades 6 and 8. Her resources include being PTA president, teaching in the schools, and her children's school mathematics experiences. Last year Linda removed these two children from public school to homeschool them due to the CCSSM. Linda lives in Idaho.

Samantha, the *Bachelor Degree Mom*, is the mother of three children in the school system. Her children are in grades 3, 6, and 8. In writing an English paper on the Common Core State Standards for her Bachelor's degree, Samantha reported that it is difficult to find any solid facts on the Common Core. She has used Blaze TV and Glen Beck programs to learn about the Common Core. Samantha resides in Idaho.

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<sup>1</sup> Pseudonyms are used for all participants

Rachel, *Physics Mom*, is the mother of two elementary students, grades 2 and 5. She and her husband both have PhDs in physics and her specialty is nuclear physics. As a result of her background, Rachel reported that she knows a lot of mathematics. Her father was a math teacher in the 1970's and she reported being aware of the "New Math" movement and its apparent "failure." Rachel fears that the Common Core is similar and is not the way mathematics should be taught. She resides in Pennsylvania.

Caroline, *the English Teacher Mom*, has been a public educator for over 20 years and has earned a Master's degree in English education. She taught special education English, but currently teaches regular English. Her children are in grades 3 and 5. Caroline reported that her grade 5 son greatly struggles with the mathematical concepts while her grade 3 son has been diagnosed with mild/moderate Attention Deficit Hyperactive Disorder (ADHD). She lives in Pennsylvania.

Whitney, *the Elementary Substitute Teacher Mom*, is the mother to one child who is in grade 8 and who is in the gifted program at his school. She works as a substitute teacher and holds a degree in Elementary Education working with all types of learners. She has worked as a substitute teacher in the schools, talked with many teachers about CCSSM, and uses her child's experiences with school mathematics to gain information about CCSSM. Whitney resides in Pennsylvania.

### **Cross Goal Analysis**

In this section I discuss the commonalities across the participants' goals. In analyzing across all six participants, I found that the parents had two similar goals for their students including taking advanced mathematics courses or going as high as the student wanted to go, and

having their students be challenged. I then report how these parents identified CCSSM affecting these goals.

**Goal #1 - higher mathematics.** Five parents Linda, Rachel, Samantha, Caroline, and Whitney expressed goals related to students reaching some higher level of mathematics. These goals included advanced levels within certain classes, advanced mathematical courses like Algebra and Calculus, and students progressing as far as they want to or were able to. A question in the interview asked parents to expand on the goals that they had for their students. Whitney (Elementary Substitute Teacher Mom) stated, *“Well if he stays on track my son is gifted. If he stays on track I don’t have anything to worry about... If he does not pass the test at the end of the year he’ll be put in a lower math level.”* Whitney has a goal that her son will stay in the higher mathematics courses, or the gifted track at his school.

Another parent, Samantha (Bachelor Degree Mom) defined higher level mathematics differently stating *“I want them to reach their fullest potential and not get bored at school... Well mostly my kids if they break into math groups by grade level they are always in the highest group. For example my eight grader, when he was in 6<sup>th</sup> grade he was able to test out of the 6<sup>th</sup> grade math and be in the seventh grade math class.”* Samantha’s meaning of higher level math was that she wants her student to reach his highest potential mathematically, but she also mentioned that she wants him to be in the highest group within each class or grade.

**CCSSM’s effect on the goal for higher mathematics.** Although parents had similar goals, they reported different ways in which CCSSM affected this goal of their students obtaining higher mathematics. Whitney (Elementary Substitute Teacher Mom) stated, *“The way it is set up now and the way it was explained in the school district that he goes to, if he does not pass the test at the end of the year he’ll be put in a lower math level.”* Whitney is concerned

about the end of the year test her son must take and pass. She shared her concern about her student making errors on the test that could cause him to be placed in a lower mathematics class. When asked how it related to CCSSM she stated, *“They have to take a math test that tests them on everything an 8th grader is supposed to know based on the Common Core Standards.”* Whitney explained that the tests are connected to the Common Core; therefore, it has the potential to affect her goal of having her son go far in mathematics.

Samantha (Bachelor Degree Mom) on the other hand who had the grade 6 student who was doing grade 7 mathematics stated, *“But this year our school isn’t offering that option because of the Common Core Standards.”* Thus according to Samantha, CCSSM is directly affecting her goal for her student because the option for higher mathematics is now not an option at her student’s school anymore.

**Goal #2 – challenging mathematics.** Three parents Alice, Rachel and Samantha wanted their students to be challenged in school mathematics. These parents were asked to expound on their goal of wanting their students to be challenged. Rachel (Physics Mom) responded by saying, *“They should be given challenging questions. One thing I noticed like with the Common Core, the methods they are using to teach it now. You sent me that email<sup>2</sup> that had, you know, to subtract 32 minus 12... You say, you add three and then add five and then add, but those types [of] solutions don’t work for higher level problems. Like even if you were given 1,257,000 minus something else, you would never do a problem that way.”* Rachel wants her students to be challenged, but was only able to define challenge by saying they should be given challenging questions. She then changed to discussing the methods teachers are using and mentions that these methods do not work with larger numbers. According to Rachel, when students work with

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<sup>2</sup> See Appendix C

smaller numbers using particular methods the students are not working on “*higher level problems*” and thus students are not being challenged appropriately.

Alice (Three Elementary Students Mom) on the other hand provided more detail about what she meant by challenge when she stated, “*My oldest child catches on to everything really easily and so he sits through the math lessons and gets bored really easily. He loves math and so I want a teacher that can recognize that and can give him a little more maybe... You know, someone who can just recognize it and maybe try to make him work a little harder and give him a challenge so he doesn’t get bored and end up hating math.*” Alice wants her student to be challenged and that means to give her son more problems.

**CCSSM’s effect on goal for challenging mathematics.** When asked if CCSSM would hinder the parent’s goal of challenging mathematics Alice (Three Elementary Students Mom) stated, “*From what I have seen is that it is going to hinder them. His school started this new program when he was in kindergarten. So we have had five years with it and I think it hinders them.*” Alice believes that CCSSM will hinder her son’s ability to be challenged, however, her statement suggests that her son has not been challenged for the past five years because of this new program that Alice equates as CCSSM, yet CCSSM has only been implemented over the past two to three years. This suggests that some parents, like Alice, may have a different agenda than is evident in their goals for student success.

The interviewed parents had two common goals that affected their resistance to CCSSM. These goals were that parents wanted students to reach higher mathematics and that they wanted their students to be challenged in school mathematics. It was common for parents to feel that CCSSM hindered the goals they had for their students. These feelings that CCSSM hindered the

goals for their children came from school level implementation of the standards like class placement, teaching style, and the mathematical methods required.

### **Cross Orientation Analysis**

This section focuses on analyzing orientations across the six parents. Four orientations were common among the six parents: (a) involvement in helping their children with their homework, (b) the importance of memorization, (c) the top priority for school mathematics being that students should understand the basics, and (d) politics playing a role in CCSSM. I discuss each of these orientations in more detail and then discuss the relationship between CCSSM and these orientations.

**Orientation #1 - parental involvement.** Parents Alice, Rachel, Samantha, Caroline and Whitney all had the orientation that they should be involved in their child's school mathematical experiences. During the interviews I asked a question concerning the participant's belief as to what the top priority for parents in relation to their child's school mathematical experiences should be. Rachel (Physics Mom) stated, *"I think parents should definitely be able to help them if they have trouble with their homework. I don't think it should all be left to the teacher and I think the parents should be aware of what they are learning."* Rachel believes that parents should be able to help children with their homework. Rachel does not believe *"it should all be left to the teacher."*

Whitney (Elementary Substitute Teacher Mom) also expressed this belief that parents should be involved as she stated, *"I think that they should be very involved and they should be working with their kid trying to figure out what needs to be done and how to do it."* Whitney believes parents should be involved with their student's mathematical experiences. When asked how parents should do this she stated, *"Looking over the homework. Looking over what they are*



*doing. Even just reading the book would help. Looking at their homework books or whatever they are bringing home.*” Being involved to Whitney is reviewing student homework and other materials that they bring home.

**Orientation #2 – memorization.** Linda, Rachel, Samantha, Caroline, and Whitney all expressed concern that memorization was not required in school mathematics. These parents all had an orientation that memorization of math facts or basic mathematics meaning addition, subtraction, multiplication, and division are essential to not only school mathematics but, as can be seen in some of the statements below, essential to adult life. Parents are concerned that the CCSSM does not require students to memorize math facts.

Linda (Homeschool Mom) discussed the importance of memorizing math facts. She gave the example of being in a grocery store and how multiplication facts would help her calculate the cost to buy six dozen of an item. She continues to say *“By not memorizing them I guess you take the cans of soup and you line them down the aisle and put them in little boxes. I don’t know. From the beginning you have had to memorize your math facts.”* Linda does not understand how someone would find the cost for six dozen of an item without memorizing math facts. Linda believes that memorization is so important that everything else *“just falls right into place.”* When asked further about concerns about CCSSM she said, *“To be told that now they don’t memorize math facts is. I can’t even put my mind around that. I think that’s the most ridiculous thing I have ever heard.”* Linda so firmly believes that memorization is important that she cannot understand that students would no longer be required to do so.

Samantha (Bachelor Degree Mom) also believes that memorization is important to adult life. She stated, *“You need to be able to quickly find an answer to a problem when you are at a grocery store or you are trying to figure out “Is this a better deal or is that a better deal? ... I*

*think they need to be able to just quickly do those problems in their head and they can't do that if they don't have the multiplication tables memorized.*" According to Samantha, the mathematics we use in adult life (e.g., when shopping) cannot be performed without memorized multiplication tables.

Whitney (Elementary Substitute Teacher Mom) believes memorization is not only important but she expressed that it is a necessary skill. She explained saying, *"I mean I can see where you can use your fingers for certain things and yes there are calculators and there is an app for everything on a phone but you really need it [memorization]."* Even though Whitney recognizes the technology available to students, she still believes that people should have math facts memorized and readily available to use.

**Orientation #3 - understanding the basics.** In relation to memorization of basic mathematics being a very important part of school mathematics, four parents (Linda, Rachel, Caroline and Whitney) discussed the importance of students learning basic math facts. These four parents top priority for school mathematics was that students learn and master basic math facts.

Rachel (Physics Mom) expressed this orientation as she stated, *"I think they should get a strong background in basic math. And they should understand basically until fifth grade – addition, subtraction, multiplication, division."* She also mentioned how student's need to related these math facts and manipulate the numbers in problems. Rachel stated that the importance of these math facts is so, *"They know it so that they can focus on what is algebra and how can you use algebra to solve problems."* In other words the math facts are important for students to learn and should be a top priority for school mathematics so that they can be used in later mathematics courses.

When Caroline (English Teacher Mom) answered the question about top priority for mathematics she stated, *“The first thing that comes to my mind is making sure the students understand the math concepts. Since math is one of the subjects that builds upon itself you’ve got to be able to understand the foundational elements to be able to be successful in Algebra, or Trig, or Calc, or Stats.”* Caroline thinks that the top priority for school mathematics is to make sure students understand the mathematics concepts. Caroline considers these fundamental elements (she shared that these include addition, subtraction, multiplication, and division) to be necessary for success in higher-level math courses and important math concepts, or as she refers to them later in the interview the basics.

Whitney (Elementary Substitute Teacher Mom) also discussed the importance of the basics. She stated the top priority for school mathematics should be that the students should be taught *“the basics and having the kids pick them up whatever method works for them. Just so they understand the basics.”* Along with being taught the basics, Whitney thinks that students should be able to use whatever method works best for the particular student.

**Orientation #4 – political.** Alice, Caroline, Linda, and Samantha described some political influence when it came to CCSSM. The political concerns involved issues with lack of local control, issues with money, and too much Federal Government involvement.

Linda described her first experience with CCSSM in the interview. She stated, *“When I told my daughter that I would go talk to her teacher and, I’m sure she had misunderstood, she said no mom we have to read these because the government said so. And that right there was a red flag to me. Why are these kids being taught that they have to fear the government? That the government tells them they have to.”* Linda seems to have a political orientation that the Federal Government should not be involved in education. However, Linda sees CCSSM as a way for the

Federal Government to be involved in education and this political orientation is one reason she is resisting CCSSM. She expressed concern over an assignment requiring her daughter to put her thumb print on it as part of an information gathering “survey”. She stated that after her “research” she “*doesn’t want her kids involved in that.*” She saw this as a way for the government to gather private and unnecessary information about her daughter.

Caroline manifested this political orientation well as she stated, “*The Federal Government needs to stay out of education. I think it needs to go back to the states that are responsible for [education], as well as the individual areas, individual districts.*” Along with the other four parents that described a political orientation, she feels that there is not enough local control with CCSSM and that control needs to be given back to the states and districts. She continued to discuss that she thinks it is the “Republicans” that are trying to get rid of the public school system.

**CCSSM and orientations.** Three of the orientations mentioned above are related to the mathematics that their students bring home and how it is different from what the parents experienced during their school mathematics. It is understandable that parents would want to be involved in their students’ school mathematics, and researchers (Graue & Smith, 1996; Peressini, 1998b; Chavkin, 1993; Swap, 1993; Sattes, 1985; Sheldon & Epstein, 2005) have shown the importance of parental involvement. However, parental involvement is becoming more difficult for parents because the mathematics their children are experiencing is different from what and how they experienced mathematics. This is evident in their orientations and concerns for memorization and basic mathematics not being taught in the schools.

The orientations I found to be affecting parents resistance towards CCSSM included parents’ need to be involved, the importance of memorizing mathematics, the need to understand

the basics, and political involvement in schools. Three of these orientations are related to parents seeing school mathematics as being different from what they experienced in school. Political orientations are not related to parents' mathematical background. However, the majority of the parents have political orientations that are affecting their resistance toward CCSSM.

### **Cross Resource Analysis**

In this section I focus on reporting the resources across all six parents. All six participants had different resources they were utilizing to make the decision to resist CCSSM. Although parents' resources were not common, how parents were learning about CCSSM was similar.

**Resource #1 – student experiences.** All six of the participants discussed an experience they had with their child in relation to school mathematics. Though the experiences were all different, all of the parents used the experiences as knowledge about CCSSM. Some parents were frustrated with what mathematics their students were required to do and some were frustrated about how to help their student. Whitney (Elementary Substitute Teacher Mom) expressed her frustration about her grade 8 son getting in trouble for not showing his work in school. Her son's teacher explained that he needed to show his work because the test would require it. Whitney then stated, *“And my kid may be smart but he doesn't understand how to show 9 plus 3 and how do you get that when he just knows 9 plus 3. That became an issue in 6<sup>th</sup> grade more than anything.”* As I asked her to expand on when this became an issue she mentioned that it has always been an issue but that it had gotten worse when her now grade 8 student was in grade 6.

Linda (Homeschool Mom) also discussed an experience with her daughter and an atypical division method. I asked her if the division method was difficult and she responded *“No, she [daughter] was so afraid of it not being done the exact 12 step process that it took. The only way*

*she would believe was if her teacher was telling her she had done it right. It wasn't hard for me to do. It was ridiculous... it was the most ridiculous thing I had ever seen.*" Her daughter did not seem to view Linda as a knowledgeable person when discussing her mathematics. This made the experience frustrating for both her daughter and Linda.

Caroline (English Teacher mom) described her sons' experiences in the school system after stating, *"boys learn different from girls and development is not considered at all in the standards."* Her grade 3 son was diagnosed with ADHD and both sons *"don't like to sit for long periods of time."* She discussed her sons' need to manipulate things makes it hard for them to sit through a 20 or 30 minute Common Core lesson.

**Resource #2 – materials.** Another resource used among the participants was the materials, or curriculum, the students brought home. The materials used were different among the participants but they included textbooks, workbooks, and worksheets. Three parents Linda, Rachel, and Caroline mentioned materials a resources. Rachel (Physics Mom) discussed how her students used a Common Core workbook but that the school was *"really not following the Common Core."* She stated, *"Well, so in my limited view of it since I don't have an actual Common Core textbook, it was just this workbook. I see that they are told specific ways to solve problems instead of just 'solve this problem'. If all the Common Core books are going to give them ten different methods to solve multiplication, then that just confuses the whole issue of multiplication."*

Caroline (English Teacher Mom) described how she used materials as a resource as she stated, *"With my oldest son we [my husband and I] requested that the hard bound book, the student resource book, be sent home so that way we can understand, reteach ourselves how to do the common core math that the teachers are teaching."* Caroline is using the textbook to teach

herself the mathematics so that she can teach or help her student. Much of her struggle was that she did not understand how to do the varying methods that her child was required to do.

**Resource #3 – methods.** This third resource category may actually be seen as a lack of resource or knowledge but it relates to the methods that the teachers are requiring the students learn. The interview participants all struggled to understand either the methods themselves or the purpose of doing the mathematics the way the methods required. Alice (Three Elementary Students Mom) stated, *“my problem with the new way to do math, and I have this problem when I looked at that example<sup>3</sup>, is I can’t figure out how they are doing it... I think they are making the problem harder to get the students to solve it versus the old way that is pretty simple and straight forward.”* Alice struggles with the mathematics that her students are learning because the methods are different from what she knows. Her knowledge is that of “old” mathematics and therefore thinks the old way is more straightforward and simple.

Samantha (Bachelor Degree Mom) discussed how she thinks that students *“need to learn to just quickly get the correct answer. And with Common Core I think they are getting kind away from memorizing their multiplication tables and things like that... I think it is good to show them different ways but I think they also need to be like logical ways and I think some of the Common Core things that I have seen are not logical ways to get to the answer.”* Samantha’s knowledge, or resources, tells her these methods are not logical. She does not understand the purpose of doing the methods that her students are required to do.

**Resource #4 – Internet.** While the Internet was common among all six of the interviewed participants, there was no data that suggested participants were using the Internet consistently. All of the parents belonged to one of two Facebook pages and many parents gathered their information from these websites. However, there was a range of other websites

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<sup>3</sup> See Appendix C

parents mentioned gathered their data. One parent made her own websites and researched CCSSM on her own, while other parents mentioned Glen Beck's website (theblaze.com)(Baker, 2015). Parents claimed to use the CCSSM website (corestandards.org) but found it confusing or stated they did not gather useful information from it. However, there was not any consistency in the way parents used the Internet.

**CCSSM and resources.** It is clear from the survey that the majority of parents do not know what CCSSM is. The interviews backed up these results from the survey. Furthermore, the interviews showed that parents are relying on resources not published by the CCSSM writers to gain information on CCSSM. Consider the resource of materials. With a typical textbook or workbook, publishers are first interpreting the standards and then teachers are interpreting the textbook in order to teach. This makes the student experiences twice "removed" from CCSSM itself. I call these Tertiary Resources. A textbook itself however would be called a Secondary Resource as it is only once "removed" from CCSSM. The common resources among the parents are all resources that are at best secondary to CCSSM. However, parents are using these secondary or tertiary resources as their knowledge base in their decision to resist CCSSM.

## **Discussion**

In this section I discuss my findings in relation to my research questions. I discuss each research question in turn and then discuss what my claims mean as a whole. In relation to my first research question: What do parents view as CCSSM? It is clear that parents view CCSSM as more than a set of standards. The survey responses demonstrate that parents view the methods their students use to solve mathematical problems and the experiences their students have in school mathematics as part of CCSSM. This idea appeared again in the results of the interviews as all six interview participants described the methods as CCSSM and connected their child's



school experiences as part of CCSSM. There is also evidence from the survey and the interviews that parents feel CCSSM is a politically charged document or idea. The interviews provided even more insight into what parents view as CCSSM. From the interview data it is evident that parents also view CCSSM as the material or curriculum they are viewing, whether it be “CCSSM aligned” or not. Thus parents do not understand what is included in CCSSM. These results are validated by a recent poll done by [utahpolicy.com](http://utahpolicy.com) (Schott, 2014). This poll found that 41% of parents oppose CCSSM standards, while only 29% support them and 39% are neutral or do not know. However, 79% of the parents did not correctly identify what the standards were.

In considering the second research question: How do parents’ goals, orientations, and resources affect their decisions to resist CCSSM? I found a variety of common goals, orientations, and similarities in resources that seem to be affecting parents’ decision to resist CCSSM. Parents feel that the goals they have for their children are being hindered by CCSSM. Parents see goal hindrance coming from class placement, teaching style, and the mathematical methods required by teachers. In other words, the implementation of the CCSSM at the school level is affecting parents’ goals. The way the standards are implemented within individual classroom schools, districts, and even states is causing parents’ goals to not be met. These goals affect parents’ resistance towards CCSSM because they state that CCSSM was directly affecting these goals not being met. This is an interesting finding as similar results were found during the New Math Era, which occurred over 40 years ago (Usiskin, 1999). Much of the “failure”, or perceived failure, came from how the mathematics was implemented in the schools. It is alarming that after 40 years the field still struggles to implement the standards effectively enough for parents to perceive success and more specifically success for their children.

It is evident that parents' orientations are also affecting their resistance toward CCSSM. The results of the study revealed that many parents have an orientation that they should be able to help their children with school mathematics. However, the mathematics they are seeing is different from what they experienced as students. This includes the basics that are being taught and, in many cases, that memorization is not required. As Schoenfeld (2004) suggests, it is clear that these parents are indeed frustrated and feeling disenfranchised with school mathematics because they are unable to help their students with their mathematics homework. The participants blame the issues with their orientations on CCSSM. In fact, they feel that CCSSM goes against their orientations, giving rise to more resistance toward CCSSM. However, CCSSM (2010) requires basics to be taught. The following is a grade 4 standard: "Fluently add and subtract multi-digit whole numbers using the standard algorithm"(MATH.4.NBT.B.4).

An interesting finding within this study that has not been found in previous research on reform school mathematics is the political orientations that are frustrating CCSSM's success. As discussed, political orientations were the most common orientations coded in the survey. Many participants are concerned that the federal government has become too involved in education with the adoption of CCSSM. Their responses suggest this is because of the Race to the Top funds. Many understand CCSSM to be developed by the federal government as well. Whatever the participants reasoning, politics are greatly influencing resistance toward CCSSM.

The resources that parents use and the knowledge that they have has also led parents to resist CCSSM. I found that parents rely on sources different from CCSSM to gather knowledge about CCSSM. Parents are basing their decision to resist CCSSM on their students' experiences, materials/curriculum, and mathematical methods, which are at best secondary sources. Although these resources should align with the CCSSM, they are not and so parents are basing their

decision on sources that are not connected to CCSSM, but rather interpretations of CCSSM by many different people (e.g., textbook writers, district personnel, and teachers). When considering the opening statement of this document by NCTM (2000) the results of this study do indeed show that parents are not participating knowledgably and therefore cannot contribute to a vision for improved school mathematics. The key is that these parents are not getting their information from appropriate sources.

**Valid concerns and incomplete understandings.** Parents have both valid concerns and incomplete understandings when it comes to CCSSM. One incomplete understanding is that the basics are not taught. What makes this an incomplete understanding is that CCSSM does require students to learn and know the basics as seen in the actual standards. Another incomplete understanding is sparked because mathematics looks different from what the parents experienced. This was a concern back in the 1990's (Peressini, 1996) and it is alarming this incomplete understanding exists. While parents' understanding leads them to feel their children should be taught the same way they were, this is considered an incomplete understanding. Changes help things become more efficient. Consider a heart transplant. It is safe to say few, if any, would want a heart transplant performed as it was 20 years ago. With mathematics, parents want things to stay the same; however, the mathematics that is taught to the K-12 children needs to change as the world changes. Therefore their incomplete understanding is that they do not understand how/that mathematics instruction should be changed.

On the other hand, parents expressed valid concerns in the area of helping their students at home. The different mathematics should not prevent parents from helping their children, but it clearly is. This does not mean that the standards should move away from understanding. What this means is that parents need to have appropriate resources to assist their children. Another

valid concern is parents' goals for their students are not being met. While these goals are not being met because of implementation of the standards at the school level, the goals of challenging mathematics and students in higher mathematics are both great goals for parents to have for their children. Because these are good goals for students and because there is the feeling that they are not being met, this is a concern that the mathematics education field needs to address.

In Chapter 2 I depicted parents and MEC in relation to CCSSM in Figure 2. Consider now Figure 4. What we have learned from this study is what parents are pulling their student toward. They are pulling their students towards mathematics they experienced due to their incomplete understandings. They are doing this because of incomplete understandings but also valid concerns.

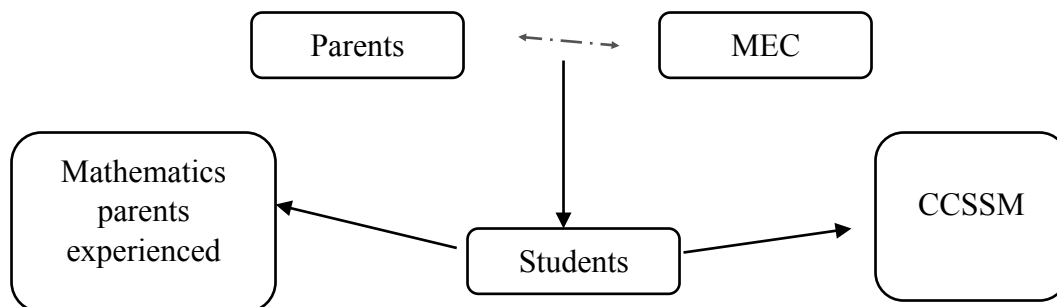


Figure 4. Complete depiction of parents and MEC in relation to CCSSM.

This study supports much of the research about parental resistance to past reforms. Peressini (1996) and Graue and Smith (1996) identified concerns that parents had in relation to mathematics reforms. These concerns include Pritchard's (2004) findings that parents' attitudes, beliefs, understandings of mathematics, discrepancies between school and home perceptions of mathematics, and concern over their child's mathematical performance. This study shows that these concerns still exist and are at the forefront of parents' minds as they consider CCSSM. This

study expanded on these researchers ideas by using Schoenfeld's (2010) model to break down specifically what goals, orientations, and resources are behind these concerns that lead to resisting CCSSM.

## CHAPTER 5: CONCLUSIONS

This study investigated parents' resistance towards CCSSM. Using an online survey and interviews of six survey participants I determined parents' view of CCSSM. Utilizing Schoenfeld's (2010) model for decision making I broke down parents' goals, orientations, and resources related to their resistance toward CCSSM. In this chapter I provide contributions to the field of mathematics education, implications for my study, and limitations and directions for future research in relation to my study.

### **Contributions**

One contribution for this study is the knowledge of parents' view of CCSSM. With the results of this study we know that parents understand that CCSSM is in fact a set of standards but they include more in what they consider CCSSM. Based on this study, parents view CCSSM as the methods that are being taught, the curriculum that is being published, and in many cases the politics that are being pushed. Less than half of the survey participants stated that CCSSM is indeed a set of standards. Understanding what parents view as CCSSM is the first step for the mathematics education community in the process of teaching parents the purpose behind the standards and what CCSSM is.

A second contribution of this study is the idea that parents are concerned about not being able to help their children. Peressini (1996) showed that parents being unable to recognize the mathematical content their children brought home as a concern, the results of this study show this is a large concern in relation to CCSSM. Though many parents in my study understood the mathematical content, they lacked necessary knowledge of the new mathematical methods they were seeing. The unfamiliar methods they attribute to CCSSM is a major cause for resistance to CCSSM. Knowing that parents are struggling to help their children, something parents clearly

feel is their responsibility, is something that the mathematics education community should be aware of.

Related is the overarching contribution of this study. It is the idea that parents are generally misinformed. They lack the appropriate knowledge to make valid conclusions about CCSSM. Recall this statement from Peressini (1998a)

Because [parents] are not knowledgeable of their school's mathematics education regime of truth, [parents] do not have any ownership of the reform agenda that is being implemented. Instead, they are forced to try to make sense of their children's mathematics education, and in this process they find that the new programs do not seem to match their own experiences with school mathematics. (p.576)

Parents are basing their children's school mathematics experiences on what they experienced as children. This study showed that over fifteen years later, a time of smarter technology and a different society, parents think the mathematics their children are learning should be taught the same way that they were taught. Without a change in perceptions, or an understanding of the purposes behind them, parents will continue to resist reforms as they arise. It is therefore prudent that the mathematics education field not only know that parents are misinformed, but what kind of misinformation they hold and the resources they are using to gain their information.

### **Implications**

There are at least two practical implications that come out of this study. They are first, that the mathematics education must extend the information they provide to parents to include parent concerns; and second, that parents must be taught the mathematics their children are experiencing. It may be simple to blame parents for their lack of appropriate and important knowledge in relation to CCSSM. However, with the intense amount of information available to parents (via internet, other individuals, etc.), the mathematics education community needs to provide parents with a forum to improve this knowledge. However, we know from Graue and

Smith (1996) that merely informing parents of practices is not enough. Nearly 20 years later it seems that merely informing parents of the practices is what the mathematics education community is still doing. Whatever shape this forum takes, it needs to address parents goals, orientations, and resources in relation to CCSSM. This includes answering questions like “How are politics related to CCSSM?” and “Why am I seeing these different methods emerge since CCSSM was implemented?”

This study also shows that the mathematics education community needs some way to teach parents the mathematics that is being taught. It is safe to say that parents are not going to be able to go back to school, or sit in on every mathematics class, to learn the mathematics. What could be done on a district level are videos to help parents understand the rationale for the mathematics and the actual methods students are learning in the mathematics classes. It is also possible that parents need their own resources from curriculum publishers or teachers to assist them in helping their children at home with the methods they prescribe.

There is at least one implication for research in the field of mathematics education. This implication is that Schoenfeld’s (2010) model for decision making can indeed be used as a framework in understanding parents’ views of mathematics reforms. The results of this study show that identifying goals, orientations, and resources in relation to parents’ resistance toward CCSSM was not only possible, but that is also produced valuable data. As the field comes to understand parents’ views on and understanding of reforms, NCTM’s (2000) vision of a better school mathematics may be reached.

### **Limitations and Directions for Further Research**

One limitation of this study is the difficulty in determining the connections and interplay among parents’ goals, orientations, and resources. This study determined individual’s goals,



orientations, and resources and while some interplay was evident, it was difficult to prove. However, with further interviewing it is possible that these connections could be made. The mathematics education community should be open to researching these connections in order to better help parents.

Another limitation of this study relates to the best way to help these parents. I discussed the need for a forum in the implications section but how this forum needs to take shape is unknown. The mathematics education community should research how to best assist these parental concerns and to teach parents the methods they are seeing.

A third limitation is that this study did not include parents of students in the high school grades. This was not because they were excluded, but few parents that had high school students participated in the survey. This may indicate that these parents have different views of CCSSM. The parents in this study mentioned how not being able to help their students may change as their child(ren) progressed to higher grades. It is necessary to study parents of high school students to understand how to best help them with their concerns.

Another limitation to this study is that data were gathered from parents who resist CCSSM. This limits the view of what parents as a whole view as CCSSM and what other goals, orientations, and resources affect parents' support of CCSSM. Studies looking at parents that support CCSSM should also be conducted. Looking at both supportive parents and parents who resist CCSSM may provide MEC with knowledge of parental goals, resources, and orientations that can result in a successful reform.

One direction for further research is studying parents' use of the Internet. The results of this study showed that parents are using the Internet but it was inconclusive on ways that they are

using it. As there is a lot of information on the Internet, it would be valuable to know what information parents are gathering.

### **Summary**

Parental involvement in school mathematics is important to study, especially as the field attempts to implement reforms. As the majority of the nation has adopted CCSSM, studying parents' resistance to these standards becomes vital in improving parental involvement and support of school mathematics reforms. This study informs the mathematics education community of what parents view as CCSSM and the goals, orientations, and resources that affect parents' resistance toward CCSSM. The results suggest a great need to provide a platform for parental concerns to be addressed at a larger level than they currently are and for a way to increase parents' mathematical knowledge.

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alignment: REdiStep, PSAT/NMSQT and SAT: College Board.

## Appendix A

### Websites

auee.org (Alabama)  
arizonansagainstcommoncore.com (Arizona)  
cuacc.org (California)  
idahoagainstcommoncore.com (Idaho)  
stopcommoncoreillinois.org (Illinois)  
hoosiersagainstcommoncore.com (Indiana)  
iowansforlocalcontrol.com (Iowa)  
flcommoncore.net (Florida)  
stopcommoncore.com (Georgia)  
kansasagainstcommoncore.wordpress.com (Kansas)  
commoncoremn.com (Minnesota)  
moagainstcommoncore.com (Missouri)  
montanansagainstcommoncore.com (Montana)  
stopcommoncorenc.org (North Carolina)  
ohioansagainstcommoncore.com (Ohio)  
stopcommoncoreinoregon.com (Oregon)  
nopacommoncore.com (Pennsylvania)  
southdakotansagainstcommoncore.com (South Dakota)  
tnacc.net (Tennessee)  
uthansagainstcommoncore.com (Utah)  
stopcommoncorewa.wordpress.com (Washington State)  
wyomingagainstcommoncore.wordpress.com (Wyoming)  
wyomingcitizensopposingcommoncore.com (Wyoming)  
usaagainstcommoncore.blogspot.com (United States)  
whatiscommoncore.wordpress.com

### Facebook pages

Alabama: facebook.com/al.againstcommoncorestandards?fref=ts;  
facebook.com/AlabamiansUnitedForExcellenceInEducation?fref=ts  
Arkansas: facebook.com/groups/ARKANSASAGAINSTCOMMONCORE/;  
facebook.com/ArkansasAgainstCommonCore?fref=ts  
California: facebook.com/pages/Stop-Common-Core-in-California/436128033134967?fref=ts  
Colorado: facebook.com/pages/Parents-and-Educators-Against-Common-Core-Curriculum-in-Colorado/369263259855000  
Delaware: facebook.com/pages/Delaware-Against-Common-Core/141637639346274?ref=ts&fref=ts; facebook.com/groups/157115501116902/  
Florida: facebook.com/pages/Stop-Common-Core-in-Florida/516780045031362  
Georgia: facebook.com/StopCommonCoreInGeorgia?fref=ts  
Idaho: facebook.com/IdahoansAgainstCommonCore?fref=ts; facebook.com/pages/Idahoans-for-Local-Education/120194641494340?fref=ts  
Illinois: facebook.com/pages/Stop-Common-Core-in-Illinois/388021897963618  
Indiana: facebook.com/HoosierMomsSayNoToCommonCore?fref=ts  
Iowa: facebook.com/IowansforLocalControl



Kansas: [facebook.com/pages/Kansans-Against-Common-Core/166572220165485?fref=pb](https://www.facebook.com/pages/Kansans-Against-Common-Core/166572220165485?fref=pb)  
Kentucky: [facebook.com/KentuckiansAgainstCommonCoreStandards](https://www.facebook.com/KentuckiansAgainstCommonCoreStandards)  
Louisiana: [facebook.com/StopCommonCoreLa](https://www.facebook.com/StopCommonCoreLa)  
Maine: [facebook.com/groups/StopCCMaine/?fref=ts](https://www.facebook.com/groups/StopCCMaine/?fref=ts)  
Maryland: [facebook.com/pages/Marylanders-Against-Common-Core/166445863508831?fref=pb](https://www.facebook.com/pages/Marylanders-Against-Common-Core/166445863508831?fref=pb)  
Michigan: [facebook.com/pages/Stop-Common-Core-in-Michigan/303312003109291?fref=ts](https://www.facebook.com/pages/Stop-Common-Core-in-Michigan/303312003109291?fref=ts)  
Minnesota: [facebook.com/MinnesotaAgainstCommonCoreStandardsInEducation](https://www.facebook.com/MinnesotaAgainstCommonCoreStandardsInEducation)  
Mississippi: [facebook.com/StopCommonCoreInMississippi](https://www.facebook.com/StopCommonCoreInMississippi)  
Missouri: [facebook.com/pages/Missouri-Against-Common-Core/115085478685281?fref=ts;](https://www.facebook.com/pages/Missouri-Against-Common-Core/115085478685281?fref=ts;)  
[facebook.com/pages/Missouri-Education-Watchdog/107272389320928;](https://www.facebook.com/pages/Missouri-Education-Watchdog/107272389320928;)  
[facebook.com/groups/missouriagainstopcommoncore/](https://www.facebook.com/groups/missouriagainstopcommoncore/)  
Montana: [facebook.com/groups/475298309202714/](https://www.facebook.com/groups/475298309202714/)  
Nevada: [facebook.com/groups/357579724361055/](https://www.facebook.com/groups/357579724361055/)  
New Hampshire: [facebook.com/NHSchoolChoice;](https://www.facebook.com/NHSchoolChoice;)  
[facebook.com/StopCommonCoreInNH?ref=hl;](https://www.facebook.com/StopCommonCoreInNH?ref=hl;)  
[facebook.com/CornerstonePolicyResearch?ref=hl](https://www.facebook.com/CornerstonePolicyResearch?ref=hl)  
New Jersey: [facebook.com/pages/CURE-NJ/274974855970782;](https://www.facebook.com/pages/CURE-NJ/274974855970782;)  
[facebook.com/groups/220888071386355](https://www.facebook.com/groups/220888071386355)  
New York (State Island specifically): [facebook.com/groups/638305829518125/](https://www.facebook.com/groups/638305829518125/)  
New York (Long Island specifically): [facebook.com/groups/141680156005331/](https://www.facebook.com/groups/141680156005331/)  
North Carolina: [facebook.com/pages/Stop-Common-Core-in-NC/150345585132550?fref=ts](https://www.facebook.com/pages/Stop-Common-Core-in-NC/150345585132550?fref=ts)  
North Dakota: [facebook.com/pages/Stop-Common-Core-in-North-Dakota/431076243650481](https://www.facebook.com/pages/Stop-Common-Core-in-North-Dakota/431076243650481)  
Ohio: [facebook.com/OhioCommonCore](https://www.facebook.com/OhioCommonCore)  
Oklahoma: [facebook.com/pages/Restore-Oklahoma-Public-Education/116011401766695](https://www.facebook.com/pages/Restore-Oklahoma-Public-Education/116011401766695)  
Oregon: [facebook.com/pages/Stop-Common-Core-in-Oregon/310461619079878](https://www.facebook.com/pages/Stop-Common-Core-in-Oregon/310461619079878)  
Pennsylvania: [facebook.com/pages/Pennsylvanians-Against-Common-Core/566916409995216](https://www.facebook.com/pages/Pennsylvanians-Against-Common-Core/566916409995216)  
South Carolina: [facebook.com/StopCommonCoreInSouthCarolina?ref=stream](https://www.facebook.com/StopCommonCoreInSouthCarolina?ref=stream)  
South Dakota: [facebook.com/StopCommonCoreInSouthDakota;](https://www.facebook.com/StopCommonCoreInSouthDakota;)  
[facebook.com/groups/stop.common.core.in.south.dakota/](https://www.facebook.com/groups/stop.common.core.in.south.dakota/)  
Tennessee: [facebook.com/pages/Stop-Common-Core-in-Tennessee/322248557894269?fref=ts](https://www.facebook.com/pages/Stop-Common-Core-in-Tennessee/322248557894269?fref=ts)  
Texas: [facebook.com/groups/157776591054666/](https://www.facebook.com/groups/157776591054666/)  
Utah: [facebook.com/UtahnsAgainstCommonCore](https://www.facebook.com/UtahnsAgainstCommonCore)  
Virginia: [facebook.com/groups/434958726589052/](https://www.facebook.com/groups/434958726589052/)  
Washington State: [facebook.com/groups/WAstateAgainstCommonCore/?fref=ts](https://www.facebook.com/groups/WAstateAgainstCommonCore/?fref=ts)  
West Virginia: <https://www.facebook.com/pages/WV-Against-Common-Core/359684890815537>  
Wisconsin: <https://www.facebook.com/pages/Stop-Common-Core-in-Wisconsin/185213384959404?ref=ts&fref=ts>  
Wyoming: <https://www.facebook.com/groups/434220420005865/>

## Appendix B: Survey

### Online Survey

By initialing the box below you give consent for your survey data to be used. No personal information will be asked for. By initialing you also agree that you are 18 years or older.

1. Please provide the school district your student belongs to and the grade level your student completed during the 2013-2014 school year.

School District \_\_\_\_\_

Grade Level \_\_\_\_\_

2. What is your relationship to your student(s) in the K-12 school system? You may check more than one box.

Parent/Guardian

Grandparent

Math Teacher

Other

3. What is your gender?

Male

Female

4. According to your understanding, what is in the Common Core State Standards for Mathematics document?

5. Describe what you understand to be the purpose of the Common Core State Standards for Mathematics document?

6. For what reasons do you not support/like the Common Core State Standards for Mathematics?

7. What concerns related to your student(s) understanding of mathematics do you have about the Common Core State Standards for Mathematics?

8. Do you see any strengths in the Common Core State Standards for Mathematics?

9. There are some people who favor the Common Core State Standards for Mathematics, why do you think this is?

10. What goals do you have for your student(s) related to school mathematics?

11. How have you learned about the Common Core State Standards? (Check all that apply)

Teachers

Administrators

PTA

Neighborhood/Parent Meetings

Corestandards.org

News Articles

Social Media

Other Websites

Other

12. Please select the appropriate box if you would like to participate in a follow-up interview about the Common Core State Standards for Mathematics. NOTE: Filling in the information below is completely voluntary. If you do not wish to be contacted further please check the box I do NOT wish to be further contacted for an interview and you do not need to supply your name or contact information.

I do NOT wish to be further contacted for an interview

I agree to be further contacted for an interview

Name \_\_\_\_\_

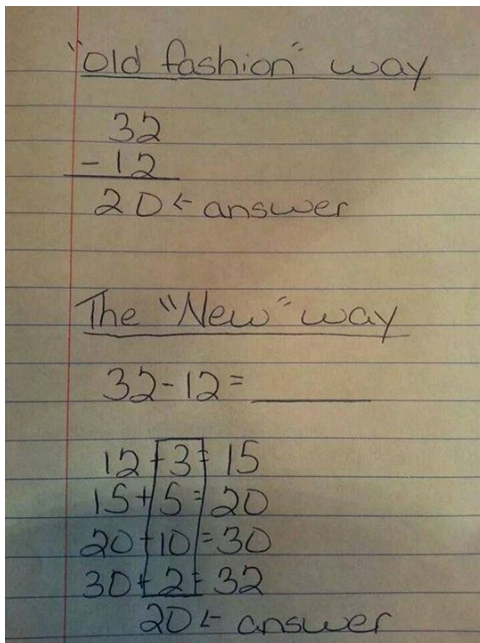
Phone Number \_\_\_\_\_

Email address \_\_\_\_\_

Preferred contact method \_\_\_\_\_

## Appendix C: Interview Protocol

1. The purpose of this interview is to learn more about your experience with the Common Core State Standards for Mathematics as a parent. I have your responses to the online survey and will refer to your responses during this interview. So you are aware, this interview will be recorded and will be transcribed but your information will remain confidential. When reporting any findings I will only use Synonyms for your name. Also, I am wondering if I have further questions after the interview if I could email you. Do you have any questions before we get started?
2. First I would like to ask how many K-12 students you have in school and what grades are they entering this coming year?
3. In the survey you mentioned you wanted your students to [insert goal mentioned on survey]. Can you explain this a little bit? Why is it important to you that this goal is achieved? What mathematical goals do you have for your students?



4.

This work (show the parent the picture above) is taken from online. What do you think about

this person suggesting there is an “old fashion” way to do mathematics and a “new” way to do mathematics? Do you think these methods are related to the Common Core State Standards for Mathematics? If so, how? Does the “New” way take away from your students accomplishing the goals you have for them? If so, how?

5. In the survey you mentioned you had some frustrating experiences with your children’s mathematics. Can you explain this a little more?
6. In response to the question why do you not support/like the Common Core State Standards for Mathematics, you stated [insert statement from survey]. How does this relate to the Common Core? How does this affect any mathematical goals you have for your children?
7. You mentioned you were concerned about [insert response from survey]. How does this affect the goals you have for your students?
8. In your opinion, what should be the top priority for school mathematics? What should be the top priority for parents?
9. You mentioned on the survey certain materials including [insert response from survey]. Have these materials or information been helpful? Which ones were most helpful? Which ones have been least helpful?
10. Do you have any goals related to your child’s school mathematical experiences that we have not discussed?
11. Do you have any concerns related to CCSSM that we have not discussed?