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Site-Embedded Professional Development as a Means to Increase Teachers' Sense of Efficacy: Lessons from a Middle School Quasi-Experimental Study

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SITE-EMBEDDED PROFESSIONAL DEVELOPMENT AS A MEANS TO INCREASE TEACHERS' SENSE OF EFFICACY: LESSONS FROM A MIDDLE SCHOOL QUASI-EXPERIMENTAL STUDY

by

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ABSTRACT

The purpose of this quasi-experimental study was to provide site-embedded professional development and coaching support to middle school teachers in an attempt to increase their sense of efficacy for teaching even the most difficult students. The entire faculty (64 teachers) at Jordan Ridge Middle School participated in this intervention.

The theoretical framework used to guide this study was conceptual change theory (Pintrich, Marx, & Boyle, 1993); specifically, Gregoire's (2003) Cognitive-Affective Model of Conceptual Change (CAMCC) informed the design and interpretation of the intervention. A 33-item adaptation of the Teachers' Sense of Efficacy Scale (TSES, Tschannen-Moran and Hoy, 2007) served as a quantitative measure and was administered to teachers at Jordan Ridge Middle School as a pre- and post- test. The same measure was administered to teachers at a neighboring school with similar demographics as a post-test to serve as a comparison. Additionally, qualitative data were gathered in the form of survey open response questions as well as monthly end-of class reflections in order to further illuminate the quantitative findings.

The study's findings indicate that providing targeted, responsive, collaborative professional learning opportunities to teachers in the context of their own school may favorably influence their sense of efficacy. This study has practical and theoretical implications for the ways in which K12 teachers are provided opportunities for professional learning and growth.

This work is dedicated to God, by whose grace I have always found myself in just the right place, at just the right time, with just the right people, in order to learn exactly what I need to know for the next step in my journey. I am so grateful.

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CHAPTER 1: INTRODUCTION

Start where you are. Use what you have. Do what you can. –Arthur Ashe

"This is stupid! I hate school," 14-year-old Daniel said, exasperated, as he hurriedly tried to finish a vocabulary worksheet his language arts teacher had assigned for homework. Having taught Daniel for three years at Jordan Ridge Middle School (JRMS, a pseudonym), I had come to know him well and understood the depth of his intellect and natural curiosity. Labeled gifted in first grade, he had been in gifted and advanced classes ever since. One might assume that a child like Daniel would be a straight A student. In fact, just the opposite was true. Although I had seen him thrive as the most talented writer in my journalism class, a place where he had freedom to explore his own topics and create authentic writing pieces for publication, Daniel struggled to maintain a C average in language arts. When I asked him why, he said, "That class is boring. Nothing we do has any point. It's always test prep worksheets and lectures. And she makes us all read the same novel together as a class and stop on every page to discuss. I hate that." Because Daniel's language arts teacher was also my friend, I was well aware of how she had struggled to reach Daniel and others like him and how he had become a behavior problem in her class. This left her feeling frustrated, inept, and at times doubting her decision to go into teaching.

I am grateful for Daniel's honesty that day because our conversation was an epiphany for me that HOW we teach is infinitely more important than WHAT we teach; a teacher can have all the knowledge in the world about a subject, but if she fails to design lessons that inspire,

challenge, and engage students, they will not learn. And from my 20 years as a classroom teacher in various schools, grade levels, and subjects, I know that Daniel's concerns are not isolated to this one teacher; his experiences mirror those of other students at JRMS as well as students across the country. This is not surprising, because in this era of high-stakes testing and accountability, teachers everywhere feel more pressure than ever to prepare their students to pass state mandated course assessments. And by placing such pressure upon teachers, leaders are inadvertently creating the kind of teacher-centric classrooms that fail to promote deep engagement and learning. To address this problem, this study sought to increase teachers' sense of efficacy for engaging and motivating all students through a site-embedded professional development and coaching intervention designed to promote deeper understanding of how children learn.

Background

In many American classrooms today, the centuries-old paradigm of the teacher as gatekeeper and dispenser of knowledge prevails (Gallagher, 1994). The philosophical basis for this paradigm is rooted in a *tabula rasa* approach in which the teacher holds all the knowledge about his subject, and it is his job to deliver this knowledge to students through direct instruction and modeling as well as allowing them to practice according to a prescribed set of steps (Straits & Wilke, 2007; Patrick & Pintrich, 2001). It is clear from talking to students like Daniel, however, that this model does not work well for most learners. In fact, research has shown that students tend to be more engaged and motivated in a constructivist classroom setting rather than in a teacher-centered environment (Guthrie & Klauda, 2014; Li & Guo, 2015; Rodriguez, 2015;

Conner, 2014; Zain, Rasidi, & Abidin, 2012). And yet a majority of teachers in the U.S. (including those at JRMS) are structuring their classrooms in a teacher-centered manner.

This is not a new problem. A hundred years ago, educational reformer John Dewey asked a question that school leaders and researchers still grapple with today: "Why is it, in spite of the fact that teaching by pouring in, learning by a passive absorption, are universally condemned, that they are still so entrenched in practice?" (Dewey, 1916, p. 41). Though there is no simple answer to Dewey's question, there is evidence that teachers' insistence on controlling student learning and remaining the center of the classroom might be a stress response (Baloglu, 2008). Today, in addition to the challenge teachers have faced for centuries to consistently maintain an optimal learning environment for children of varying abilities, they now have further stress placed upon them by the government as a result of the standards-based reform movement. So it seems logical- given these stressors- that they would feel a greater need than ever to control the classroom.

For more than 30 years, the United States government has been on a mission to institute standards-based reform in our educational system (Hamilton, Stecher, & Yuan, 2009). This type of reform was sparked by the 1983 report "A Nation at Risk", and has evolved through such federal initiatives as Goals 2000, 1994's Elementary and Secondary Education Act (ESEA), and No Child Left Behind (NCLB) in 2001. Although it was, at least in principle, a bold and just move to try to create academic equality for students with disabilities, minorities, English-language learners, and economically disadvantaged students, NCLB was met with a great deal of criticism from educators. Cochran-Smith and Lytle (2006) said its "conceptions of teachers and teaching are… linear, remarkably narrow, and based on a technical transmission model of

teaching, learning, and teacher training that was rejected more than two decades ago and that is decidedly out of keeping with contemporary understandings of learning" (p. 669). Others have characterized NCLB and the school reform movement as having the potential to force teachers to operate their classrooms in ways that conflict with their core beliefs about teaching and learning and eventually lead them to burnout (Barrett, 2009; Beck & Young, 2005).

Under a new administration, the federal government acknowledged NCLB's shortcomings and adopted Race to the Top (RTT) in 2009, a $4.35 billion initiative which was based on the "incentives theory of change" set forth by ESEA that proposed if schools could just find the right motivators, teachers would improve instruction and thus, student achievement would increase ("Education Policy," 2009). The "incentives theory of change" was a key component of RTT, a competitive state grant program that was passed as part of the American Recovery and Reinvestment Act of 2009 and until recently, guided educational policy in Florida's public schools. Florida was awarded $700 million of this grant, aimed at increasing teacher accountability through more rigorous evaluation systems, adopting a set of common standards in all subjects, opening more charter schools in low performing areas, and creating innovative STEM (science, technology, engineering, and math) programs throughout the state. There has been concern among Florida's educators regarding some of these initiatives, especially those aimed at reforming teacher evaluations using the value-added statistical model (VAM). Without a doubt, teacher quality has an impact on student achievement, especially in the lowest-performing schools (Firestone, 2014), and it is therefore imperative to hold teachers to the highest standards of performance. But according to a statement released last year by the American Educational Research Association (AERA), VAM may not be the best tool with which

to evaluate teacher performance. "There are potentially serious negative consequences in the context of evaluation that can result from the use of VAM based on incomplete or flawed data, as well as from the misinterpretation or misuse of the VAM results" ("AERA Statement," 2015, p. 449). Further, in the RTT Year 4 Report for Florida prepared by the U.S. Department of Education, it was revealed that Florida teachers lacked confidence in the ability of RTT to improve student achievement and were dubious about the direction of Florida's education reform ("Race to the Top," 2015).

Sure enough, RTT did not prove incentive enough for most public schools to dramatically improve student achievement, and many of its initiatives have been abandoned or significantly revised. And thus far, neither the federal nor the state government has found the magic incentive that will elicit the change they seek in teachers that will close the achievement gap. But that has not kept them from trying. In 2015, Congress passed Every Student Succeeds Act (ESSA), which is a revision of NCLB that maintains most of its tenets but restores local control and shifts power back to the states ("Every Student Succeeds Act," 2015). How Florida will choose to revise its education vision under this new law remains to be seen, but JRMS teachers are not optimistic about the chances of stress easing for them anytime soon.

Although pressure is mounting on educators through the current reform movement to insure success for all students, the mandates placed upon them are more restrictive than ever and are often antithetical to effective teaching and learning (Cochran-Smith & Lytle, 2006; Kinsey, 2006; Smith & Kovacs, 2011; Foley, 2013). Teachers do not reject the idea of reform altogether, however, even in spite of the sometimes-illogical mandates that accompany it. Desimone (2013)

found in her study of teachers' attitudes about the standards-based reform movement that they generally viewed it favorably because of its increased focus on meeting the needs of struggling learners, emphasis on improving classroom content and practice, and (rightful) placement of the onus for student learning on the teacher. But teachers lament the clear downside of school reform, which is that the system has begun to reduce both children and teachers to a collection of data sets rather than viewing them as the complex, creative humans that they are. There is an emphasis on teachers' needs to cover all the material rather than dive deeply into concepts and foster real learning, and there is increased curricular restriction in academic subjects in particular. This has created dissatisfaction among some of the most passionate and promising teachers, and if they are not shown that there is indeed a way to ignite students' interest in learning while at the same time meeting state standards, there is a danger they may abandon the profession (Roth, Assor, Kanat-Maymon, & Kaplan, 2007). And as the negativity surrounding public education continues, those college students who would have once considered careers in education may follow other career paths. This concern was recently reinforced by a decades-long UCLA study which found the number of freshmen intending to major in education has been steadily declining, and in 2015 was at an all-time low of 4.2%, down from a high of 11% in 2000 ("Backgrounds and beliefs of college freshmen," 2016). Of most pressing concern is this: if the discontent among in-service teachers is not addressed, students will continue to suffer by not being given a chance to perform according to their highest capabilities in an environment that is sufficiently challenging, motivating, and enjoyable.

Problem Statement

Rather than challenging and encouraging teachers to improve their instructional practice, the reform movement has caused them to feel less effective than ever, especially when school districts and the public judge them so heavily based on students' test scores. Slip into the teachers' lounge at any public school in this country to hear evidence that the movement has left many educators feeling powerless and defeated, as a result of the "several decades of policies that worked to de-professionalize teachers by taking agency away from them and replacing it with prescriptive curricula and oppressive regimes of testing and inspection" (Biesta, Priestley, & Robinson, 2015, p. 624).

Teachers at JRMS are not immune to these feelings of powerlessness and defeat, despite the support of a highly regarded, competent administration and the impressive performance of the majority of students on state tests year after year. Teachers were given a survey at the beginning of the school year asking them to share some of the challenges they faced in the classroom, and their answers shone a spotlight on the main issue: they feel a loss of agency, as though they are not masters of their own domains. Ms. P (a pseudonym) said, "It's very difficult to truly engage and be creative when there [is]…more and more of the curriculum dictated by the state or county" and in the same vein, Mr. J shared, "I like the idea of 'going a mile deep and an inch wide,' but I feel like our current IP [instructional plan] is a mile wide and an inch deep." And perhaps most telling about the disconnect between teacher beliefs and practice, Ms. B said "I sometimes have to weigh the consequences of certain activities: 'Do I do this activity and risk a bad evaluation?' or 'Do I NOT do this activity and risk my students' understanding.' It's a

delicate dance and sometimes my feet are tied!"

If teachers are losing confidence in their own abilities to meet the expectations placed upon them and teach effectively, it is likely to have a detrimental effect on student achievement. This is because teachers' beliefs in their instructional efficacy are a critical factor that influences the atmosphere of the classroom (Bandura, 1993; Hoy & Spero, 2005). In addition, the collective efficacy of the staff also affects the school's atmosphere (Bandura, 1993; Purkey & Smith, 1983) Research shows that there is a clear link between student achievement, teacher efficacy, and the collective efficacy of schools (Hoy & Spero, 2005; Pajares, 1996; Ross, 1992). If we want to increase student achievement, it would be wise to focus on teacher efficacy instead of student test scores.

Researchers have found that effective professional development can increase teachers' sense of efficacy (Bruce & Ross, 2008; Karami, 2011; Velthuis, Fisser, & Pieters, 2015). As a teacher-leader deeply invested in creating a positive culture at JRMS, I believed that the best hope of improving teachers' sense of efficacy at JRMS was to provide them with some useful, research-based strategies that would make them feel like they could take control of their classrooms again. And as a doctoral student in educational psychology, I felt I was well positioned to offer assistance in this realm. I found in conversations with colleagues at JRMS that many of them were unfamiliar with some of the basic principles of teaching and learning, such as how to motivate students who are disengaged (a real issue at our school given the constraints of teachers' district-prescribed instructional plans). Though I was confident that all teachers who had been through a teacher preparation program in college had been exposed to at

least some of these basic pedagogical principles (especially those from my university, where I had worked with undergraduates and seen first-hand the quality of their training), I knew that there had been limited (if any) district-sponsored opportunities for them to take ongoing refresher courses on topics such as student motivation and social-emotional learning. My sense was that because teachers were seeing a lack of organic interest or investment in learning among many students, sharing techniques with them that they could use to promote student engagement would be exactly what they needed to regain a sense of agency in their classrooms and feel like they were making a difference. This was, after all, the reason most of them chose teaching as a profession.

Pajares (2002) asserted that having low self-efficacy can have tremendously negative effects on a person, as it may lead her to "…believe things are tougher than they really are, a belief that fosters anxiety, stress, depression, and a narrow vision of how best to solve a problem" (Self-Efficacy Beliefs section, par. 22). If our goal is for teachers to become optimistic problem solvers despite the challenges of the high-stakes environment in which they work, we need to increase their sense of efficacy. To that end, this intervention sought to provide them with practical, research-based strategies for engaging and motivating students.

Organizational Context

Jordan Ridge Middle School is a public middle school in Central Florida that was founded in 1974 and serves 1238 students in grades six through eight. It is located in a large, suburban school district that has been named by the Florida Department of Education as a "High Achieving" and an "A-rated" district since the inception of this rating system in 1999. Currently,

the district is ranked number one in Central Florida and number four among all Florida's counties for academic achievement, as measured previously by the Florida Comprehensive Achievement Test (FCAT) and now by the Florida Standards Assessment (FSA).

JRMS has received a grade of "A" from the Florida Department of Education for 15 years in a row. This designation provides public recognition and financial awards to schools that have sustained high student performance in a variety of areas, including reading, writing, math, and science. According to the most recent SPAR data (2013-2014), 79 percent of JRMS students achieved proficiency in both reading and math on the FCAT. Demographically, the students reflect the affluent suburb in which the school is located, with just 27.9 percent of students being categorized by Florida's Department of Education as economically disadvantaged. The neighborhood has remained quite demographically and economically stable over the past ten years as compared with other areas in the same district. Most JRMS parents are well educated (with a large proportion of them being employed by a nearby research university) and as a result, tend to place strong emphasis on the importance of education. JRMS parents are, on the whole, regularly involved in their children's schooling, and high numbers of them can regularly be seen attending curriculum nights, arts and sporting events, and other activities after school hours.

The district's mission, which is supported by all its schools, is "to ensure that all students acquire the knowledge, skills, and attitudes to be productive citizens," while the mission of JRMS itself is "to personalize education for individual student success" ("Community Involvement", n.d.) To that end, the school provides opportunities for students to customize their schedules with online courses in a wide variety of subjects; participate in specialized electives such as creative writing, 3-D art, and jazz band; and enroll in challenging courses for high school

credit such as Spanish, geometry, and algebra. And recently JRMS has begun a STEAM (science, technology, engineering, arts, and math) program of exploration that includes innovative courses such as geographic information systems, robotics, graphic art, and bioscience. The school motto, adopted many years ago, is "leading by example," and teachers and administrators alike strive to embody this motto in daily interactions with students and parents.

Although there are several private schools in the area from which to choose and a number of magnet schools in the district, JRMS's student numbers continue to remain steady or increase each year, and most parents are well pleased with the education their children receive. In the most recent parent survey, 96% of parents stated they feel welcome at the school, 97% believe teachers and administrators promote academic excellence, and 98% feel the overall quality of education students receive is good. Anecdotally, families have been known to go out of their way to move into the JRMS district because of its reputation for strong leadership, tight discipline and high academic achievement.

Despite its appearance as almost a de-facto private school, like all public schools, JRMS must still comply with state and federal mandates. Previously under NCLB and now under ESSA, students are required to be tested annually on core academic subjects to insure that they have made adequate yearly progress. Although ESSA loosened guidelines on annual testing, allowing districts to decide whether they will assess students in a series of small measures or with one annual assessment, the district continued with the previously determined testing schedule for this school year that included formative assessments but still placed heavy emphasis on end-of-course examinations. In the spring of the 2015-2016 school year, students were required to take the Florida Standards Assessment (FSA) in grades six through eight in reading,

math and writing, and the Next Generation Sunshine State Standards (NGSSS) exam in science in grade eight. There was also an end-of-course exam for students in civics (seventh grade) and for students who elected to take algebra or geometry for high school credit (seventh and eighth grades). In addition, there were district-created exams at the end of each nine weeks in all core subjects that had to account for 10% of a student's nine week average in those courses (per district guidelines.) The district also required language arts teachers to give formative progress monitoring assessments (FPMAs) in writing three times per year, which are prepared by the district. The amount of time core academic teachers spend on preparing students for state assessments is greater than it has ever been before, and many find it disheartening. Mr. G, a new language arts teacher, said, "This is not at all what I thought teaching would be like. I only spend about 25 percent of my time on the kind of activities I thought I would be doing in my class." This is because the district's instructional plan focuses so heavily on analyzing nonfiction texts and writing essays, skills that are assessed by FSA, that Mr. G has little time for teaching fiction and creative writing, his true passions as an educator and the very things that brought him to the profession.

Conceptual Framework

In order for teachers at JRMS to modify existing misconceptions about teaching and learning, they must first become aware of these misconceptions and then be presented with plausible alternatives that would address some of their classroom struggles. Otherwise, there would be no motivation to change, and they would continue to cling to that which was comfortable and familiar, even if it was ineffectual in the current school climate. Given this understanding, conceptual change theory (Pintrich, Marx, & Boyle, 1993) was chosen as the

theoretical framework for this study, developed by Posner, Strike, Hewson, & Gertzog (1982) and rooted in the theories of Piaget (1968) and Kuhn (1970). It holds that in order for a paradigm shift to occur, there has to be a tension between a person's previous, flawed paradigm and an alternative paradigm that has potential to solve the problems of the first. Pintrich et al. (1993) held that the theory needed to extend beyond a cognitive focus because conceptual change is influenced by personal, motivational, social, and historical systems. Thus, they advocated a "hot" model of conceptual change, which Gregoire (2003) addressed with her Cognitive Affective Model of Conceptual Change (CAMCC), the lens through which teacher learning at JRMS was examined.

Gregoire's Cognitive Affective Model of Conceptual Change (CAMCC, Gregoire, 2003) was useful in understanding the process of conceptual change in teachers, as it has been tested in the context of in-service teacher development (Elbert & Crippen, 2010). According to the tenets of Gregoire's model, it was important to go beyond mere examination of teachers' cognitive processing of new concepts and consider the influence of expectancy judgments and motivation on their willingness to integrate these new concepts into their practice. Focusing on teachers' beliefs was key, because "understanding how teachers' beliefs relate to their practice and to student outcomes may be the missing link between calls for reform and teachers' implementations of that reform," (Gregoire, 2003, p. 149). Because the intention to increase JRMS teachers' efficacy judgments about their abilities in the classroom was this intervention's primary focus, I also looked at ways in which conceptual change influenced (and was influenced by) teachers' sense of efficacy using Bandura's social cognitive theory (1993). And because motivation is a critical consideration of the CAMCC, three theories of motivation informed the

design of the study as well as interpretation of its results: self-determination theory, expectancy-value theory, and attribution theory. The relationship between conceptual change theory, self-efficacy, and the three motivational theories will be explored in greater detail in Chapter 2.

Purpose of the Study

The fact that JRMS must participate in the state's annual student achievement testing cannot be changed. The purpose of this study was to address some of the negative byproducts of the reform movement on a small scale by providing teachers at JRMS with a targeted professional development and coaching intervention designed to shift their focus from preparing students for high-stakes tests back to improving teaching and learning in hopes of increasing their sense of efficacy regarding their ability to reach all students. The impetus for this was the belief that if we can give teachers opportunities to learn and practice more student-centered pedagogical approaches (such as those they were exposed to in their teacher preparation programs), we might see an increase in students' engagement and motivation to learn. And if teachers are better able to engage and motivate students, it stands to reason that we would naturally see an increase in student achievement. Though teachers cannot control the mandates that are placed upon them, they CAN control what happens in their own classrooms and transform them into thriving, highly motivating learning communities despite external stressors. My goal was to show them how to do that.

Research Questions

The questions that guided this study were formulated based on a review of the literature as well as an examination of the problem in its context. The research questions are:

1. To what degree are JRMS teachers willing to participate in available professional learning?
2. How do professional learning and coaching influence JRMS teachers' efficacy judgments, if at all?
3. What are some of the challenges that JRMS teachers face which affect teaching and learning in their classrooms?
4. To what extent are JRMS teachers taking advantage of available coaching support?
5. Did the intervention change teachers' attributions and beliefs about student learning?

During the 2015-2016 school year, professional development and coaching were provided on select educational psychology principles for all teachers at JRMS with the aim of changing some of their inaccurate and limiting beliefs about teaching and learning and offering research-based methods to help them find new ways reach even the most difficult learners. My hypothesis was that as a result of this intervention, they would regain some confidence in themselves, and their sense of efficacy for teaching all students- even those who are most challenging- would increase.

Key Terms and Concepts

Attribution Theory: Weiner's (1985) attribution theory states that the explanations a person gives regarding success or failure experiences can affect motivation to engage in similar events in the future. Attributions can be made based upon perceived locus of control, stability of the event, and controllability (Weiner, 1985).

Conceptual Change: Occurs when a person's existing concepts and beliefs about a subject are modified as a result of new learning (Pintrich, Marx, & Boyle, 1993).

Cognitive-Affective Model of Conceptual Change (CAMCC): A theoretical framework created to predict and appraise teachers' potential for conceptual change that, unlike many of its predecessors, considers the influence of emotions on such change (Gregoire, 2003).

Expectancy-Value Theory: Wigfield and Eccles (2000) created a model that outlined the achievement-related choices a person makes. This theory states that a person's decisions are dependent on their expectancies for success in a given task as well as the perceived value of the task.

Motivation: That which drives all human behavior. "The degree of effort and intensity directed toward a goal related to learning or performance" (Hoffman, 2015, p. 8).

Professional Development: Learning opportunities provided to teachers within the workplace or through affiliated educational organizations. Can be focused on pedagogy or subject-area content.

Self-Determination Theory: A framework created by Ryan & Deci (2000) for the study of human motivation and personality that asserts people have three "innate psychological needs" (p. 68): the needs for competence, autonomy, and relatedness.

Self-Efficacy: A person's belief in his abilities that influences his willingness to act and persist in the face of difficulties. Self-efficacy is the foundation of human agency (Bandura, 2006).

Teachers' Sense of Efficacy Beliefs: Tschannen-Moran and Woolfolk Hoy (2001, p. 783) defined teachers' sense of efficacy beliefs as their assessment of their own ability to engage and effectively teach even the most challenging or unmotivated students.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

Because this study was situated within my practice as an educator, primary attention was given to literature that made explicit connections between theory and practice. This review of the literature will begin with an overview of teacher beliefs--including factors that influence them and research regarding their resistance to change. Then, research on conceptual change theory will be reviewed with a focus on Gregoire's (2003) Cognitive-Affective Model of Conceptual Change, all within the context of in-service teacher practice. To follow, there will be an examination of teacher agency and its influence on teachers' motivational orientations, along with a look at the literature on teachers' sense of efficacy and its effects on their instructional practice and student achievement. Finally, the literature review will include sections on each of the three motivational theories associated with this study: self-determination theory, expectancy-value theory, and attribution theory, and will examine their connections to teachers' beliefs, sense of efficacy, and likelihood of conceptual change.

Teacher Beliefs

Administrators in K12 schools find that one of their biggest challenges is attempting to modify teachers' beliefs that serve neither them nor their students well. Fives and Buehl (2012) found that teachers' personal epistemologies serve as filters, frames, and guides for their teaching practice, so it is important to examine teachers' beliefs when attempting to encourage a shift in pedagogy. Teachers' beliefs about how students learn are also critical factors in their self-efficacy determinations and are based on their own past experiences as a student (Pajares,

1992) as well as influences from their teacher training and the school's culture (Hoy, 2008). Often, when teachers begin their first job, they lack structured, ongoing instructional support and are likely as a result to fall back on old, deeply held beliefs to guide their practice. By the time a person graduates from college, he has spent over 17 years in the classroom, so it is logical that a teacher's past experiences as a student are the single biggest influence on beliefs about teaching (Tschannen-Moran & Hoy, 2007). And if the novice teacher has spent the majority of her time as a learner in teacher-centered classrooms, in times of stress, she will naturally fall back on this method despite evidence of its ineffectiveness.

In their book chapter, Fives and Buehl (2012) exhaustively reviewed 57 years of literature on teachers' beliefs and found that teachers' knowledge and beliefs are inextricably linked, and that therefore it is not particularly useful to change only one of them. Further, they offered that teachers' beliefs serve three purposes: a) filter and interpret information, b) frame and define problems and c) guide future action. The function of beliefs as a filter is particularly important to consider when looking at teacher learning because they influence an individual's perception of reality. Specifically, teachers' sense of efficacy beliefs are seen as motivational constructs that can influence their willingness to take action (Fives and Buehl).

Teachers' beliefs about how students learn directly influence instructional behaviors in the classroom, commitment to the profession, and student outcomes (Patrick & Pintrich, 2001; Gibbs & Miller, 2014). One of the barriers to effective teaching and learning at JRMS is that some teachers hold misconceptions about how students learn and what motivates them. Like many educators, they view cognition and motivation as something that is fixed rather than a process that can be influenced by multiple sources (Patrick & Pintrich, 2001). For example,

when asked to respond to questions in a survey at the beginning of the school year assessing their beliefs, many teachers responded that they believed grades are an effective motivator for students. The fact that there are many students at JRMS who are satisfied earning failing grades should be evidence enough that a grade itself is not always motivating. Some teachers also responded that they believe a person's IQ is fixed and there is nothing that can be done to alter learning potential. But according to Dweck (2010), a person's intelligence can be increased over time through effort due to the malleability of the brain. Further, some teachers revealed beliefs that it is the student's job to come to class motivated, for the responsibility for this does not lie with the teacher. To the contrary, as Hoffman (2015) asserted, it is not only the teacher's responsibility to motivate students, it is also possible to do so using a variety of motivational theories as guides. This intervention sought to remind teachers that when they are in their classrooms, they have the power to make decisions to do what is best for students, and further, it attempted to show them what works best for students by making connection between learning theories and practice. Fives and Buehl (2012) stated that it is not enough for teachers to know theories; they must also understand how to implement the theories, and that was indeed the guiding purpose of this intervention.

Turner, Warzon, & Christensen (2011) found that there are several barriers to changing teachers' beliefs about student learning, including their attribution of student motivation to personal characteristics rather than teacher influence, a tendency to cling to the idea that learning is a teacher-directed practice, and the unwillingness to risk change in the face of uncertain outcomes. But as Fives and Buehl (2012) proposed, changes in teachers' beliefs are a necessary

precursor to changes in practice. It was therefore imperative that instructional leaders at JRMS attempt to provide conditions under which belief change was more likely.

While it is true that teacher beliefs are often resistant to change (Reeve et al., 2014), the task of eliciting belief change is not impossible. In a quantitative study of 110 secondary teachers, Alger (2009) found that 63 percent of them had changed their conceptions of teaching over time as a result of their professional learning and experiences in the classroom. But what determines whether a teacher's beliefs will change? Abrami, Poulsen, and Chambers (2010) discovered that several factors may impact a teacher's ability and willingness to change their beliefs to allow implementation of a reform, including whether the reform is compatible with their philosophy of education, their sense of efficacy, degree of follow-up support, influence of school leaders, and practical concerns such as time and materials. Researchers have also found that years of experience may play a part in teachers' openness to change. In a 100-hour professional development program designed to assist Iranian geometry teachers in implementing a new curriculum and textbook, Gooya (2007) found that veteran teachers had more difficulty changing their beliefs about how geometry should be taught than did novices.

A secondary issue regarding teacher beliefs is that sometimes a disconnect exists between beliefs and practice. In a study examining the beliefs of 110 southwestern United States high school teachers, 42 percent of them indicated the presence of a divide between their beliefs about teaching and learning and how their classrooms actually looked (Alger, 2009). Fives and Buehl (2012) considered that a contributing factor may be that the degree to which teachers are willing and able to implement beliefs could be dependent upon state or national policies (for example, standardized curricula and end-of-course testing). They asserted that teachers might focus on

content in class that falls in line with these policies rather than allowing beliefs about teaching and the needs of the students to guide instruction. Fives and Buehl (2012) suggested that a school's culture can influence enactment of teachers' beliefs, and that providing teachers with support as well as opportunities to reflect and practice makes belief change more likely.

Fostering shifts in teachers' beliefs can be difficult, though. Specific recommendations that Fives and Buehl (2012) made for school leaders included offering opportunities for teachers to collaborate in creating new belief systems, providing resources that support belief creation and implementation, recognizing the constraints that may act as a barrier to implementing new beliefs and working to free them, and perhaps most importantly, demonstrating how to effectively use educational research to guide practice. That is precisely what I attempted to do in the capacity of professional development leader at JRMS.

Conceptual Change Theory

Teachers come into the profession with deeply ingrained conceptualizations about the nature of knowledge, the process of learning, and the role of the teacher as a result of their experiences as a learner as well as the influence of their teacher preparation program. Leaders who want to implement reforms aimed at changing those conceptualizations must be aware of all the factors that influence those beliefs and thus, their likelihood of change. Though there has been much research over the past several decades on conceptual change theory involving students as well as numerous studies on conceptual change in pre-service teachers, there has been less research on this theory in relation to K12 in-service teacher practice. In light of this, I reviewed the general conceptual change literature in an attempt to gain an understanding of how

this study might best be situated and culled from it the evidence that was most salient to the design and interpretation of this intervention.

Patrick and Pintrich (2001) suggested that there are motivational and epistemological factors at play in the process of teacher conceptual change. They outlined three important cognitive processes that are necessary for conceptual change: metacognitive awareness, or the recognition that their previous belief or theory is not satisfactory; ability to engage the new information at a deep level of processing; and the ability to engage in scientific thinking about this information (develop and test hypotheses, for example). They also took the position that there is a continuum of epistemological beliefs, and teachers' conceptual change can either be supported or inhibited, depending on where they are on the continuum. The four positions that support conceptual change, according to Patrick and Pintrich, include: 1) the belief that knowledge develops and changes based on new evidence 2) belief that knowledge is complex and influenced by context 3) belief that knowledge is constructed by the individual and 4) belief that knowledge ought to be justified by carefully weighing opposing viewpoints and using supporting evidence.

Teachers' prior knowledge is also a critical factor in conceptual change, though it plays a "paradoxical role" (Pintrich, Marx, and Boyle, 1993, p. 191). If he has little knowledge about a topic, it may be quite easy for a teacher to assimilate new information into his existing schema. On the other hand, if a teacher already has existing knowledge about the topic but this knowledge contains misconceptions, it will be more difficult for him to accept this new information that contradicts his previous understanding. In order for a teacher to incorporate

new learning, his prior beliefs will need to be accommodated, or dramatically transformed (Posner et al., 1982; Pintrich et al., 1993). For example, those teachers at JRMS who believe that giving a student a zero for not turning in an assignment will motivate the student to turn in the next assignment are reluctant to change their beliefs, even in the face of evidence to the contrary (i.e. the same students repeatedly earning zeros). Something must happen- either the teacher eventually gets fed up with students failing, or she is presented with a new way of motivating students to complete their work that will make her life easier- in order for her to be willing to change prior beliefs. Conditions necessary for accommodation of new ideas to occur include: dissatisfaction with current paradigm; intelligibility and plausibility of new information; and fruitfulness of new information (ability to explain a previously misunderstood concept). (Pintrich et al., 1993).

According to Pintrich et al. (1993), another important influence in conceptual change is perceived locus of control. That is, if a teacher feels like she has control over her own learning, she will be more willing to work to resolve discrepancies between previous misconceptions and new knowledge, thus facilitating the process of accommodation. This does not guarantee that teachers' beliefs will change, but it does insure that they will engage in higher levels of metacognition as a result of cognitive dissonance, and may be more likely to make a change in practice (Pintrich et al., 1993). Pintrich et al. (1993) advocated giving students control over learning as a way to foster conceptual change. They believed that students should be able to choose what projects to work on and how to execute them, and should be encouraged to use metacognitive and self-regulation strategies so that they will have the stamina to withstand prolonged periods of learning. So, too, can these principles apply to teachers' professional

learning. If teachers are given choices about their learning based on personal needs, and if they have the ability to self-regulate and are encouraged to be reflective about their practice, the learning should be more likely to have a sustained, positive effect on their pedagogy.

A Framework: Cognitive-Affective Model of Conceptual Change

As the conceptual change literature makes clear, before undertaking a reform effort within a school, it is essential to closely examine the connection between teachers' beliefs and practice in order to understand why attempts at reform succeed or fail. In this case, JRMS teachers must learn to let go of old, outworn beliefs about motivation and learning that hinder their growth as educators and embrace new, evidence-based paradigms that will lead them to a more successful practice. The big question at JRMS among instructional leaders and administrators became: how do we get teachers to not only buy into these theories but also to implement them in their classroom? After reviewing the literature on conceptual change, I determined that the Cognitive-Affective Model of Conceptual Change (CAMCC), an explicit, dual-process model of conceptual change designed by Gregoire (2003) would be the most useful framework within which to design the intervention because it integrated previous research on conceptual change theory with that of social psychology. In the model, Gregoire also considered the ways in which a teacher's prior knowledge and beliefs influence their likelihood of belief change and makes explicit those conditions that are most likely to elicit a change in beliefs. Other researchers in the field of teacher learning and professional development have found this a useful framework for understanding the arduous task of eliciting conceptual change in teachers--both pre-service and in-service (Hochberg and Desimone, 2010; Gill, Algina, & Ashton, 2004).

Perhaps the most critical component of this model is its acknowledgement that teaching is a "hot" (emotional) context (Gregoire, 2003, p. 150), which of late in the realm of public education may be partially attributed to the high stakes that have been placed on student achievement. Influenced by the concerns expressed by Pintrich et al. in their seminal 1993 article, Gregoire (2003) affirmed that conceptual change theory has historically been exceedingly cognitively focused and lamented that this focus discounts motivational and affective factors that play a critical role in teachers' classroom practice. This was the inspiration for her development of the CAMCC. Though there exist other useful models of conceptual change that might work for this study, such as the Cognitive Reconstruction of Knowledge Model (CRKM) by Dole and Sinatra (1998), I selected the CAMCC because there is support in the literature for its effectiveness in the context of in-service teaching; in fact, it was developed with practicing teachers in mind.

Gregoire (2003) developed the CAMCC after reviewing five other models of belief change, including Dole and Sinatra's (1998) CRKM and Fazio's (1986) model outlining the relationship between attitudes and beliefs, and situated it in the context of math teaching reforms aimed at moving teachers towards more constructivist orientations. The model was created to explain the ways in which teachers process school reforms that challenge their existing beliefs in hopes of promoting more systematic means of processing that will elicit positive changes in practice. Like the CRKM, the CAMCC is a dual-process model, which means it describes two routes to cognitive change: the direct (central) route, which involves deep, meaningful processing, and a peripheral route, which is less likely to lead to change in practice (Sinatra, 2005). One thing that seemed particularly insightful about the CRKM was its acknowledgement of the iterative nature of conceptual change. That is, if a learner is given repeated opportunities

for exposure to a new idea through multiple modalities, it is possible that the learning will be processed more fully later as a result of being revisited, even if it were rejected initially. This was considered in planning for professional development at JRMS. But where the CAMCC surpasses the CRKM as a framework to guide teacher learning is in its acknowledgement of the problem of teachers processing reform messages automatically based on affective appraisals, which causes them to summarily dismiss the message without making an attempt to understand, thereby eliminating the chance that it will be integrated into practice. To be sure, the process of teachers' conceptual change is complicated, as it can be influenced by emotions (such as anxiety or fear), motivation, level of stress, and efficacy determinations (Sinatra, 2005), and any of these influences may be likely to cause teachers to automatically reject new learning. Gregoire (2003) suggested that using her model, the initial judgments teachers make when confronted with new learning as well as emotional responses to the judgments would be appropriate new targets for intervention. Gregoire (2003) also acknowledged the need to make teachers aware of their tendency to dismiss new learning without fully digesting it so that they may choose instead to be more reflective and therefore process the new information more deeply.

The goal of this intervention was to elicit sustained belief changes in teachers that would result in improved efficacy determinations. To increase the likelihood that the reform messages were processed systematically, JRMS leaders needed to insure that teachers felt they have the resources available to implement the reforms (Gregoire, 2003). Additionally, the reforms needed to make sense to teachers, be plausible, and help promote student learning if they were to succeed in eliciting change in teacher beliefs (Gregoire, 2003). JRMS teachers needed to feel this reform would help them become better teachers, but in order to buy in, they needed to have

something at stake (i.e., they are having trouble motivating students, so they need learning on how to do that). They also needed to find it worthwhile (i.e., the learning gives them useful information that they can immediately implement in the classroom.)

Building upon Gregoire's (2003) research with in-service math teachers, a multiple case study by Ebert and Crippen (2010) determined that the CAMCC was useful for predicting and assessing conceptual change among participants in an inquiry-based science professional development program in a large school district in the southwestern U.S. Specifically, the researchers found that this particular PD, which included an online component, lent itself well to facilitating "implication of self" (Gregoire, 2003) by providing opportunities for the three case study participants to reflect upon their own practice. The researchers also found that when the reforms initiated a stress appraisal, conceptual change was more likely to occur. Those that did not initiate the same appraisal were more likely to be rejected and processed heuristically.

Gregoire stated, "It is hoped that the CAMCC clarifies the role of efficacy and affect in the process of belief change and generates fruitful research and testing of its various components to help facilitate teachers' belief change as they work to restructure their teaching along more constructivist reform premises" (p. 175). One of my goals in using the CAMCC as the framework for this study, in addition to appreciating its usefulness in understanding the complexities of teachers' conceptual change, was to contribute to the literature regarding its effectiveness in professional development contexts.

Teacher Agency

If we are to create professional learning environments in which teachers' growth is supported so that they can perceive change as a challenge instead of a threat, we must first acknowledge the importance of teacher agency (Calvert, 2016). It is useful to examine agency within the context of Bandura's Social Cognitive Theory (2001). According to Bandura (2006), for a person to be an agent is to feel as though he has some influence over the circumstances of his life. Much like their students, teachers must feel that they have a voice in their environment and their learning in order to tap into their motivation to grow. The four components to human agency include: intentionality (setting goals and making plans to attain them), forethought (anticipating the future and using it to make current behavior more deliberate), self-reactiveness (regulating one's own behavior), and self-reflectiveness (reflecting on and making meaning of one's experiences) (Bandura, 2006). When access to any one of these is lacking, a teacher's feelings of agency will be diminished and in turn, he may be less engaged and willing to learn and grow.

Teachers need for their voices to be heard in order to feel satisfied professionally. According to Bandura (2006), "People are contributors to their activities, not just onlooking hosts of subpersonal networks autonomously creating and regulating their performances. People conceive of ends and work purposefully to achieve them. They are agents of experiences, not just undergoers of experiences" (p. 168). But when teachers are not allowed to "work purposefully" towards the goals they've envisioned for themselves, they indeed become "undergoers of experiences" that have been selected for them by school leaders instead, and they will naturally be less invested as a result.

In her white paper examining ways to make teachers' professional learning more effective, Calvert (2016) shared the results of a series of in-depth interviews with 26 teachers, district-level professional development liaisons, and school administrators. What she gleaned from those interviews is this: there is no more important consideration in designing professional development than teacher agency, which she defines as the ability of teachers to direct their own professional growth as well as positively influence that of their colleagues and to act with purpose. Her suggestions for how to support teacher agency include creating systems that spark teachers' intrinsic motivation, letting go of traditions and structures that no longer serve learning well, strategically balancing the needs of the system with the needs of the individual, and treating teachers as allies, not enemies of the school system (Calvert, 2016). In fact, she even suggested district leaders begin to make a distinction between the old paradigm of "professional development," which was something teachers perceived as being done to them, and a new paradigm of "professional learning," which promotes what Reeve & Tseng (2011) called agentic engagement. Calvert (2016) cautioned that while fostering teacher agency will not cure all of education's ills, it will be virtually impossible to improve teaching and learning without acknowledging the need for agency-supportive conditions for teachers.

Perhaps the most important subset of agency for anyone in a helping profession such as teaching is moral agency. Bandura (2006) defined moral agency as the impetus that drives people to engage in that which makes them feel a sense of pride and satisfaction and retreat from activities that conflict with their moral standards because "such conduct will bring self-condemnation" (Bandura, 2006, p. 171). Many teachers at JRMS entered the field of education because of a noble desire to change the world and are thus reticent to engage in certain practices

required by the state that they find questionable due to their intense need to act in ways that align with their morals. For example, some teachers feel the over-emphasis on testing is harmful to students and feel as though they are violating their own moral standards in a sense by being forced to have students engage in so many hours of preparation for state assessments. As a result, they may feel as though they have been stripped of moral agency.

Teachers' Sense of Efficacy

Among the core components of agency is the belief in personal efficacy, considered a crucial motivational construct that influences teachers' professional behaviors (Klassen, Tze, Betts, & Gordon, 2011). Insuring student learning and success should be the primary focus of any classroom teacher: teachers' self-efficacy beliefs (hereafter referred to as sense of efficacy beliefs) can be a critical influence on student achievement (Ghaith & Yaghi, 1997; Ross, 1994; Anderson, Greene, & Loewen, 1988; Klassen et al., 2011; Goddard, Goddard, Kim, & Miller, 2015). Sense of efficacy refers to belief in one's ability to be successful in a particular area (Bandura, 1997). With regard to teachers, if they do not believe they can accomplish a given task, such as teaching students effectively using a different method than those to which they are accustomed, they are unlikely to want to engage in this task. Sense of efficacy beliefs have an effect on teachers' effort, their ability to persevere in the face of difficulty, their ability to monitor and self-motivate, and their general success in the classroom (Morris & Usher, 2011). Teachers who have a higher sense of efficacy are more likely to report higher morale and job satisfaction (Caprara, Barbrinelli, Steca & Malone, 2006). And perhaps most importantly, a teacher's sense of efficacy can also impact students' attitudes towards school, motivation, and their own sense of efficacy for that subject (Caprara, Barbaranelli, Steca, & Malone, 2006).

The purpose of this intervention was to increase teachers' sense of efficacy for reaching even the most difficult students. Among the thoughts that affect human functioning, self-efficacy beliefs are most important, according to Bandura (1986), and are one component of his social cognitive theory (SCT, Bandura, 1993). SCT states that human behavior is not merely a response to the environment, as behaviorists theorized, and neither is it completely attributable to biological factors. SCT does not discount the influence of nature and nurture, but goes further to propose that an individual's actions are also the result of multiple factors, including beliefs about themselves, emotions, and cognitive processes (Pajares, 2002; Bandura, 1986). Bandura maintained there are four distinct ways in which self-efficacy can be influenced: verbal persuasion, mastery experiences, modeling, and emotional states (Bandura, 1993; 2003), so an intervention directed at increasing teachers' sense of efficacy needed to consider all of these.

In order for practicing teachers' efficacy beliefs to change, it was clear that ongoing school support was needed at JRMS. Teachers long for more authentic, collaborative connections with colleagues in order to sustain passion for teaching and learning (Musser, Caskey, Samek, Kim, Greene, Carpenter, & Casbon, 2013) and providing a safe space where they could learn and grow together seemed the best hope for eliciting sustained positive change in their sense of efficacy (Bandura, 1997; Bandura, 1993; Hoy & Spero, 2005). Bandura (1986; 1997) asserted that people determine their self-efficacy in four ways: vicarious experiences, which permit them to see others' successes and failures and adjust self-efficacy determinations accordingly; social persuasion, such as evaluative feedback from administrators, peers, parents, or students; physiological states, which are influenced by stress, emotion, and mood; and mastery experiences, which remind teachers that they can be successful, if only in certain domains.

Because one of the most powerful ways for a teacher to build efficacy beliefs is through mastery experiences (Hoy & Spero, 2005; Mulholland & Wallace, 2001), any intervention aimed at changing teachers' efficacy judgments should attend to this.

An important consideration for school leaders and researchers is that even veteran teachers' sense of efficacy can vary depending on the circumstance, as efficacy beliefs are task- and situation- specific (Bandura, 1997; Thomson and Turner, 2015). So one must not always assume that the more experience a teacher has, the higher her sense of efficacy will be. Even if a teacher has years of experience, moving from one subject to another or one grade level to another may cause her sense of instructional efficacy to decrease.

Bandura's work was particularly insightful, for it acknowledged that a person's beliefs in his own capacity to succeed in any given area are a critical predictor of their success in that area. For example, a teacher could have lots of knowledge about constructivist teaching methods and even believe in their worth, but unless she believes she has the capacity to put that knowledge into practice given the challenges inherent in any public school classroom, she will not be likely to try these new methods. There is a difference between having knowledge about a concept and being able to put that knowledge into practice, especially under exigent conditions (Bandura, 1997). In the case of teachers at JRMS, these conditions would be the pressures of the FSA and all that goes with it (i.e. nine week exams and formative assessments). And it takes a vigorous sense of efficacy to stay the course when there are social repercussions surrounding potential failures (Bandura, 1997).

When people have a strong belief in their efficacy, they are more likely to perceive their environment as controllable, whereas those who lack strong a strong sense of efficacy think their

attempts to change or improve their situation are futile due to factors beyond their control. There was some evidence of this that arose in conversations with teachers at JRMS. Some act helpless in certain situations and give excuses such as "Because of FSA requirements… because students are so disrespectful these days… because the parents are not involved…because my students are unmotivated…I cannot be more effective." Conversely, other teachers working in the same conditions hold a more adaptive belief and do not allow factors beyond their control affect their ability to do what's best for students. According to Bandura (1997), this may be attributable to these teachers having a higher sense of efficacy for teaching.

With regard to motivation, sense of efficacy beliefs affect goal setting, expenditure of effort, perseverance, and resilience when failures occur (Bandura, 1993). Tschannen-Moran and McMaster (2009) found that teachers' sense of efficacy affects their classroom behaviors, including persistence in the face of challenges and willingness to implement new instructional strategies. Further, teachers' sense of efficacy can be linked to student outcomes such as motivation and achievement (Tschannen-Moran & McMaster, 2009). Teachers who perceive themselves as more efficacious tend to be willing to take risks, try harder, and think outside the box. They are more likely to set lofty goals for themselves and their students and remain faithful to those goals (Bandura, 1993).

There has not been much research on the sources of teachers' sense of efficacy beliefs beyond the four proposed by Bandura (1997). However, Tschannen-Moran and Woolfolk Hoy (2001) found that the school setting and teachers' perceptions of availability of resources are factors that may influence sense of efficacy beliefs in addition to those influences that Bandura (1997) proposed (mastery experiences, verbal persuasion, vicarious experiences, and

physiological arousal). In light of this evidence, it would be wise to remain attentive to the influence of contextual factors on teachers' sense of efficacy at JRMS.

Research has shown that effective, ongoing professional development can have a positive impact on teachers' sense of efficacy. Sandholtz and Ringstaff (2014) found in a longitudinal study of 39 science teachers participating in a three-year science professional development program that there was an increase in teachers' overall sense of efficacy for teaching, which was correlated with a favorable change in their instructional practices. And numerous studies (Ghaith & Yaghi, 1997; Tschannen-Moran et al., 1998; Turner & Thomas, 2013; Schiefele & Schaffner, 2015) have drawn a correlation between teachers' sense of efficacy and their willingness to adapt their practice in light of new information. Bandura (2006) cited seven meta-analyses on the effects of efficacy beliefs in varying contexts and among populations with differing ages and demographics and noted that they revealed the high degree of influence a person's sense of efficacy has on his motivation, emotional stability, and performance.

In examining individual teachers' sense of efficacy beliefs, it should be noted that a teacher might sometimes hold a high sense of efficacy that is not based on evidence. For example, a math teacher may believe she can effectively teach math in ways that lead to student learning, but her students' achievement may reflect a different reality. One of the biggest challenges in conceptual change, as suggested by Patrick and Pintrich (2001), is finding the balance between breaking down teachers' false sense of efficacy built on misconceptions about teaching and learning and an adequate enough sense of efficacy to keep them open to learning new theories and integrating them into their practice. It may be useful to explore the possible

source of the dichotomy if a teacher's efficacy judgments do not appear to be aligned with student achievement.

Bruce and Ross (2008) discovered in their study of 12 third- and sixth-grade mathematics teachers that an intensive peer coaching and professional development intervention shifted participants' instructional practice towards more evidence-based methods and also had a positive effect on teachers' sense of efficacy. The researchers theorized that the increase in efficacy was due to the "nexus of sources of efficacy information" (p. 359) available through this intervention. For example, teachers were able to observe more successful peers implementing new methods (modeling). They also received verbal encouragement from their peer coaches as well as positive physiological and emotional cues, and were able to successfully implement some of the new teaching methods into their own classrooms (mastery experiences) all of which Bandura (1997) proposed as essential sources of efficacy information.

Tschannen-Moran et al. (1998) discussed the reciprocal nature of teachers' sense of efficacy: those who have more positive teaching experiences tend to subsequently report higher levels of self-efficacy, while those who initially report higher levels of self-efficacy later report more success in the classroom. Holtzberger, Philipp, and Kunter (2013) further explored this concept in a longitudinal study of 155 German teachers. The researchers found teachers who held higher sense of efficacy beliefs reported more success in classroom management, better individualized learning support, and higher levels of cognitive activation and their students' ratings reflected a positive correlation between teacher efficacy and instructional quality in these three areas as well, though these correlations were only significant on short-term measures.

Interestingly, they found support for the Tschannen-Moran et al. (1998) position regarding the reciprocal nature of teacher self-efficacy. The researchers also found evidence to support their hypothesis that teachers adapt self-efficacy beliefs based on mastery experiences, particularly in the area of classroom management.

Thomson and Turner (2015) claimed that whole school professional development may be helpful in encouraging teachers' commitment to change, for it enables teachers to get the sense that they are all in it together. Teachers' practice does not exist in isolation. This is why collective efficacy, defined by Bandura as a group's shared belief in its capacity to meet goals, (Bandura 1997) is important to consider. Context matters when it comes to a teacher's sense of efficacy. The literature has clearly delineated a correlation between a school's leadership and the collective efficacy of teachers. Tschannen-Moran and Hoy (2006) found that when principals provide teachers with the resources they need and allow them to have flexibility regarding their day-to-day classroom matters and freedom in decision-making, teachers are able to develop stronger sense of efficacy beliefs. And when challenges and frustrations inevitably occur, a belief in their colleagues' collective ability to effect change can help increase teachers' individual motivation and sense of efficacy (Klassen et al., 2011).

Goddard, Goddard, Kim and Miller (2015) created and tested a model grounded in social cognitive theory that linked collective school efficacy to student learning and also tested the link between leadership and collective efficacy through teacher collaboration. They found that there was a strong relationship between the principal's instructional leadership and teacher collaboration (effective size .70). Moreover, the results show that strong instructional leadership predicts collective efficacy due to the emphasis on teacher collaboration. That is, because the

principal sets the expectation and creates an environment in which collaboration becomes imbedded in school culture, the school's collective efficacy increases. The authors give several recommendations based on their findings to schools wishing to increase collective efficacy. One is that teachers should be given frequent, formal opportunities to collaborate. Another, based on social cognitive theory, is that teachers should be given "vicarious experiences" (Bandura 1997); in this case, opportunities to observe other teachers who are more successful. Perhaps most importantly, the researchers posit that the principal must be part of these collaborative teams in order for them to be most effective. According to Bandura's social cognitive theory (2006), the degree to which collaboration and interdependence are required within a group system influences its collective efficacy, and he cites a meta-analysis to lend support to his argument (Stajkovic & Lee, 2001).

In concluding their review of the literature on teachers' sense of efficacy, Klassen, Tze, Betts, and Gordon (2011) asserted:

> The final problem that became increasingly evident to us as we reviewed the large body of research covered in this review is a problem faced by many education researchers: how can the cumulative body of research be made more relevant to practice?...The challenge inherent in making research and theory relevant to practice and practitioners is not a new one and was grappled with by William James, who was able to offer only modest counsel to teachers regarding the application of psychology to teaching (Pajares 2003)…. The gap between educational research and practice may be growing because the diversity and needs within our education communities are increasing, yet many researchers continue to neglect important facets of local contexts…research value would be enhanced through

> teacher–researcher collaborations in which teachers and researchers would work together to identify critical issues and to develop research questions, resulting in a more finely tuned understanding of how teacher efficacy influences day-to-day classroom practice.

The excerpt above is an accurate distillation of my impetus for undertaking this research project. Tschannen-Moran and Hoy (2001) called teacher efficacy "a simple idea with significant implications" (p. 783). As someone living in the gap between research and practice, I felt I was well suited to fostering the fruitful types of teacher-researcher collaborations for which Klassen et al. (2011) call and which may in turn improve teachers' sense of efficacy beliefs.

Teacher Motivation

Gregoire's (2003) CAMCC addressed the importance of attending to the "hot" factors (such as motivation) that affect teachers' likelihood of conceptual change. Neves, De Jesus and Lens (2010) found in their research that teachers suffer from higher levels of stress and lower motivational levels than many other professions. While it was beyond the scope of this study to mitigate all the stressors in JRMS teachers' lives to insure the highest levels of motivation for teaching, understanding theories that explain their motivational orientations was helpful in planning this intervention so that it had the best chance to initiate teachers' willingness to participate, learn, and make real changes to their practice.

In my experience as an educator, most teachers perceive professional development (especially that delivered by outside consultants) as just another hoop to jump through, some seemingly disconnected mandate coming from the top that has little relevance to their classrooms. To be sure, many veteran teachers have become jaded by previous, negative

professional development experiences. This presents a challenging motivational obstacle to anyone delivering professional development in the schools. Sinatra (2005) synthesized the motivational factors that Pintrich (1999) found most useful to understand general conceptual change: goal orientation (mastery vs. performance); epistemological beliefs (beliefs about the nature of knowledge); the interest, values, and importance that individual ascribe to a situation; sense of efficacy; and attributions (i.e. are circumstances within my control or not?) I decided that in light of the research (Pintrich et al., 1993; Gregoire, 2003; Sinatra, 2005) it seemed vital to consider teachers' motivation when attempting to modify their beliefs and behaviors, for anyone undertaking such a difficult task must be aware of what makes teachers behave the way they do. I did not use all of Pintrich's five motivational constructs as proposed by Sinatra (2005), however. While Pintrich's work is helpful in understanding conceptual change in students, I felt there were some motivational constructs that Pintrich and others had not considered that would be more useful in examining conceptual change in teachers. So in addition to examining teachers' sense of efficacy beliefs, I decided to look at this problem through three motivational lenses that I think are essential to understanding the motivation of public school teachers in general and the teachers at JRMS specifically: Self-Determination Theory (Gagne, Deci & Ryan, 2013), Expectancy-Value Theory (Wigfield & Eccles, 2000), and Attribution Theory (Weiner, 1985).

Self-Determination Theory

Though teaching is by nature an individualistic act and teachers thrive on being in charge of the decision-making in their classrooms, at the same time, they also crave opportunities to commune and share with other teachers. And like professionals in any arena, teachers enjoy

being reminded that they are good at what they do. Self-Determination Theory addressed these needs, as it proposed that people seek opportunities for autonomy, competence, and relatedness (Ryan & Deci, 2000; Gagne, Deci & Ryan, 2013), and that an environment that supports all three is more likely to foster a person's intrinsic motivation to learn and grow

According to Deci & Ryan (2013), people universally thrive in an autonomous environment (in which they have some degree of say in their day-to-day activities), versus a controlled environment (in which their time is dictated by those with more power). In addition to the need for autonomy, other basic psychological needs include competence and relatedness (Deci & Ryan, 2000). And one of the key components of SDT- competence- speaks to the central construct of Bandura's self-efficacy theory (2007). "Excessive external pressures, controls, and evaluations appear to forestall rather than facilitate this active, constructive process of giving personal meaning and valence to acquired regulations" (Deci & Ryan, 2000, p. 238). That is, the more controlling and strict the environment is, the lower the likelihood of teachers buying into reforms. In order to integrate the guidelines and values that are important to the organization, people must be able to understand the WHY and see the meaning behind the initiatives. This theory is especially applicable to teachers in public schools today; due to mandates from the state and federal government, teachers feel more and more that their autonomy and their perceived competence among the public have been diminished.

There have been several studies that demonstrate the connection between a teacher's motivation and the satisfaction of basic psychological needs. In a quantitative study of 334 German teachers, Janke, Nitsche, & Dickhauser (2015) used a SDT perspective to determine if teachers whose needs for autonomy, competence, and relatedness were met would display

stronger "work-related learning goal orientation" (p. 187). They found that teachers' perceived satisfaction of these needs was predictive of their work-related learning goal orientation, and suggest that school leaders implement workplace interventions that would support teachers' basic psychological needs such as using peer evaluations and creating a positive social climate among teachers and staff (supporting relatedness). Further, they suggested that the Western practice of holding teachers accountable for students' test scores without providing them support with suggestions for classroom management and teaching strategies to improve student performance causes teachers to feel less competent. In essence, this sets up a dysfunctional situation where teachers know they are not performing according to expectations but they do not know exactly how to fix the problem. The authors suggested providing supports to mitigate this issue, which should include professional development. They also suggested that the current U.S. practices of using scripted curricula may be impacting teacher motivation because this takes away autonomy and further contributes to feelings of incompetence because they have neither the time nor the freedom to individualize instruction to meet each learner's unique needs.

Similarly, Perry, Brenner, & Hofer (2015) found in a qualitative study of a teacher at a school for at-risk youth that the teacher's sense of self-determination influenced his motivation as well as his sense of well-being at work. Although his job would be deemed stressful by an outsider due to the challenges inherent in working with a high-needs population, this teacher did not perceive these challenges as stressors, and the researchers suggested that his internal locus of causality caused him to confront challenges adaptively rather than becoming overwhelmed by them. In short, because he felt a sense of autonomy, competence, and relatedness, he thrived in a work environment that many educators would have found overwhelming.

Though SDT has been used as a lens through which to view human motivation in many different realms, little research has been conducted on the link between SDT and teacher professional development. However, the few studies that exist serve to illuminate this connection. Gorozidis and Papaioannou (2014) found in a study of Greek teachers involved in a multi-year professional development initiative that teachers with autonomous motivation (engaging in the learning of their own volition and because of their interest in expanding their knowledge base) were more likely to implement new teaching initiatives learned in the PD than those with controlled motivation (participating out of a sense of fear or pressure). Likewise, in a study of the relationship between Dutch secondary teachers' motivation and their participation in professional learning, Jansen in de Wal, den Brok, Hooijer, Martens, and van den Beemt (2014) determined that teachers who had extremely autonomous, highly autonomous and moderately motivated profiles are more likely to engage in professional learning than those with an externally regulated profile. In this case, there was a clear correlation between degrees of autonomy and relatedness and motivation to learn, although the study found that competence was not a predictor of teacher motivation in this case. The researchers suggested providing teachers with greater degrees of autonomy and relatedness, two of the components of SDT, to encourage a shift toward the extremely autonomous motivational profile. Specifically, they recommended allowing teachers to choose which professional learning activities to participate in according to their unique needs to encourage autonomy, and providing more frequent opportunities for colleagues to interact informally.

Wagner and French (2010) used SDT as a framework for examining early childhood teachers' motivations for participating in professional development and subsequently changing

their classroom practice. They found a positive correlation between teachers' feelings of autonomy in the workplace and motivation to participate in professional development. Additionally, having support from administrators and strong relationships with coworkers predicted higher levels of intrinsic motivation among the teachers. The researchers noted that teachers who indicated they participated in the professional development solely because it was a requirement (either for recertification or because of a supervisor's mandate) had lower levels of intrinsic motivation to participate. And perhaps most significantly, they found that teachers who saw positive changes in students as a result of implementing what they learned in the PD were highly intrinsically motivated to continue with the professional learning. The researchers theorize that this finding can be attributed to the feelings of competence among these teachers, which SDT proposes is a key component of intrinsic motivation.

There are several studies from non-education related fields that may also provide useful insights about human motivation (as seen through a SDT lens) that may be applied to planning teacher professional development. Because the three needs central to the theory (competence, relatedness, and autonomy) are universal, according to Deci and Ryan (2000), they can apply in any context. Gagne and Deci (2005) used SDT as a theory of general work motivation and theorized, based on their examination of SDT research in varying contexts, that when a workplace acknowledges and attempts to meet these three basic needs, employees' motivation will be enhanced. They further postulated that providing an environment that supports autonomy, relatedness, and competence will lead employees to greater levels of job performance (including fostering more creativity and flexibility in their thinking), increased satisfaction with their work, more positive attitudes, greater commitment to the organization, and a greater sense of well-

being at work. In the same vein, Baard, Deci, and Ryan (2004) affirmed that having their needs for autonomy, competence, and relatedness met served as a predictor of higher levels of work performance and well-being for employees.

In their study of employees' motivation for online learning, Roca and Gagne (2008) contended that an autonomy supportive environment is associated with higher levels of engagement and performance in this realm as well. They also found employees need to feel competent in a task in order to be highly motivated to complete it. This was an important consideration for the design of an online component to professional learning at JRMS, for the school is using a new online learning platform this year with which many teachers are unfamiliar. Similarly, in a study assessing work self-determination of 398 professors at a large French-Canadian university, Fernet, Guay, and Senecal (2004) found that professors who felt a higher sense of control over their jobs had lower feelings of personal exhaustion and higher feelings of personal accomplishment.

The degree to which a teacher feels autonomous can have an impact on her students. There have been few studies examining the connection between teachers' autonomous motivations and the autonomous motivations of their students, and Roth, Assor, Kanat-Maymon, and Kaplan (2007) sought to address this gap in the literature with a quantitative study of 132 Israeli elementary teachers and their 1,255 students. They postulated that teachers' perceptions of their autonomy were positively correlated with feelings of satisfaction and negatively correlated with feelings of exhaustion. Further, they found support for their hypothesis that teachers who have autonomous motivations promote students' autonomous motivations for learning. Because an autonomy-supportive environment for teachers can foster a more

autonomy-supportive environment for students, the researchers note the negative byproduct of high-stakes testing is creating teaching environments that include pressure from administration to teach in a highly controlling way, which runs contrary to most teachers' instincts about what is best for children. Echoing back to Bandura's (1998) work on moral agency, the researchers cautioned that if the divide between what a teacher believes and what she is required to do is too great, this may cause her to feel angry, bitter, and enervated, affective states that could ultimately influence her to leave teaching altogether (Roth et al., 2007).

Based on suggestions from the literature, this intervention sought to provide teacher autonomy in the way that they implement the new concepts taught in the professional development, and the overall goal of the intervention was to help teachers grow in their sense of competence as teachers. In addition, teachers were provided opportunities to expand their relatedness, both in the small-group professional development classes that they attended and in the follow up professional learning community sessions led by coaches. These were opportunities for teachers to share ideas about what works in their classrooms and support each other in their endeavors to become more knowledgeable about how students think and learn. Further, they were given an opportunity to interact online with each other and use new learning through the professional development webpage that was tailored for this course and accessible to all teachers.

Expectancy-Value Theory

Another theory that was useful in examining teacher motivation at JRMS was expectancy- value theory (EVT). Expectancy-value theorists argue that the tasks an individual

chooses to engage in, the degree to which he persists with the tasks, and how well he performs on the tasks depends upon whether he believes he will do well on the task and the degree to which he finds value in the task (Wigfield & Eccles, 2000). Further, these two motivational constructs are balanced with perceived cost of engaging in the task, where if the anticipated cost outweighs the perceived task value, motivation to engage in said task is diminished (Wigfield, 1994; Wigfield & Eccles, 2000; Eccles & Wigfield, 2002).

While Eccles and Wigfield initially studied this model in the context of student math achievement, it has subsequently been applied more widely in various educational and professional settings. "Expectation of success" (Wigfield & Eccles, 2000, p. 69) echoes the work of Bandura (1997) and Pajares (1996) on efficacy beliefs, and Wigfield and Eccles themselves draw parallels between their expectancy construct and Bandura's efficacy expectation construct (Wigfield & Eccles, 2000). With regard to this study's intervention, teachers at JRMS would need to have reasonably high expectancy beliefs that they can indeed succeed in this intervention in order to be motivated to participate. Wigfield and Eccles (2000) found commonalities between their theory and Deci and Ryan's self-determination theory (1985), which also acknowledges a person's need to feel competent in a particular area in order to feel motivated. But perhaps the portion of EVT that is most useful in describing teacher motivation is subjective task value, which is broken down into four segments: attainment value (how might I find more career success after learning this information?) intrinsic value (how will completing this task help me grow personally?), utility value (how useful will this information be to me?) and cost (what will I have to give up in exchange for this?)

Fives and Buehl (2014) found EVT helpful in understanding teachers' value for teaching knowledge, and this may aid those planning opportunities for professional development. They posit that while sense of efficacy beliefs are helpful in determining a teacher's expectation of whether or not she can successfully implement learning in a given area, EVT speaks to the degree to which a teacher finds the knowledge or task important enough to engage with. If a teacher does not find the learning useful, even though he may be confident in his ability to implement it in the classroom, he will not bother to do so. Likewise, Patrick & Pintrich (2001) suggest that higher levels of interest (value) among teachers lead to greater levels of engagement in and reflection on their learning. Clearly, attention to teachers' value regarding new learning should be a consideration of professional learning opportunities for them.

Thomson and Turner (2015) investigated the literature and found that studies examining in-service teachers' motivation to participate in professional development scant, so in response conducted a study of the motivation of 151 Oklahoma K-12 teachers participating in a one-week professional development program. Called the Great Expectations Programme, it was developed with the purpose of training teachers to promote positive, student-centered classrooms and help increase students' "knowledge, self-esteem, and social competencies" (p. 583). The researchers found that teachers' expectation for success as well as utility and intrinsic value were the greatest motivators for them to participate in professional development, and concluded that those teachers who participated in a professional development program because of their desire to grow as a teacher, or intrinsic motivation, found the greatest value in participation. They concluded that changes in teachers' practice are more likely to occur in the context of meaningful, authentic professional development.

To illustrate the importance of expectancy-value theory to understanding teacher motivation, Battle and Looney (2014) examined the relationship between "teachers' knowledge of development and valuing of teaching" (p. 373) in light of EVT among 46 secondary school teachers at a mid-Atlantic university. They found that there was a significant positive correlation between teachers' feelings of "intrinsic attainment" and "utility task value" for teaching and their intent to remain in the profession (p. 373). Conversely, higher perceived costs (both financial and emotional) were negatively associated with a teacher's intent to stay.

Abrami, Poulsen, and Chambers (2004) revealed in their quantitative study of 933 teachers in primary, secondary, and post-secondary schools that teachers who believed in their ability to implement a reform in the classroom (in this case, cooperative learning) and who also believed that their particular context was favorable for this implementation were more likely to implement the reform. Looking at specific teachers' expectancies for success, predicted cost, and perceived value of the reform, the researchers were able to account for more than 40% of the variance in the extent to which teachers were able to successfully use cooperative learning in their classrooms. In suggestions for future research, Abrami et al. (2004) offered that in order for an educational reform to achieve long-term success and teachers to sustain their belief in the value of the reform, follow-up training is necessary.

Foley (2011) found connections in her research between self-efficacy and the "expectancy" in expectancy-value theory (p. 199) and pointed out that Bandura and Locke (2003) asserted that considering self-efficacy enhances the prognostic component of expectancy-value theory. Foley (2011) used expectancy-value theory as a lens through which to study K-3

teachers' degree of implementation of a reform effort- reading comprehension strategies instruction (CSI). Specifically, she found that the higher a teacher's expectancy and the more she values CSI, the more motivated she was to implement it in her classroom. Thus, there was a correlation between a teacher's expectancy-value and willingness to implement reform.

In light of the findings on EVT in the literature, it was clear the intervention must directly connected to teachers' values while at the same time having the lowest cost (in terms of time and energy) possible. That is to say, teachers needed to view the PD as worth their time and effort, and they had to be given opportunities to see helpful change in their classrooms as a result of it.

Attribution Theory

Weiner's attribution theory (1985) concerns the explanations that people create in response to their achievement (or lack thereof). His theoretical framework for attribution is widely used in psychological research today and I found it helpful in understanding JRMS teachers. Weiner's theory stated that attributions are best predicted by their three essential characteristics: locus of control (internal, i.e. "I am smart" vs. external, "I had bad luck"), controllability (was the event within my control or not?), and stability (does the cause change over time?) Further, Weiner stated that there are four attributional factors: effort, task difficulty, luck, and ability (Weiner, 1985). The attributions a person ascribes to a situation can affect his motivation to engage the same or similar tasks in the future, and can be influenced by his level of self-esteem or in this case, job satisfaction. The following emotions play a large part in determining a person's attributions and, by extension, their future behavior: self-worth, hope, pity, anger, shame, and guilt (Weiner, 1986). Examining JRMS teachers' attributions regarding

successes and failures in the classroom was necessary if we were to understand their motivations for engaging in opportunities for professional growth.

According to Weiner, after an outcome is observed, a person makes a judgment regarding the reasons for the outcome. It is important to note that causal attributions may or may not be an accurate reflection of reality, for these judgments are based on various bits of personal information such as previous experiences, degree of self-esteem, emotions, and expectancies for success. For example, if a teacher who feels confident about her teaching abilities due to previous positive feedback from administrators and students receives an evaluation from her administrator indicating a "needs improvement" in a particular area, she is likely to take it in stride and attribute that low evaluation score to having had an off day, whereas a teacher who has not experienced much success and has gotten multiple negative evaluations in the past may be more likely to attribute the low evaluation to external factors, such as a belief that the principal is out to get him, or that the evaluation instrument is unfair. Teachers who are confident in their abilities (high sense of efficacy) tend to take setbacks with stride, whereas those who are not tend to point the finger at others when troubles arise. Thomson and Turner (2015) asserted that teachers who report a low sense of efficacy tend to place blame for student struggles on external factors (parents, the system, society) rather than accepting responsibility for student learning. Those who make internal causal attributions are predicted to be more successful over time. Clearly, causal attributions can be useful to consider when analyzing teacher behaviors and motivation and as Gibbs and Miller (2014) proposed, understanding teachers' causal attributions and efficacy beliefs is an essential first step in providing support to them.

To date, there has been no research done on attribution theory in the context of teacher professional development. Mahmoodi-Shahrebabaki (2015) found that most research on attribution theory and teachers is focused on classroom management and student misbehavior. In a descriptive phenomenological study of nine English language teachers in Iran, Mahmoodi-Shahrebabaki sought to expand the breadth of attribution research by examining the attributions for emotional burnout in these teachers because a teacher's emotional state can heavily influence student behaviors and performance. In the study, Mahmoodi-Shahrebabaki found that teachers mostly attributed stress and emotional issues to external factors, namely, low income, self-esteem demotion (not feeling appreciated by administrators), excessive workload, and poor working conditions (lack of access to resources). Those internal attributions that were made included teaching capabilities, such as lack of knowledge in pedagogical principles and classroom management, and personal traits, such as difficulty adapting to change or high anxiety. The researcher suggests, based on conversations with study participants, that school leaders could do the following to decrease teacher burnout and turnover: increase salary, provide more autonomy and empowerment, provide emotional support, and create a more balanced workload. And to mitigate internal agents of burnout, they can provide training and support in self-reflection strategies and offer opportunities to consult with more experienced colleagues.

Wang, Hall, & Rahimi (2015) examined the literature and found that teachers most often attribute student misbehavior and lack of academic success to student-related factors, which would mean they are out of the teacher's locus of control. Additionally, though they found little research in North American schools regarding teachers' attributions for teaching-related stress, they found studies from China, Australia, and Spain that show teachers tend to attribute teaching-

related stress to external factors, such as government policy. In their study of 523 primary, secondary, and junior college instructors in Canada, the researchers used multiple questionnaires to measure teachers' self-efficacy, psychological adjustment, illness symptoms, and quitting intentions, along with causal attributions for occupational stress in an attempt to find connections between teachers' sense of efficacy, work-related attributions, health, and job satisfaction. They noted that teachers who felt job stressors were personally controllable (internal attributions) reported lower emotional exhaustion, higher job satisfaction, better health, and lower likelihood of quitting, and asserted that personally controllable attributions have benefits even beyond those of teachers' self-efficacy. It is thus paramount to consider both constructs in examinations of teacher well being, according to the researchers.

Winter & Butzon (2009) used attribution theory in their examination of common educator language and attitudes to look at the ways in which teacher and principal attributions explain student achievement. They noted that educators all too often make external attributions for the lack of student success in the classroom falling into three distinct categories: it's the students' fault, the parents' fault, or it's the fault of the test/standard/curriculum. They found these attributions to be maladaptive and not rooted in reality, for their review of the research revealed that the success or failure of a school is more closely tied to instruction than to poverty or any other factor. They bemoaned the excuses educators give for student failures and the blame that they place on others for factors that are actually shown by research to be within their control.

Though there may be limited empirical evidence tying attribution theory to teachers' professional development and growth, the literature that exists served to inform the design of the

study and interpretation of results. Namely, attribution theory was useful in attempting to understand teachers' misconceptions that arose during professional development sessions (such as- "I can't do anything to motivate those kids" or "My standard class will never be able to learn"). It was essential to understand JRMS teachers' current, maladaptive attributions before attempting to facilitate positive and fruitful conceptual change. In addition, attribution theory was also used as a lens to interpret the qualitative study data.

CHAPTER 3: METHODS, PROCEDURES, AND RATIONALE FOR DESIGN

Introduction

The goal of this quasi-experimental study was to design and implement a professional development and coaching support intervention with the aim of increasing JRMS teachers' sense of efficacy for engaging and motivating even the most difficult students. This chapter begins with a more detailed examination of the problem, context, and participants as well as the goals and outcomes for the study. To follow, the components of the intervention will be delineated and empirical rationale for the content and design of the professional development will be provided. Finally, there will be an examination of the instrumentation and planned data analysis.

Purpose

The purpose of the intervention was to increase JRMS teachers' understanding of research-based motivational theories as well as the science behind how student learn in hopes of increasing teachers' sense of efficacy for teaching. The higher a person's perceived efficacy, the more likely he is to set rigorous goals for himself and persist in the face of challenges (Bandura, 1997). Given the high-pressure, high-stakes climate of public schools today, the lack of agency that seems to be prevalent among teachers (Cochran-Smith & Lytle, 2006; Calvert, 2016), and the subordination that the system promotes (Barrett, 2009), it was important to give educators practical tools to improve the way they relate to students and increase confidence in their ability to meet students' needs so that they felt some sense of empowerment, if only behind the closed doors of their classrooms. In short, this study's guiding purpose was to critically examine and

rethink the way professional learning happens at JRMS in order to insure teachers get the support they need to be successful in spite of the many challenges that were illuminated in Chapter 1.

Problem of Practice

Although there is an entire body of research supporting the use of educational psychology principles in the classroom ("Top 20 principles," 2015; Lucariello, Nastasi, Anderman, Dwyer, Ormiston, & Skiba, 2016), most teachers enter the profession having completed just one or two required courses in this discipline, which barely enables them to scratch the surface of such topics as motivation, cognition, and social/emotional context, much less fully grasp their influence on learning. As both a doctoral student in educational psychology and a practicing teacher, it seemed obvious to me that helping teachers understand and embrace the principles of this discipline would be of tremendous benefit to both them and their students alike, for I had found the concepts learned in my coursework to be directly applicable to my classroom, and I had seen an improvement in my practice as a result of my learning. Based on conversations with teachers and administrators over the years, it was clear to me that there was a need for more high-quality professional development and support at the school level focusing on these principles because there was little evidence of sustained training for teachers in the areas that are the very bedrock of effective teaching and learning.

The majority of professional development hours provided to core content teachers (math, science, language arts, and social studies) in the district in which JRMS is located during the 2015-2016 school year seemed to be focused more on how to prepare students for high-stakes testing (in this case, the Florida Standards Assessment) than on principles of teaching and learning. The professional development course offerings available to teachers across the district

in grades 6-8 for semester 2 of the 2015-2016 school year totaled 32 at the time the online catalog was accessed (January 10, 2016). In certain subjects like language arts, teachers were pulled from their classrooms once per quarter and offered professional development hours for helping write district quarterly common assessments. Other subject areas, such as civics, provided teachers with training on how to help students find success on a particular assessment; the three-hour training listed under "social studies instructional methodology" was subtitled "DBQ project refresher for civics teachers", and was aimed at insuring students performed well on quarterly document-based questions (DBQ) assessments. Science teachers were offered a class called "science instructional methodology", which was actually an opportunity for science teachers to be trained on a new software program the district bought to collect and track student science data. The math department seemed to be the outlier among academic disciplines, as it did have eight offerings for the spring semester on a variety of topics such as "algebra academy: polynomial expressions and equations." Though there were several classes that looked as though they were designed to have a meaningful impact on teaching and learning, such as using technology in the classroom and classroom management, they were so short (2-4 hours in duration) that they were unlikely to make a lasting difference in a teacher's practice (Desimone, 2011). Out of the 32 offerings listed for spring semester, only the eight in the math department were content focused. The remaining courses were focused on using district systems such as EdInsight, a student performance data management system, or on writing and planning for common formative assessments in preparation for FSA. It was clear that few opportunities existed that would have a real impact on teachers' core beliefs about teaching and learning or their sense of efficacy for teaching, thereby making a deep and lasting change in their practice.

Research supports the effectiveness of ongoing, focused staff development for improving teacher efficacy and student achievement, so it would seem wise for the district to focus more attention in this realm. Although Guskey (1997) lamented the dearth of research linking professional development to student achievement, researchers in recent years have begun to make these connections. Althauser (2015) found in a two-year study of mathematics teachers that sustained professional development within the school improved teachers' general efficacy and as a result, student achievement in mathematics also improved. To extend the connection between teachers' sense of efficacy and PD, Dixon, Yssel, McConnell, & Hardin (2014) found a positive correlation between hours of professional development on differentiating instruction and teachers' efficacy using the Teachers' Sense of Efficacy Scale *TSES* (Tschannen-Moran & Hoy, 2007) as a measure in their study. And in their examination of mathematics teachers participating in a professional development initiative over the course of two summers, researchers found a significant correlation between participation and an increase in teachers' sense of efficacy (Stevens, Aguirre-Munoz, Harris, Higgins, & Liu, 2013). In light of this research, this intervention sought to fill a gap in teachers' professional learning by targeting their specific challenges and needs.

Participants

The treatment group included 66 middle school teachers at a suburban middle school in Central Florida, Jordan Ridge Middle School, and the comparison group included 70 middle school teachers at a neighboring school in the same district that did not participate in the intervention. The comparison group was selected due to its proximity to the treatment school as well as the similarity of its size and demographics. The following tables describe the

demographics for the students and teachers at both the treatment school and the comparison school.

Table 1: Treatment vs. Comparison Group Teacher Education Level

Education Level	Treatment Group Number	Comparison Group Number	Treatment Group Percentage	Comparison Group Percentage
Bachelor's Degree	35	40	53.7	60.3
Master's Degree	29	26	43.3	34.3
Specialist Degree	0	2	0	2.7
Doctorate	2	2	3	2.7
Total	66	70	100	100

Table 2: Treatment Group Student Demographics

Racial/Ethnic Group	Female	Male	Percentage of School
White	395	411	69
Black or African American	50	48	8.4
Hispanic/Latino	90	97	16
Asian	21	21	3.6
Native Hawaiian/Pacific Islander	--	--	--
American Indian or Alaska Native	--	--	--
Two or More Races	14	17	2.7
Disabled	53	100	13.1
Economically Disadvantaged	149	177	27.9
ELL	21	34	4.7
Female	574		49.1
Male		594	50.9

Note. Populations denoted by -- are too small to be considered statistically significant.

Table 3: Comparison Group Student Demographics

Racial/Ethnic Group	Female	Male	Percentage of School
White	439	472	72.9
Black or African American	32	44	6.1
Hispanic/Latino	97	89	14.9
Asian	19	21	3.2
Native Hawaiian/Pacific Islander	--	--	--
American Indian or Alaska Native	--	--	--
Two or More Races	21	12	2.6
Disabled	71	96	13.4
Economically Disadvantaged	167	176	27.4
ELL	--	--	--
Female	611		48.9
Male		639	51.1

Note. Populations denoted by -- are too small to be considered statistically significant. ("School, District, and State Public Accountability Report," 2013).

Goals and Outcomes

It was important to identify specific goals and outcomes for this intervention that would serve as a guide for its design and implementation. Based on evidence from the literature as well as conversations with teachers and administrators, I determined that by the end of the intervention, JRMS teachers should be able to:

- Identify their core beliefs about teaching and learning
- Recognize key educational psychology principles from APA's "Top 20" publication

- Integrate some of these principles into their practice
- Collaborate with others to improve teaching and learning at JRMS
- Increase their sense of efficacy for motivating challenging students
- Increase their sense of efficacy for designing and implementing engaging, meaningful lessons
- Acknowledge connections between their relationships with students and student achievement
- Analyze the effectiveness of their professional practice

Needs Assessment

Administering a needs survey to teachers at JRMS in August helped identify two general areas of focus for the year (see Appendix C). Because there are myriad educational psychology topics from which to choose, the focus had to be selected on the basis of what topics were most relevant to the teachers at JRMS. Studies have shown that in order to elicit change in a teacher's practice, the content of professional development should be as narrowly focused as possible (Mizell, 2007), so it was clear that attempting to cover too much material in this intervention would leave teachers feeling overwhelmed.

After searching the literature, I ultimately looked at two sources to determine the most current and germane educational psychology topics (Hoy, 2016; "Top 20 principles," 2015). The Hoy text was selected because it is the most widely used introduction to educational psychology text among colleges and universities today. The APA Top 20 Principles for Educators was born of a collaboration among leaders in varying areas of psychology who came together to determine the psychological constructs that have the greatest impact on the classroom and make

recommendations for how educators can interpret these concepts to improve teaching and learning in their classrooms. From these resources, I narrowed the list to five possible topics with input from the school's administrative team and a group of seven teacher-leaders assembled by the administrative team in a brainstorming session in April of 2015. These five topics taken directly from the APA Top 20 document were presented to the faculty: 1) How do students think and learn? 2) What motivates students? 3) Why are social context, interpersonal relationships, and emotional well-being important 4) How can the classroom best be managed? 5) How can teachers assess student progress? ("Top 20 Principles", 2015).

Using these questions, a survey was designed and distributed to teachers electronically. Our leadership team had suspected in the brainstorming session that motivation would be of greatest concern to our colleagues, and the results of the survey confirmed that suspicion. On the survey, teachers were asked to rank the five topics according to their areas of greatest need or interest (see Appendix C). Forty-two teachers responded, and as suspected, "What motivates students?" received the highest mean score at 3.52, with "How do students think and learn?" being second with 3.17. Thus, it was determined that these would be the most valuable topics around which to design this intervention. The final item on the survey was open response: "If you have questions, comments, or suggestions regarding this year's professional development, please feel free to share here." Seven teachers responded to this, and six out of the seven responses indicated that they viewed this opportunity favorably (i.e. "Thank you for taking this on. I know I will benefit from it.") The lone negative respondent stated, "None interest me." Because all of the other open-ended responses were favorable, it was likely that the positive

responses represented the sentiment of the majority of teachers. This seemed to indicate that the majority of teachers would be receptive to this intervention.

Rationale for Content of PD

With the focus narrowed, the most salient topics within the constructs of how students think and learn and how to motivate them were selected based on multiple criteria:

1) The frequency of their occurrence in the literature
2) The frequency of their occurrence in popular online educational resources such as KQED's Mind/Shift
3) Anecdotal feedback from administration regarding areas of need among faculty (based on their observations)
4) Informal conversations with teachers

In addition, an anonymous questionnaire was given to participants in the first PD class to assess teachers' prior knowledge of certain educational psychology principles (see Appendix F). The final topics selected included:

What motivates students?

- Conditions that foster motivation to learn
- Self-determination theory
- Effects of teacher expectations on student learning
- Mastery vs. performance goals*
- Intrinsic vs. extrinsic motivation*
- Growth vs. fixed mindset
- Using goal setting to enhance motivation*

How do students think and learn?

- Essentials for long-term knowledge retention: practice and feedback*
- Cognitive Load Theory*
- Vygotsky's Zone of Proximal Development
- Supporting transfer of knowledge and skills across contexts

(Note: topics followed by * were made available through online modules only due to limited face-to-face time.)

Overview of Research on Professional Development Design

There are many decidedly non-scientific lists of "best practices" in professional development floating around in periodicals aimed at educators, and it would be tempting to use one of those lists as a guide for designing this intervention. However, researchers have found that though there are some helpful suggestions out there, there is no evidence that there is one set of "best practices" that is applicable to all professional development in all contexts, and that there has been little evidence that professional development leaders in this country have made a conscious effort to use research to guide decision making (Guskey 2002, 2003; Intrator & Kunzman, 2007; Desimone, 2009; Desimone, Porter, Garet, Yoon, & Birman, 2002). So rather than using one of these lists, I used research on effective professional development by the most respected scholars in the field to inform decisions regarding design and implementation of this intervention.

Much of the professional development that has historically been available to educators has proven ineffective because it may be lacking one of the elements key to success: time, leadership, collaboration, and attention to uniqueness of context (Guskey, 2009). Because most

of these elements were in place at JRMS, the intervention had a better chance for success than in one lacking these elements. Guskey (1991) also suggested five evidence-based guidelines for success in his article on improving professional learning for teachers: think big but start small; work together in groups; allow opportunities for feedback on results; acknowledge that change happens individually; and insure ongoing support and follow-up to the learning. Because these guidelines made good sense, I used them to guide the design of this intervention. "Think big and start small" in particular captures the overarching philosophy behind its conception. Previous efforts at top-down teacher development reform have not met with much success, so this intervention was designed to try to elicit teacher change at just one school and if successful, it could be shared on a broader scale.

Change is often uncomfortable for teachers, and being confronted with information that contradicts their beliefs can be perceived as threatening (Guskey, 1991; Gregoire, 2003). A teacher's practice cannot be transformed overnight, as change is a gradual and continuous process. This is why individuals needed time and space for reflection, discussion, and feedback and advice from colleagues and coaches in order to feel supported in their efforts to improve their practice.

The National Staff Development Council's 2009 study noted that effective professional development should be continuous and directly linked with practice, aligned with the goals and mission of the school and district, supportive of teacher collaboration, and focused on learning and curriculum (Darling-Hammond et.al, 2009). In a similar vein, Desimone (2011) found in her review of research on professional development that most effective professional development is designed with attention to these common features: active learning, content focus, coherence,

duration, and collective participation. These guidelines were at the forefront of my mind while designing this intervention, and I was careful to interpret them for our unique context. Active learning means that teachers should not have to "sit and get" like they did in so many previous professional development classes. Instead they would be given opportunities to participate in making meaning of their learning by sharing with each other and giving and receiving feedback. Because the intent of this intervention was to encourage teachers to adopt more student-centered, responsive classrooms, the format of the PD classes was student-centered and interactive so that teachers experience the type of pedagogical theories they were being taught. Content focus means that teachers should be able to see how the learning directly relates to their content. Because the PD classes were taught by grade level and department during teachers' common planning periods, the instruction was tailored to each group so that they could more easily make connections between theory and practice. Coherence means that what teachers are learning should not contradict what they've been taught in other district PDs, but instead should be consistent with the district's goals and policies. Because I had worked in the district for eight years, I was well aware of district initiatives that were in place currently and those that have been mandated over the years, and I was mindful that what was taught during these PD sessions did not undermine or contradict the district's goals and policies. Duration refers to length of time dedicated to the PD; research shows (Desimone, 2011) for maximum effectiveness, teachers need 20 hours or more of contact time. Teachers in this intervention were actively engaged in six hours of face-to-face PD classes. As a follow up, teachers were offered the chance to extend their learning during Professional Learning Community (PLC) time, led by teachers and coaches on a voluntary basis, as well as work individually with coaches as needed. The PD website I set

up (see Appendix G) was also a communication tool through which teachers were able to increase contact hours with each other and extend the learning, as there were ten optional, one-hour modules on the website which teachers were permitted to work through at their own pace. And finally, collective participation invites teachers who share a common grade level or subject to come together as a community to learn and grow. Because the initial PD classes were held according to grade level and subject, and follow-up activities took place through teachers' PLCs, we already had these natural structures in place to insure collective participation.

To elicit change in teachers' beliefs, however, professional development classes are not enough. Guskey (2002) offered a model of teacher change related to professional development that proposed teachers' beliefs only change after they see new concepts implemented successfully in their classroom (as measured by improved student outcomes). According to Guskey's (2002) model, teachers have to see it to believe it; without tangible results, there will be no change in their beliefs. It was not possible for academic teachers to see long-term student learning outcomes during this school year, because results for the test measuring student achievement in the state, the Florida Standards Assessment, will not be published until the summer of 2016. But certainly teachers should have been able to see a change in both their students' motivation and their self-efficacy for teaching as a result of implementing some of the concepts taught in the professional development classes, and should have also been able to see improvements in student performance on classroom assessments. This is because all of the instruction, while research-based, was also meant to be immediately implementable in the classroom, and this ideology dictated the PD's content design.

In order for their sense of efficacy to improve, teachers must be provided mastery opportunities, time to observe successful peers, verbal encouragement, and a supportive, low anxiety environment (Bandura, 1977), and the administration at JRMS was committed to providing time and resources for the instructional coaches to facilitate this. In fact, they expanded the number of instructional coaches at JRMS for the 2015-2016 school year from three to five because they viewed coaching as a priority.

Tschannen-Moran and Hoy (2007) found that neither novice nor experienced teachers look to administrators as a source for efficacy determinations. Novice teachers in particular rely on collaboration, verbal persuasion, and other resources for their judgments of self-efficacy. Therefore, an emphasis on support and collaboration among teachers and coaches and less involvement from administrators was key. Lee, Dedrick, and Smith (1991) found that a cohesive sense of community among teachers has the greatest influence on teachers' perceived efficacy, and creating that was a central focus of this intervention. In addition to small-group PD classes each month, another way to foster the sense of community was by having teachers participate in online discussions with the opportunity to share experiences and ideas using the PD website I had set up. Because teachers from different departments and grade levels have few opportunities to interact, they are rarely able to learn from each other. The website was designed to remedy that with opportunities for discussion between all teachers at JRMS.

Given that the CAMCC was the lens through which this intervention was examined, I gave particular consideration to the conditions Gregoire (2003) proposed as critical for eliciting teacher belief change as I designed both the face-to-face and online PD opportunities (see Figure 1). To begin, it was essential when presenting the "reform message" (in this case, new

information about how children learn and how to motivate them) that the PD would "implicate the self" of teachers; that is, teachers must feel that this new learning speaks to their specific needs and situation and addresses a problem of practice with which they struggle. If the dissonance between the new paradigm (i.e. new learning about motivational theories) conflicts with the teacher's previous, flawed paradigm, this could create an appropriate stress appraisal that would motivate them to continue attempts at processing the message. If motivation is strong for processing the new learning and teachers also feel they have the ability to implement the new learning, they are likely to appraise the new learning as a challenge. If they do not feel as though they have the ability to implement, even if it makes sense to them, they will view it as a threat and proceed along a path that includes avoidance intentions and eventually will lead to heuristic processing, resulting in either superficial belief change or no belief change, neither of which supports the goals of this intervention. Thus, it was essential to provide conditions within the PD framework as well as through coaching support that would encourage teachers' willingness to remain open to new learning and further, systematically process the learning in order to bring about accommodation of their beliefs and true conceptual change (Gregoire, 2003).

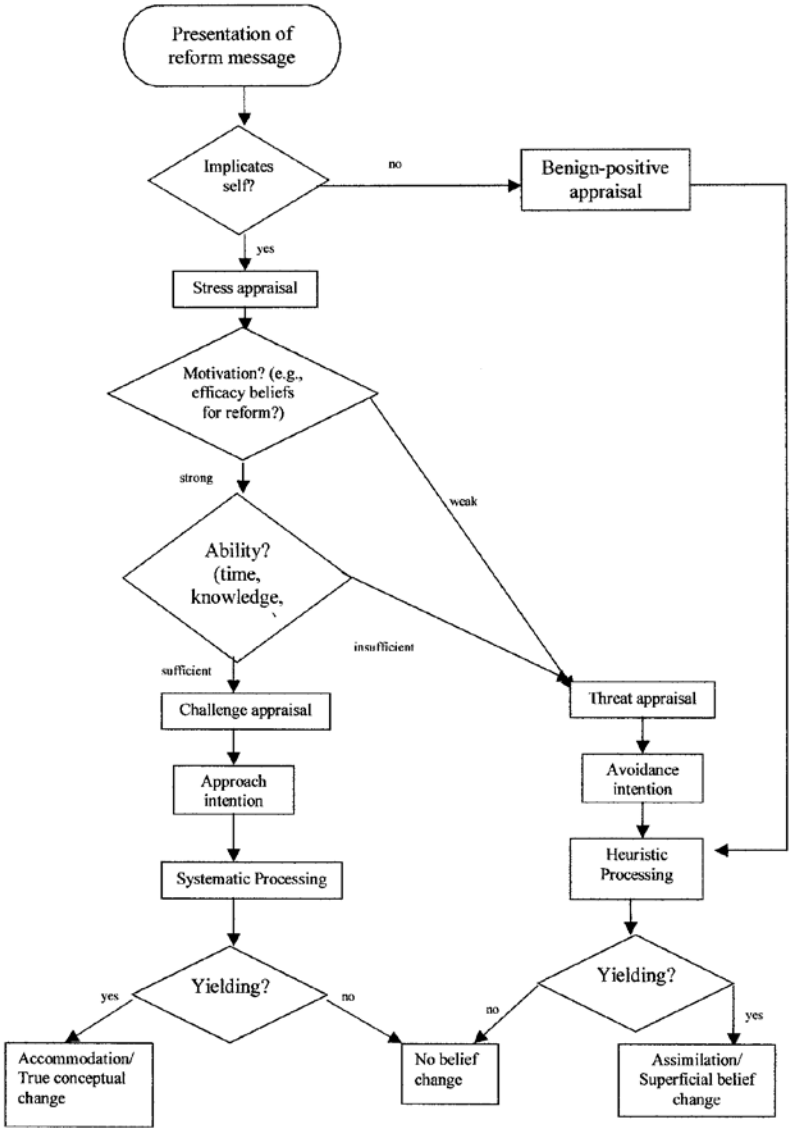


Figure 1: Gregoire's (2003) Cognitive-Affective Model of Conceptual Change

Because teachers' motivational orientations are a critical component of the CAMCC, I used self-determination theory, expectancy-value theory, and attribution theory in designing the intervention. Deci and Ryan (2013) proposed in their self-determination theory of motivation

that people need to feel a sense of autonomy, competence, and relatedness to remain optimally motivated. Teachers were given choices at every step of this intervention. First, teachers were encouraged but not required to attend the face-to-face classes and also had a choice in how to implement the learning in their classrooms, if at all. They had freedom to choose whether to participate in the optional online learning modules and were able to work at their own pace on any modules that were of interest. Working with coaches was optional as well. My goal was simply to insure the resources were available so they could use them as needed. The main role of the coaches was to support teachers' need for competence in implementing new learning. If a teacher felt unsure about her ability to use a new technique in the classroom, coaches were available to model, teach side-by-side, or observe and give feedback. Finally, opportunities for discussion and collaboration in face-to-face classes as well as online discussion boards were offered to foster a sense of relatedness among the faculty.

In their expectancy-value theory, Eccles and Wigfield (2002) stated that in order for a person to be willing to participate in an initiative, the benefit must outweigh the cost and his expectations for success must also be reasonably high. I was careful to select content for both the online and face-to-face classes that was practical and easily implementable in any classroom so that teachers would feel the time spent on learning was worthwhile. Also, having the coaching supports in place gave teachers who needed extra help the scaffolding they needed to implement the new learning so that they could feel more optimistic about their potential for success.

Attribution theory (Weiner, 2010) was useful in understanding how teachers interpret success or failures in their classrooms and how this colors their openness to new learning. For

example, if a teacher holds the belief that her students are unmotivated to learn because the parents are not involved, that attribution is likely to make her unwilling to learn new techniques to motivate and reach the students because she feels, "What's the use? He will never learn because his parents don't make him do homework." In light of this, teachers were given the opportunity to discuss their classroom challenges so that maladaptive beliefs could be brought to light and alternative ways of thinking and responding to challenges could be proposed by both me and their colleagues.

Design of Face-to-Face Classes

The professional development series began by asking teachers to reflect on their beliefs about teaching and learning in a small group session. It was critical to take time for this because as Gill, Ashton, & Algina (2004) found, the process for changing teacher beliefs must begin with making them cognizant of their pre-existing beliefs and then providing "sound, logical argument" (p. 180) to refute those that are not based on evidence in order to cause cognitive dissonance. The remainder of the classes focused on topics related to motivation and cognition. Each session lasted anywhere from 45 to 80 minutes, depending on the time available that month. Some months, the classes were held on Tuesdays or Fridays during teachers' 48-minute planning periods; during other months, they were held on block days during the 90-minute planning period. I taught all the classes and each followed much the same format: introductory question to generate interest in the topic and activate prior knowledge; brief lecture highlighting the most recent research on the topic; small-group discussion in grade level/subject area teams about the challenges teachers have had with that particular topic; whole-class discussion regarding possible solutions to the challenges teachers face; and time for personal reflection to

make meaning of the learning. Further, teachers were given a handout at the end of each session with practical suggestions for how to implement the new learning in their classrooms, and there were follow-up articles and videos available online if they were interested in learning more. I was careful to approach each session not from the perspective of being the all-knowing authority, but instead as a facilitator who offered teachers new ways of thinking about teaching and learning based on empirical evidence, and then provided opportunities for them to collaborate with each other to troubleshoot challenges and expand their understanding of that particular topic. I worked hard to provide an atmosphere that supported the notion that as teachers, we're all in this together; we all have expertise and can all learn from each other's struggles and triumphs.

Design of Online Component

Because the implementation of the face-to-face classes was pushed back and condensed due to district demands for faculty meetings to review new rules and procedures as well as district-mandated technology professional development, it was evident that the online component would have to be expanded as an attempt to fill in the gaps. Therefore, eleven online modules were created. Some were extensions of topics covered in the face-to-face classes: self-determination theory; effects of teacher expectations on student learning; growth vs. fixed mindset; Vygotsky's Zone of Proximal Development; and supporting transfer of knowledge and skills across contexts. Others were stand-alone modules that included content that we were unable to cover face-to-face: goal orientation; student-teacher relationships; intrinsic vs. extrinsic motivation; tools for scaffolding learning; essentials for long-term knowledge retention;

and cognitive load theory. To get an overview of the types of learning contained in the online modules, please refer to the website screenshots in Appendix F.

Evidence suggests that online learning can be an effective way to deliver professional development and that it should not be viewed as a second-rate form of instruction. Surrette and Johnson (2015) found in their meta-analysis that online learning has been shown to effectively provide opportunities for teacher collaboration, active learning, and connection to content, all hallmarks of Desimone's (2011) framework. What is missing, according to the researchers, is evidence of online professional development meeting teachers' needs for coherence and duration of their learning (as outlined by Desimone's 2011 article). I hoped that this study would contribute to this gap in the literature by including both coherence and sustained duration within the PD model.

Coaching Support

At JRMS there is one full-time instructional coach, Kathy, whose primary function is to support district literacy initiatives to assist struggling readers. But she also spends much of her time coaching teachers one-on-one and in PLC groups. There are also four other teachers who work part-time as coaches, one with three periods of coaching per day (Lynette) and the three others with one period of coaching per day (Emily, Kristen, and Lucy). At the end of each professional development class, teachers were given the opportunity to provide written feedback about that month's topic and also to indicate interest in receiving coaching support with implementing the learning. The goal was for this to be a non-threatening way for teachers to ask for help in implementing new teaching methods, where they do not necessarily have to indicate that they are struggling but instead can say, "Hey, that is an interesting idea and I would like to

try it in my class." The coaches were available to support them in that endeavor as needed. Coaches kept a weekly log throughout the year indicating the number of hours they spent with each teacher that they were required to submit to the principal. To be clear, it was beyond my authority to dictate the specifics of how coaches supported teachers this year--the amount of time they spent with them and in what capacity. The role of JRMS coaches is to assist teachers with content-area issues, classroom management, and anything instructionally they might be struggling with. While they spent time on a variety of tasks with teachers this year, they also lent support to many of them on the topics that were covered in the PD classes, i.e. student motivation and scaffolding learning. Coaches attended all face-to-face PD sessions and also spent time using resources on our online learning platform to extend their learning so that we would all be on the same page with these educational psychology principles and they could better support teachers in implementing them. Though it was not possible for me to be involved in the day-to-day activities of the coaches during the year, I examined coaches' logs at the time of final data collection and tallied the number of hours spent with each teacher to see if there might be a correlation between the number of hours a teacher spent with a coach and that teacher's sense of efficacy.

Instrumentation

Quantitative Measure

The long form of the Teachers' Sense of Efficacy Scale *TSES* (Tschannen-Moran & Hoy, 2007) was adapted as a pre- and post- measure to rate teachers' sense of efficacy in the classroom in order to answer the primary research question: How do professional learning and

coaching influence JRMS teachers' efficacy judgments, if at all? The TSES was designed to assess teachers' beliefs in their capabilities regarding instructional strategies, student engagement, and classroom management (Tschannen-Moran, n.d.). Because the intervention was not specifically focused on classroom management strategies, only the 16 items on the TSES that assessed teachers' beliefs about instructional strategies and student engagement were used. Then, 17 questions were constructed in the same style as the original, using information taken directly from the APA Top 20 document ("Top 20 Principles," 2015) that was covered in the PD opportunities. Cronbach's Alpha was calculated to assess the instrument's reliability and was found to be .96, indicating a high level of reliability. The individual item statistics also reflect consistency in the reliability of individual items.

The adapted TSES was also administered to teachers at a neighboring school with similar demographics that did not participate in this intervention, and the findings from the two schools were compared in an attempt to determine the intervention's effectiveness. Though the pre-survey was also administered to the comparison school, the response rate was too small to be considered statistically significant. So for the post-survey, I made the responses anonymous for the comparison school because I suspected based on the previous low response rate that the faculty there did not feel comfortable giving such personal information to a stranger.

The survey contained three parts. Part A, demographic information, gathered information on name, age, gender, ethnicity, subject(s) taught, level of education, degree in education, and years of teaching experience. Part B contained the 33 adapted TSES Likert items (see Appendices C and D). Part C consisted of open-ended questions. The questions differed between the pre- and post-survey at JRMS and between the post-surveys at JRMS and the

comparison school. The open-ended question on the pre-survey at JRMS was: What other information would you like to add that might help us understand the challenges you face as an educator? On the post-survey at JRMS, three open-ended questions were included that were designed to get a sense of teachers' attributions (Weiner, 2010) for their difficulties this year as well as the strengths and weaknesses of the professional development opportunities that were provided. The questions were: 1) What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges? 2) What have you found most helpful about the professional development opportunities you've had this year? and 3) If you could customize your own professional learning next year, what would it look like?

The open-ended post-survey questions for the comparison school survey differed slightly. Question one was the same as the first question on the JRMS survey, as I wanted to get a sense of these teachers' attributions for their successes and failures to see if there were any common themes that arose between the two schools that might indicate systemic challenges rather than school-specific challenges. The second question was different because teachers at the comparison school had not participated in a site-based PD as JRMS teachers had, and I used the answers to both the second and third questions to get a sense of how teachers felt about their professional development opportunities and what their needs were for the future. The questions were: 1) What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges? 2) What types of professional development activities have you been able to participate in at your school this year? and 3) If you could customize your own professional learning next year, what would it look like?

Qualitative Measures

In addition, data was collected at the end of every professional development session in the form of a questionnaire that was completed either on paper or on the professional learning website. The purpose of this questionnaire was twofold: it informed instruction, allowing me to make adjustments before the next face-to-face class, and it also indicated the level of understanding and enthusiasm teachers have for that month's topic. Perhaps more importantly, the answers revealed whether or not teachers felt they had the tools to implement these new ideas. If the feedback from a class was not favorable, that would indicate that re-teaching and further extension was needed in the online component as well as from the coaches (for individuals who indicated a willingness to invite coaches into the classroom.)

Data Collection

Data collection using the adapted TSES survey happened twice: first prior to the PD classes beginning, between October 5st and October 15th, and then at the conclusion of the treatment, between April 6th and April 16th. Formative, qualitative data was also collected at the end of every face-to-face and online professional development session.

Data Analysis

A dependent measures T-test was used to examine the differences between the mean pre- and post-survey scores at JRMS, while an independent samples T-test was used to examine the differences between the mean scores of teachers at JRMS and the comparison group. Additionally, a Pearson correlation was examined to look for relationships between JRMS teachers' sense of efficacy and the following variables: age, education, years of experience,

hours participating in online PD, and hours participating in coaching. Finally, a calculation to determine Cohen's *d* (effect size) was run on the JRMS pre- and post- survey means. The open responses at the end of each survey were examined for prominent themes and coded, as were the reflections that teachers completed at the end of each PD session.

Summary

This study used a quasi-experimental design to assess the effectiveness of a professional development and coaching intervention on teachers' sense of efficacy at JRMS. The primary source of data was the modified Teachers' Sense of Efficacy Scale, which was used as a pre- and post- test measure and was also administered as a post-test to a nearby school to serve as a comparison. Open response questions at the end of each survey were used as ancillary sources of information which served to further illuminate teachers' challenges as well as their professional development-related needs and preferences. Additionally, qualitative, formative data collected at the end of each monthly face-to-face PD informed the intervention's design and interpretation.

CHAPTER 4: RESULTS

Introduction

The purpose of this study was to design and implement a professional development and coaching intervention at Jordan Ridge Middle School focused on theories of learning and motivation in hopes of increasing teachers' sense of efficacy for reaching even the most challenging students. Because the administration wished for all teachers to be given the opportunity to participate in this intervention, there was no control group available at JRMS. Therefore, I used teachers at a neighboring school to serve as the comparison group. Teachers at JRMS were given a pre- and post-survey to measure sense of efficacy, and teachers at the comparison school were given the same post-survey. Sixty-four teachers participated in this intervention at JRMS, and twenty-eight of them (44%) completed both pre-and post-surveys and thus were considered part of the sample for the efficacy measure. Twenty-three teachers at the comparison school (33% of the population) also completed the post-survey. In this chapter, I will examine how both the quantitative and qualitative data served to answer the five research questions as well as how the open survey responses illuminated common themes among teachers at both schools related to teachers' current challenges and instructional needs.

Reflection on Professional Development Implementation

Anecdotally, the responses I got to the professional development implementation this year were overwhelmingly favorable. Teachers and administrators expressed thanks to me both verbally and in writing numerous times throughout the school year and indicated that they found the learning valuable and the format refreshing. The general tone of our face-to-face classes was

positive, with teachers being willing to discuss challenges and concerns candidly and actively participating in class discussions and learning activities. Often, teachers would stop me in the hallway to discuss how they were using something they learned from our PD with their students, and when they found online resources that related to something we had discussed in our face-to-face classes, many would send it to me to share with others. There was also concrete evidence of implementation of the learning in teachers' classrooms. For example, one ESE teacher created an interactive "growth mindset" mural on her wall for her students to use after our PD class on growth mindset. In short, being the professional learning facilitator at JRMS was a positive and gratifying experience and left me feeling optimistic about JRMS teachers' willingness to learn and grow.

Data Analysis

To measure teachers' sense of efficacy and teachers' sentiments about professional learning opportunities, an online survey containing both a 33-item Likert scale and between 1 and 3 open-ended responses was sent to all teachers at JRMS as a pre- and post-test measure (Appendices D and E). Twenty-eight teachers responded to both the pre- and post- surveys (44%), and responses were used to measure changes in teachers' sense of efficacy from the beginning of the intervention to the end. To gather comparative data, the survey was sent to teachers at a neighboring school with similar demographics as a post-test measure, as this school did not participate in the intervention or any type of organized, site-based PD. A total of twenty-three teachers at the comparison school responded to the survey (33% of the population).

Demographic Data of Survey Respondents

Demographic data was collected on all survey respondents at both JRMS and the comparison school to see if there were any differences in teachers' sense of efficacy among gender, age, years of experience, subject taught, and having a degree in education vs. alternative certification. Primarily, I examined differences in years of teaching experience because that is the only demographic data point that has been shown by the literature to be a contributing factor to teachers' sense of efficacy, as mastery experiences (Bandura, 2003) are the most powerful way to build one's sense of efficacy.

Table 4: Years of Teaching Experience for JRMS and Comparison School

	Mean	Standard Deviation	Range
JRMS	13.42	10.01	37
Comparison	15.30	10.09	36

On the whole, respondents at the comparison school were more experienced than those at JRMS (see Table 4) and as predicted, efficacy beliefs were higher in the sample of teachers with greater experience. Of the survey respondents at JRMS, 37% had five years of teaching experience or fewer, with three being first year teachers (10%). Just over a third (39%) of teachers had fifteen years of experience or more, whereas at the comparison school, 17% of teachers had five years of service or fewer, with only one respondent being a first-year teacher. Nearly half the respondents there (42%) had fifteen or more years of experience. Female respondents at JRMS (78%) outnumbered male respondents (22%), which is fairly representative of the school's overall teacher demographics. Similar to JRMS, females at the comparison school outnumbered male respondents, but here the sample was much more heavily weighted

female, with just 4% being male. The subjects taught among JRMS respondents breaks down in the following manner: social studies (21%), English/language arts (11%), reading (2%), electives (16%), math (8%), science (11%), and exceptional student education (25%). The subjects taught by teachers at the comparison school included: 22% ELA, 17% social studies, 8% electives, 22% math, 13% science, and 8% ESE. Nineteen of the JRMS respondents (68%) had a degree in education, while the remainder (32%) attained certification through alternative routes. The vast majority of respondents at the comparison school had a degree in education (72%), with just 28% being alternatively certified.

Descriptive Statistics for Survey Data on Teachers' Efficacy Beliefs

The survey instrument used in this study was a modified version of the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran, n.d.). It was designed to gauge teachers' sense of efficacy for teaching even the most challenging students. The following sections delineate the statistical analysis of the survey results, revealing pre- and post- survey means of the treatment group and post-survey means of the both the treatment and comparison group.

Comparison of Pre-Post Means at JRMS

A dependent samples *t*-test was run to determine differences in pre- and post- survey means at JRMS and the results are presented in Tables 5 and 6.

Table 5: Mean Scores for Teachers' Sense of Efficacy Beliefs at JRMS

	N	Mean	Std. Deviation	Std. Error Mean
Pre-Survey Mean	28	6.6537	1.01976	.19272
Post-Survey Mean	28	7.0559	1.09549	.20703

Table 6: Hypothesis Testing for Differences Between JRMS Pre-Post Survey Scores

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	Df	Sig. (1 tailed)
				Lower	Upper			
Pre- and Post-survey means JRMS	-.40	.99	.19	-.78	-.02	-2.16	27	.02

As hypothesized, the results showed that there was a statistically significant difference JRMS teachers' efficacy scores from the pre-survey to the post-survey; t (27) = -2.157, p = .02. The effect size was calculated to be 0.41, which indicates a medium **e**ffect according to Cohen's criteria.

Comparison of Post-Survey Means

An independent-samples *t*-test was conducted to compare the post-survey means for the treatment and comparison groups, as illustrated in Tables 7 and 8.

Table 7: Mean Scores for JRMS and Comparison Teachers' Efficacy Beliefs

	School	N	Mean	SD	Std. Error Mean
Post-survey means	JRMS	28	7.0559	1.09549	.20703
	Comparison	23	6.8752	.67026	.13976

Table 8: Hypothesis Testing for Differences Between JRMS and Comparison Survey

	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Post-survey means	3.0	.09	.69	49	.49	.18	.26	-.34	.71

Though the mean post-survey score for JRMS was higher than that of the comparison school, there was no significant difference between the scores for JRMS and the comparison; $t(49) = .69$, $p = .493$. Levene's test indicated equality of variances ($p = .088$) between scores of JRMS and the comparison school.

Table 9: Regression of Online Learning Variables on JRMS Teachers' Sense of Efficacy

Variable		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.728	1.303		2.093	.048
	Pretest	.659	.184	.608	3.573	.002
	Total time online	-.003	.041	-.014	-.081	.936
	Module credit hrs	-.002	.140	-.002	-.014	.989

A regression was run to determine if time teachers spent learning online was a predictor of their sense of efficacy. Neither result was statistically significant: Total time online, t = -.081, p = .936; and online module credit hours, t= -.081, p= .989 (see Table 9).

Further, Pearson product-moment correlation coefficients were computed to assess the relationship between time spent in online learning, number of online credit hours, and number of coaching hours and the following variables: mean pre- and post-test scores, age, experience, and education. Table 10 summarizes the results, which show that there was no relationship between time spent online, number of online credit hours, number of coaching hours and any of the variables.

Table 10: Correlations for Time Online, Credit Hours, Coaching Hours, Education, and Experience

Variable	Total Time Online	Module Credit Hrs	Coaching Hours	Education	Experience
Pre-Survey Means	.054	-.056	-0.27	-.291	.094
Post-Survey Means	.018	-.040	-.088	.236	.216
Total Time Online	1	.250	-.012	.016	-.138
Module Credit Hours	.250	1	.115	.312	-.035
Coaching Hours	-.012	.115	1	-.040	-.345
Education	.016	.312	-.040	1	.217
Experience	-.138	-.035	-.345	.217	1

Note. None of the values were significant at the $p \leq .05$ level.

Analysis of Results in Relation to Research Questions

Research Question 1

To what degree are JRMS teachers willing to participate in available professional learning?

To answer this question, I kept a record of all teachers' attendance (N=64) at face-to-face sessions as well as number of hours they spent in online learning and number of credit hours they earned from online modules. Participation in the monthly face-to-face PD sessions was encouraged by administration but not mandated. Despite its not being a requirement, the mean hours attended by teachers was 5.13 out of 6, or 86% of sessions offered, and those who had to miss almost always notified me in advance of their absence and asked for opportunities for makeup sessions either face-to-face or online.

Like the face-to-face classes, participation in online learning was optional. Teachers could earn 1 in-service point for completing each online module, with a total of 11 points available. The state of Florida requires teachers to earn 120 in-service points every five years for recertification, so for some teachers whose certification was up for renewal soon, the option to earn in-service points was an attractive incentive for participation in online learning. For other teachers, having access to current, research-based articles and resources that might help them overcome classroom challenges was an incentive. In the end, the mean number of hours participants spent in online modules was 4.92 (as tracked by software that keeps a log of the hours a participant spends on the site). It was evident that teachers spent more time browsing resources in the modules than completing the online learning activities required to receive in-

service points, as the mean for number of in-service points (hours) earned by completing learning activities was just 2.83, or 26% of those available. In some cases, the number of hours spent online was vastly greater than the number of credit hours earned. For example, Participant 40 logged 23 hours online but earned just 2 credit hours for completing modules. The greatest number of hours a teacher spent online was 23, with the least being 0; both the median and the mode were 3. The greatest number of credits received was 6 with the least being 0; the median was 2.5 and the mode 3.

The second open response question on the JRMS survey was "What have you found most helpful about the professional development opportunities you've had this year?" The purpose of this question was to gain insight into the factors that might influence teachers' current and future participation in professional learning. I examined all the responses to this question intending to sort them into multiple categories and noticed that all responses could be placed into just two categories. First, teachers generally seemed to feel that the learning was valuable. Out of all responses (n=39), 87% specifically mentioned in their answers that they felt the material was of use to them in the classroom. For example, Mr. J said, "I loved learning about how kids learn. I was able to implement several strategies in my own classroom (autonomy, higher expectations), and I have witnessed great improvement. I feel that this professional development showed some really amazing teaching strategies and encouraged teachers to focus on the kids, not the grades." Ms. H indicated "the material itself has challenged me to up my game with all of my students. I have already incorporated several of the topics/strategies learned in PD." Ms. Y said she was glad to have "hands on practices that I can use day of" while Mr. M opined, "I thought the research based information was well thought out and we were able to interact with the

information in order to process [it]." The other most common response to this question was that teachers appreciated having opportunities during their learning time to discuss and problem solve together with colleagues, with this being mentioned by 67% of participants. Ms. J felt that the classes were "a chance to discuss and feel supported by others with the same concerns." Ms. C liked that "it's been a positive interaction with our peers which has provided me with some new ideas and ways of thinking." Ms. P stated that she liked how the learning "gave us time to collaborate with others and reflect on our own teaching." Ms. S shared that "it's nice together and have conversations with other teachers and learn about strategies that work as well as learn new applications that can help in our classrooms." Finally, Ms. W expressed, "The things that I find most useful are our discussions and how we all seem to be 'on the same page' or feeling the same way. We can celebrate together or cry together!"

Research Question 2

How do professional learning and coaching influence JRMS teachers' efficacy judgments, if at all?

The hypothesis guiding this study was that there would be an increase in JRMS teachers' sense of efficacy for teaching after being provided targeted professional development and coaching support. If this intervention were successful, there should have been an increase in JRMS teachers' sense of efficacy as measured by the pre- and post-survey (n=28). As mentioned in the previous section on descriptive statistics (Tables 5 and 6), there was a statistically significant, medium effect size increase in teachers' sense of efficacy from the pre-survey to the post-survey. There will be a more detailed discussion of these findings presented in Chapter 5.

Research Question 3

What are some of the challenges that JRMS teachers face which affect teaching and learning in their classrooms?

The first open response question on the JRMS post-survey was "What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges?" and was designed to answer research question #3. In reviewing the answers, I highlighted key words and phrases that were mentioned repeatedly, and these became the themes that were examined. Prominent themes are listed in Table 11 in order from the most frequently mentioned to least.

Table 11: Frequency of JRMS Survey Responses- Teacher Challenges

Theme	Frequency
Time	15
Discipline and behavior	8
Student engagement and motivation	8
Inflexible instructional plan	5
Other student- attributed causes (i.e. deficiencies in prior knowledge, lack of accountability, disabilities, no parental support)	5

Note. N=39

The response cited most frequently as the source of teachers' challenges (38% of responses) was time. This was not surprising, as this is a universal struggle for teachers. In the

case of JRMS teachers, there were two challenges with time that were frequently mentioned. The first was not having enough time to teach deeply because of pressure to cover all the standards in a timely manner. Ms. Z summed it up this way: "I feel that I have very little time to teach the content to the depth that I want to - mainly because of the timing of 9 week exams. Certain material MUST be covered by a certain time. It leaves very little time for review, reteaching or enrichment." Ms. K shared that a challenge for her is "pacing because it is mandated to cover so many standards in a school year. It would be wonderful to have more time to delve deeper into the skill so the skill transfers to other settings." The second most frequently cited time challenge was teachers' inability to complete all required tasks during contracted hours. The majority of JRMS teachers often come to work early and stay late and regularly take work home, which leaves many of them exhausted. Especially for those teachers who are new to the profession and thus paid much less than veteran teachers with advanced degrees, it can sometimes feel as though they are not being fairly compensated given the number of hours they work each week, which can be disheartening.

Student engagement and behavior were also among the most frequently cited causes of classroom challenges for JRMS teachers (with each being mentioned by 21% of respondents). While these are common problems for many teachers, quite a few JRMS teachers attributed low student engagement and motivation and off-task behaviors to the poor quality of the instructional plan (IP) that they felt obligated to follow. As Ms. M said, "The instructional plan that was originally designed to help teachers teach is actually hindering student learning. Teachers are not trusted when it comes to creativity and designing lessons and activities that promote student engagement." Speaking with teachers and administrators at JRMS, it seemed there was some

confusion about whether following the district-created instructional plan was a mandate or an option. It appeared from the number of teachers citing this as a challenge that they felt following the IP was an expectation.

When the comparison school's teachers answered the same survey question- "What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges?" there were some common threads that were immediately obvious but there were also a few striking differences. The responses were coded and emerging themes examined, which are listed in Table 12 in order according to the frequency of their appearance.

Table 12: Frequency of Comparison School Survey Responses- Teacher Challenges

Theme	Frequency
Time	7
Excessive district/school paperwork and requirements	6
Inflexible instructional plan	5
Pressures from administration	5
Discipline and behavior	3
Student engagement/motivation	3

Note. N=23

As expected, teachers at the comparison school listed time as their greatest challenge (30% of responses) just as JRMS teachers had, both in having enough time to get through the curriculum and in having time to complete daily required tasks. For example, comparison school teacher A listed "too many meetings scheduled before, during, and after school" as a time

constraint, while teacher B felt "The lesson pacing is far too fast for the capabilities of the students." These responses echoed the survey responses of several JRMS teachers. And like JRMS teachers, teachers at the comparison school listed such challenges as the inflexible instructional plan (22%) and student issues including behavior (13%) and engagement/ motivation (13%). Teacher C said his greatest challenge was being restricted to using "framework lessons that are boring and/or not relevant to the real world," which may perhaps be one of the reasons teachers find it challenging to engage and motivate students. Likewise, teacher D said her biggest challenge is "providing time for practice of new skills when our Instructional Plan has us teaching a new skill every day. This plan covers too many new benchmarks, and makes it close to impossible to give struggling students varied opportunities to learn, and little time to process, then apply new concepts. I feel like my hands are tied as I try to cover material required for each End of Quarter exam." Interestingly, the phrase "my hands are tied" was repeated several times by teachers at both JRMS and the comparison school in describing their perceived need to adhere to the district's instructional plan.

While there were many similarities between survey responses of teachers at the comparison school and those at JRMS, responses diverged on two topics. First, many at the comparison school listed excessive paperwork as one of their greatest challenges (26%), which JRMS teachers had not explicitly mentioned. Teacher E noted, "More and more is asked from us…written reflections, data collection, written justification of every 0 in the grade book and interventions applied. All take time (unpaid) and keep me from using my time more productivly [sic] for things that will directly affect student learning." It is noteworthy that though teachers at both schools work for the same district and are thus under the same guidelines for grading,

evaluation, and appropriate differentiation of instruction, the perceptions of these guidelines at each school is markedly different.

Second, teachers at the comparison school listed pressures from administration as a challenge (22%), which teachers at JRMS did not cite. For example, Mr. B said the administration "[does] not seem to understand the complexities of what I teach, how I teach, or how I manage my classroom." It is clear that though administrators at both schools follow the same district instructional model and evaluate teachers using the same guidelines, the perception of administrative support differs between the two campuses.

Research Question 4

To what extent are JRMS teachers taking advantage of available coaching support?

To answer the question, I examined the logs of each instructional coach from August 10, 2015 to March 31, 2016. Because the logs were completed on a form provided by the district, all followed the same format (Appendix H). Logs included details about how the coach spent her time and were organized into eight categories: teacher support, professional development, coaching cycle, student assessment and data, meetings, knowledge building, planning, and other. When looking at the coaching logs, I recorded only the hours that fell into two categories: teacher support and coaching cycle. Specifically, I looked at time spent working with the teacher on improving instruction (both individually and with PLCs), planning for instruction, modeling or observing instruction in the classroom, and follow-up debriefing sessions between the coach and teacher(s). All other logged hours were disregarded for the purposes of this study. The total number of hours JRMS teachers (n=48) participated in coaching was 550, with the mean being 11.46 and standard deviation 10.60. The median was 9 and the mode 1.

As expected, the teachers who were least experienced engaged in the largest number of coaching hours; the seven teachers with 0-3 years of experience logged a total of 163 hours between them, with the mean being 23.29 hours per novice teacher. On the other hand, the teachers with the most experience (25 or more years) participated in the fewest number of coaching hours, with the mean being 1.33 for the four most experienced teachers.

Nearly half the total coaching hours (250) were centered on just two departments: English/language arts (ELA) with a total of 133 hours and a mean of 14.8 (n=9), and reading with a total of 117 hours and a mean of 39 (N=3). On the opposite end, exceptional student education (ESE) teachers (n=5) logged an average of 5 hours; while science teachers (n=6) logged an average of 10.17 hours; electives teachers (n=11) an average of 9.5 hours; math teachers (n=3) an average of 9 hours; and social studies teachers (n=6) an average of 6 hours.

Pearson product-moment correlation coefficient was computed to assess the relationship between coaching hours and mean post-survey scores of those who participated both in the post-survey and coaching (Table 9). There was no correlation between coaching hours and scores on the post-survey. A possible reason for this could be that 29% of participants did not engage in coaching at all, while 32% of the participants logged five or fewer hours with coaches. That means only 39% of participants spent significant amounts of time with coaches (more than five hours) throughout the year.

Though coaches' logs were full and it was clear that they were quite busy, it is worth noting that the percentage of time they spent actually working with teachers was small (an estimated 30% of total time available.) Most of their time was spent on other duties such as attending meetings, returning emails, disseminating information, or completing other district-

required tasks. Only one of the coaches' logs was regularly filled with evidence of engaging in the coaching cycle with numerous teachers; the others seemed hit-or-miss regarding the time spent with teachers. That is, a coach might meet with various teachers once or twice but there was scant evidence of following the prescribed coaching cycle from beginning to end.

Research Question 5

Did the intervention change teachers' attributions and beliefs about student learning?

At the end of the first face-to-face class, I asked teachers to answer several questions regarding their beliefs about teaching and learning to try and tease out what misconceptions they might have so that I could address them in our PD classes. One of the questions was: "Can a person's IQ change over time? Explain." In written responses, nearly half of teachers (48%) stated that they believe a person's intelligence is strictly an inborn trait and cannot be modified, while several others (19%) were not sure. Mr. P stated, "…one's IQ should never change throughout their lifetime" while Ms. A said, "Achievement changes. Intelligence (cognition) does not." Ms. R believed, "Their motivation can change, but not their ability to learn," as did Ms. C, who shared, "I don't think so because an IQ is a measure of someone's intelligence quotient not their ability to learn." But after a subsequent class on growth mindset, many teachers' written responses to the question, "What is something you found valuable about the learning on growth mindset?" revealed a shift in previous conceptualizations about the nature of intelligence. In fact, of the 42 teachers who participated in the class on growth mindset, 33 wrote reflections that indicated some degree of conceptual change (79%). To discern responses that showed conceptual change from those that simply regurgitated the concepts learned, I included only those responses that indicated positive feelings about the learning and/or detailed how they

planned to use the new learning with students. For example, Ms. T said, "Wow- I love the idea that intelligence is not fixed! My favorite suggestion was to work on the type of praise we give our students. Instead of saying, 'you are so smart' we should focus on praising how the student is going about solving that task. I'm going to focus on giving good praise in the classroom." Mr. J put it this way, "The idea of using 'not yet' is a really inspired idea. It lends itself to promoting a positive feeling that although you don't understand the idea now, you have the potential to and you will if you persevere through the struggle. I think that the more students understand that struggling is OK and that everyone struggles because it is a part of growing, it will be more likely that I will be able to connect with more of my student and help guide them through that process." Ms. D took it a step further to explain how she planned to implement the new learning: "I appreciate seeing the ideas to use in our own classrooms. I am thinking of printing out a huge YET to place on my wall so that I can refer to it when I hear students getting down on themselves about a test grade or a problem they are working on in group work. YET means that they haven't gotten it, but that they deserve to recognize that they haven't given up."

There was further evidence of shifts in teachers' beliefs in online discussions as well as acknowledgement of their obligation to create a more optimal learning environment. For example, after our class on Vygotsky's zone of proximal development, Ms. C wrote, "This discussion on ZPD really hits home as we face our last DBQ [document-based question essay] when we return from spring break… I realize now that my afternoon classes need a bit more scaffolding than my morning classes, so I am going to try to give them more time and a more explicit graphic organizer this time around. I am also going to have them clarify vocabulary on each document, not just the background essay. Hopefully that will lead to more

comprehension." After a class on the importance of positive student-teacher relationships, Ms. R said, "I found that the list of recommendations [on improving student-teacher relationships] to be very useful. It showed me some of the areas that I need to work on in my interactions with students. It is very easy for us to simply follow what other teachers tell us about a student, and not form our own opinions." Similarly, Mr. L shared, "In today's discussion it helped me to hear the story about the subconscious messages we may send to our students. This really made me think; do I unknowingly communicate lesser expectations to certain students because of behavioral issues? I am looking forward to trying the techniques in this module and I know the student that I am going to try it with; I am looking forward to hopefully seeing some good results!"

In the process of identifying changes in beliefs, I also examined teachers' attributions for classroom challenges in answers to this question on the post-survey: "What are some of your biggest challenges as a teacher at JRMS?" The fact that teachers overwhelmingly listed time as their greatest challenge (a ubiquitous struggle for teachers everywhere) rather than student- or parent-related causes seems to point to JRMS teachers having more adaptive attributions. That is, if the vast majority of teachers listed lack of parent support or students who do not come to school ready to learn as their greatest challenge, this would point to their attributing classroom issues to others (parents and students) and therefore not taking responsibility for student learning. From responses like this one by Mr. K, "TIME! The pacing leaves little wiggle room to explore more creative options," it may be inferred that teachers most likely know what to do to create better learning environments but find the time constraints which bind them to hinder optimal teaching, an attribution that is based on facts, not misconceptions. Anecdotally, I also found in

monthly conversations with teachers during PD classes that there was a subtle shift in our conversations over time. Whereas in our first few sessions many teachers blamed issues with students on others and seemed to communicate a sense of helplessness (i.e. "He's just not motivated to learn and I don't know what to do with him" or "Her parents are not very supportive"), discussions in later sessions focused more on problem solving and reflected more willingness to take responsibility for student learning.

Summary

This chapter delineated quantitative results from the pre- and post- survey at JRMS as well as the post-survey results from the comparison school. Additionally, it included qualitative data gathered from survey open responses and end-of-class reflections that served to highlight and explain some of the quantitative findings. The following chapter will offer a more in-depth discussion of results, including analysis of findings in relation to the literature on conceptual change theory, self-efficacy theory, and motivational theories discussed in Chapter 2.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

Introduction

The purpose of this quasi-experimental study was to provide PD and coaching support to JRMS teachers in hopes of increasing their sense of efficacy for reaching even the most difficult students. A survey that included 33 Likert items and 1 to 3 open responses was used as a pre- and post- measure at JRMS as well as a post-measure at a comparison school, and the data were analyzed to determine what effect the intervention had on JRMS teachers' sense of efficacy. Five research questions and one hypothesis were used to guide the study and subsequent data analysis. Ancillary data that included logs of hours teachers spent in face-to-face and online learning as well as instructional coaching were also used to illuminate the degree to which JRMS teachers are taking advantage of available supports that were put in place to increase their sense of efficacy. This chapter will begin by discussing the findings for each research question in relation to the review of the literature. To follow, there will be an examination of the study's limitations, recommendations and implications of the findings for the organization, and recommendations for future research.

Findings in Relation to Research Questions

Research Question 1

To what degree are JRMS teachers willing to participate in available professional learning?

In analyzing the number of hours teachers participated in professional learning this year at JRMS, it was evident that teachers were more willing (or able) to engage in face-to-face learning than online learning. Teachers at JRMS attended an average of 83% of face-to-face classes, earning one point for each class, but completed only an average of 25% of available online modules. However, teachers did spend more time in learning modules than they received credit for, as the number of hours logged by online learning software was in most cases greater than the number of credit hours earned by completing modules. This suggests that teachers may have found some of the learning materials useful but lacked the time to complete the assignments required for credit. Additionally, this was the first year that JRMS has used this online learning platform, and many teachers were still unsure how to use all its features as they have been provided minimal training. Though they were shown in one of the face-to-face classes how to access online learning, lack of confidence about how to properly use the software likely kept some teachers from accessing the online materials. I am hopeful that as they become more comfortable with the online system, teachers will be more inclined to use the online learning modules in the future.

Perhaps one of the most revealing pieces of feedback regarding this intervention was the survey response from Ms. L, illuminating an effect of the PD that was not my primary focus in planning but seemed to be at the heart of its success: "I have felt I have had a voice." It seemed that participation in the learning offered JRMS teachers a sense of agency. Bandura (2006) proposed that there are four components to human agency: intentionality (setting goals and working towards them), forethought (anticipating the future and using it to behave more deliberately), self-reactiveness (regulating one's own behavior) and self-reflectiveness (reflecting

on and making meaning of experiences). This intervention was intentionally designed to support teacher agency by facilitating activities such as goal setting and reflection, helping them recognize how their own behaviors can influence the classroom either positively or negatively, and encouraging them to be more deliberate in both their planning and interactions with students.

This study sought to change teachers' conceptualizations about their ability to reach even the most challenging students. Teachers' motivational orientations were among the most important considerations in planning the intervention, as motivation is one of the key factors that affect likelihood of conceptual change (Gregoire, 2003). Teachers' favorable responses to participating in professional learning this year can most likely be attributable to several motivational considerations. In order to maintain optimal motivational levels, people have innate needs for autonomy, competence, and relatedness (Gagne, Deci, & Ryan, 2013). Research demonstrates that teachers who are given opportunities for autonomy and relatedness in professional learning are more likely to implement the learning in their classrooms (Gorozidis & Papaioannou, 2014; Jansen in de Wal, den Brok, Hooijer, Martens, and van den Beemt, 2014). The fact that teachers were given a choice regarding whether and how to participate in the learning supported their need for autonomy, while both the face-to-face and online discussion components supported their need for relatedness. And each lesson was designed to give them a takeaway that they could use in their classrooms to increase their sense of efficacy (competence) for teaching even the most difficult students.

Likewise, the degree to which teachers find value in the learning versus the perceived cost of the learning (in this case, time) can affect motivation to participate (Wigfield & Eccles, 2000; Thomson & Turner, 2015). The high participation rate of the face-to-face learning, with

participants attending 83% of classes offered, may indicate the degree to which the value of the learning was greater than the perceived cost. On the other hand, the lower participation in online learning modules (25% completion rate among participants) seems to reflect that the cost (time) was greater than the perceived value of the learning. JRMS teachers listed time as their number one challenge on the survey; as Mr. P stated, he regularly had trouble "finding time to lesson plan…" so it stands to reason that fitting in something extra beyond assigned duties would be difficult for teachers. Additionally, those teachers who lacked confidence in using the online learning system may have had lower expectancies for success with the online modules (Wigfield & Eccles), thus rendering them less motivated to participate.

Research Question 2

How do professional learning and coaching influence JRMS teachers' efficacy judgments, if at all?

The primary purpose of this intervention was to increase JRMS teachers' sense of efficacy for reaching all students. The data showed that there was a statistically significant increase in teachers' sense of efficacy from the beginning of the intervention to the end. There are several key pieces of evidence that point to the likelihood of the intervention playing a role in this increase. Once established, efficacy beliefs of teachers are resistant to change (Hoy & Spero, 2005) unless particular attention is given to supporting the sources of efficacy. Novice teachers can also experience a decrease in efficacy due to the disconnect between their previous, idealistic expectations about what teaching would be like and the shock of the trying realities of the classroom (Hoy & Spero). It seems likely that given these understandings, the average teacher's sense of efficacy (novice or experienced) is unlikely to increase during the course of

one school year without intervention. This lends support for the study's findings of increases in teachers' self-efficacy beliefs from pre to posttest after the professional development sessions and reinforces the findings of previous researchers (Sandholtz & Ringstaff, 2014; Bruce & Ross, 2008; Holtzberger, Philipp, & Kunter, 2013).

It should be noted that sense of efficacy is context-specific (Bandura, 1997). For example, if a teacher transfers to a grade level he finds better suited to his strengths, or if he gets a new group of students that is more intrinsically motivated and comes to school ready to learn, his sense of efficacy for teaching will most likely increase as a result of this change. But if the context remains stable, it is unlikely that changes in efficacy would be attributable to contextual factors. Because study participants' grade level, subject, and students remained generally constant from the beginning of the intervention to the end, it is thus more likely that changes in efficacy can be attributed to the intervention than contextual factors.

Bandura (2003) theorized that sense of efficacy is influenced in four ways: verbal persuasion, modeling, emotional states, and mastery experiences, and attending to these four sources throughout this intervention appears to have been successful. Verbal persuasion was offered to teachers in the form of collaborative discussions (both face-to-face and online) as well as instructional coaching; modeling of effective pedagogical techniques was done both by the instructor in classes and later by instructional coaches; teachers' affective states were attended to by giving them opportunities to verbalize sources of stress and showing them alternative ways of viewing their roles as teachers in a more positive manner; and teachers were given opportunities for mastery experiences by being given research-based techniques that they could immediately implement in their classrooms to improve instruction. Tschannen-Moran and Woolfolk Hoy

(2001) proposed in addition to the four sources listed by Bandura, the school setting and teachers' perception of available resources can also influence teachers' sense of efficacy. Perhaps the positive, collaborative culture that existed at JRMS as well as the multitude of online resources provided to insure teachers' success in implementing new techniques also had a favorable influence on their sense of efficacy.

Interestingly, though teachers' sense of efficacy means measured higher at JRMS than at the comparison school, the result was not statistically significant. This may be attributable to the fact that the sample at the comparison school consisted of much more experienced teachers, with just 17% being considered novice teachers versus 37% of the sample at JRMS. Also, 42% of respondents at the comparison school had fifteen or more years of experience, while only 39% of respondents at JRMS had fifteen or more years of experience. Because the greatest influence on a teacher's sense of efficacy is mastery experiences (Bandura, 2003), it is logical that these teachers who have had more opportunities for mastery experiences would have a higher sense of efficacy than novices, thus accounting for lack of statistical significance in the result (Tschannen-Moran and Woolfolk-Hoy, 2001). Another contributing factor could be that slightly more teachers at the comparison school had degrees in education (72%) than did those at JRMS (68%); this stronger foundation in pedagogy is likely to have had a favorable effect on the comparison school teachers' sense of efficacy.

Research Question 3

What are some of the challenges that JRMS teachers face which affect teaching and learning in their classrooms?

The primary challenge JRMS teachers listed on the survey open response was time, which was previously addressed in the section about teachers' willingness to participate in professional learning. Not having enough time to complete all required tasks has been a struggle for all the dedicated teachers I have ever known. Teachers at JRMS can be seen lugging sacks of papers home for grading on weekends, and often feel behind in lesson planning and grading due to extraneous factors that interfere with their focus on teaching and learning. The teachers who sponsor clubs and coach sports have even less time available to focus on teaching and learning. Administrators at JRMS are better than those at many other schools at viewing teachers' planning time as sacred; they do not require regular faculty meetings and try to disseminate information via email when possible to avoid unnecessary meetings. They have also given teachers flexibility with how to structure PLCs (which are required by the district) and when to meet, something other schools' leaders have not done. It seems as though administration is doing everything they can to give teachers the time they need to complete required tasks. However, short of giving them an extra planning period each day, there is little that school leaders can do to manufacture enough time in a teacher's day to insure that they feel caught up with their duties. This is a problem for which there is not an easy solution.

In addition to time, teachers felt their greatest challenges were student motivation and classroom behaviors. Some teachers still retained the misconception that students' learning challenges should be attributed to students' personal characteristics rather than the influence of

the teacher and thus fail to take responsibility for student learning. This attribution can often influence teachers to be reluctant to embrace changes in their practice (Turner, Warzon, & Christensen, 2011; Winter & Butzon, 2009; Wang, Hall, & Rahimi, 2015; Weiner, 1985). But Mahmoodi-Shahrebabaki (2015) suggested that providing emotional supports, autonomy, and empowerment to teachers would decrease their tendency to make these attributions, thus sparing them frustrations that may lead to burnout and career change. Because this intervention provided these suggested supports, I am optimistic that although a few teachers still found student motivation and behavior a challenge, most have learned new theories and tools that are enabling them to slowly change their practice. Bruce and Ross (2008) found that an intensive peer coaching and professional development intervention shifted participants' instructional practice towards more research-based methods and had a positive effect on teachers' sense of efficacy, and based on the survey results, it appears that this happened with many teachers at JRMS. It is likely that those few teachers who still cling to the maladaptive belief that their classroom frustrations are attributable solely to factors outside their control may retain a lower sense of efficacy than their peers; for research shows that those teachers with a higher sense of efficacy report more success with managing the classroom (Holtzberger, Philipp, & Kunter, 2013).

Finally, teachers listed the rigidity of the instructional plan to which they felt they must adhere to be a challenge. It is unclear the degree to which this perception is true, but forcing teachers to follow a prescribed plan and not allowing them to have a say about how the curriculum is implemented in their classrooms is not supportive of teacher agency. Further, Bandura (2006) suggested that when people engage in practices which conflict with their moral standards, "such conflict will bring self-condemnation" (Bandura, 2006, p. 171). Many teachers

have mentioned that the emphasis on preparation for testing and on the need to cover all the material on the IP at the expense of going deeper conflicts with their closely held beliefs about how students learn and what is good for them developmentally. Calvert (2016) suggested that ways to build teacher agency include sparking intrinsic motivation to learn and treating them as allies, not enemies of the school system. Biesta, Priestley, & Robinson (2015) found that the public schools' emphasis on testing and inspection and the prescriptive curricula that accompany these practices not only fail to support teacher agency, but are also perceived as oppressive by educators. Allowing JRMS teachers to have as much choice as possible in the ways they implement the curricula would be the best way to support their sense of agency.

It is encouraging that JRMS teachers did not list issues with administration as one of their challenges as did the comparison school. This speaks to the supportive, nurturing environment that has been created by the JRMS administrative team, which research has shown can positively influence a school's collective efficacy (Hoy, 2008; Goddard et al., 2015) and thus, the atmosphere of individual classrooms (Bandura, 1993; Pajares, 1996; Hoy & Spero, 2005). Some of the things that JRMS administration did particularly well this year were providing teachers frequent, formal opportunities to collaborate, which is one of the single greatest predictors of teacher efficacy (Lee, Dedrick, & Smith, 1991); offering new teachers opportunities to observe more successful teachers in order to have vicarious experiences, which is also an influence on efficacy (Bandura, 2003); and having member of the administrative team join in during the small-group professional learning sessions to show their support for teachers' growth (Goddard et al., 2015).

Research Question 4

To what extent are JRMS teachers taking advantage of available coaching support?

While the majority of JRMS teachers engaged at least minimally over the course of the year with instructional coaches, 25% of teachers did not participate in coaching at all. Just two departments logged nearly half of the total hours: ELA with the greatest number of hours total, and reading teachers with the second highest number of hours total and also the greatest number of hours individually. On the opposite end, ESE teachers logged the least total hours. This indicates that there are some teachers and even whole departments that are greatly taking advantage of coaching opportunities, but many teachers are either not participating in coaching or are only doing so sporadically. Indeed, several coaches have indicated they found it a challenge to engage teachers in the process at times. One of the tenets of the coaching model is that teachers should invite the coach into their classroom, but teachers are often reticent to admit they are having trouble or ask for help from those outside their department. There may also be a misconception among some teachers that coaches are part of the administrative team and therefore interactions with coaches will be evaluative, and they find that intimidating. But the biggest barrier to expanded coaching support seems to be the time that coaches have to devote to actually working with teachers. Given that they currently spend approximately 70% of their time on other duties as measured by coaching logs, they just do not have enough hours in the day currently to devote to the coaching cycle.

Freeing up coaches' time to work more with teachers would surely have a positive effect on teachers' instruction and their efficacy, for teachers' sense of efficacy cannot increase through professional learning alone. There must be opportunities for follow-up in order to give teachers

the chance to see effective teaching modeled and receive positive verbal persuasion (Bandura, 2003), both keys to their efficacy determinations. Ms. M, who participated in many hours of instructional coaching this year, attested to the positive effect JRMS coaches had on her practice: "I also value my [coaches'] peer observation feedback. The feedback from these observations helps me grow as a teacher." Coaches are well positioned to be able to support teachers instructionally because of their specialized training in this area. They just need for their time to be viewed as sacred by district and school leaders so they can spend more time with teachers.

Research Question 5

Did the intervention change teachers' attributions and beliefs about student learning?

Teachers' beliefs are multi-faceted and can include beliefs about the self, context, content, pedagogy, and students. While the main focus of this study was teachers' sense of efficacy beliefs, it seemed helpful to conduct a cursory examination of teachers' beliefs about student learning to identify possible connections between changes in teachers' beliefs about how students learn and their sense of efficacy for teaching. Beliefs are inextricably linked with knowledge and may be activated through exposure to new situations (in this case, new learning opportunities). In turn, this can influence teachers' understandings and future actions in the classroom. It should also be noted that the degree to which a teacher is able to enact beliefs can be influenced by the school's culture, i.e. being offered opportunities for collaboration and professional learning (Fives & Buehl, 2012).

Fives and Buehl (2012) called for school leaders to identify barriers hindering teachers' enactment of beliefs that may support student learning and also to provide professional

development programs that are strategy-focused and foster a sense of community among participants. Through the collaborative learning opportunities provided JRMS teachers, that is precisely what we sought to do.

Measuring teachers' beliefs can be quite challenging (Fives & Buehl; Gregoire, 2003). In light of this understanding, I decided to take a unique approach to determine what type of belief change happened in JRMS teachers as a result of their participation in this intervention. Because I was spending so much time building community with teachers and attempting to create meaningful learning experiences for them, I felt it would be best to assess their beliefs about teaching and learning as organically as possible in ways that did not feel contrived or disconnected; to that end, I asked them open-ended reflection questions at the end of every class that were designed to encourage metacognition and help them make explicit connections between theory and their own practice in order to "implicate the self" (Gregoire, 2003). What I learned from reading teachers' reflections gave me a broader view of their conceptual change than I believed a quantitative instrument could.

Understanding teachers' existing causal attributions was also an essential first step in providing support to them (Gibbs & Miller, 2014). Some educators have a tendency to attribute student misbehavior and lack of academic success to student-related factors, which would mean they believe these problems to be out of their control (Wang, Hall, & Rahimi, 2015). Also, teachers who have a lower sense of efficacy tend to blame classroom struggles on external factors such as lack of parental involvement rather than taking responsibility for student learning (Thomson & Turner, 2015). Asking teachers questions during the first class helped me better recognize their attributions for student motivation and engagement problems so that I would be

able to design the lessons in ways that would address these issues and pose possible solutions. The reflections at the end of each PD session revealed that many teachers' attributions and beliefs changed on such topics as intelligence and the importance of fostering positive teacher-student relationships, and responses such as that of Ms. V on the post-survey indicated a willingness to take responsibility for teaching and learning in the classroom: "I have learned a lot this year but I know I've still got a lot to learn." Perhaps having developed a higher sense of efficacy over the course of the year helped modify teachers' attributions for student successes and failures in a more adaptive way.

The results of this study support previous findings by Alger (2009) that effective professional learning can elicit changes in teachers' beliefs. Many teachers modified their beliefs about how students learn as a result of this intervention (as measured by their survey responses and end-of-class reflections). Teachers at JRMS seemed hungry for the opportunity to discuss classroom challenges openly, without judgment, and have someone tell them--I have had the same struggles. You are not alone. Let's work together to find better ways to meet these challenges. The fact that I was teaching alongside them seemed to give me credibility and built a level of trust that is not possible to attain when PD is delivered by outside consultants. Overall, based on the survey responses, end-of-class reflections, and verbal feedback from teachers and administrators, it appears the vast majority of teachers found the learning valuable, and that most of them were willing and able to implement at least some of these theories in their classrooms.

Findings in Relation to Theory

One of the biggest barriers to effective teaching and learning at JRMS was that many teachers held misconceptions about how students learn and what motivates them. These misconceptions were causing frustration for both teachers and students and creating learning environments that were less than optimal. I wanted to help teachers find a way to stop blaming classroom challenges on either the system or the students' shortcomings and begin believing that they had the capacity to influence student learning, thus improving their own efficacy determinations. My goal was to offer them professional learning opportunities that would create cognitive dissonance in hopes of eventually leading them to adopt more productive, evidence-based beliefs. But in order for belief change to lead to a change in practice, teachers had to understand how to implement new learning theories (Fives & Buehl, 2012); therefore, all new learning was accompanied by practical suggestions and explicit guidelines for how all teachers could use this learning in their classrooms. Fives and Buehl also offered the following suggestions to foster teacher belief change: give them opportunities to collaborate in creating new belief systems, provide them resources to support belief creation and implementation, and demonstrate how to effectively use educational research to guide practice, and all of these suggestions informed the design of this intervention; in fact, they were critical factors in its success.

In implementing this intervention, I also considered the suggestion from Pintrich et al. (1993) regarding the importance of attending to teachers' perceived locus of control in the process of facilitating belief change. Teachers were given control of their learning, from deciding whether to engage in the learning to choosing which parts of the learning to implement

in the classroom. They were also reminded in each class that by and large, they are the determining factor in their success or failure in the classroom (supporting their sense of having internal locus of control); this knowledge seemed to render them more willing to engage in metacognitive processing necessary to support belief change (Pintrich et al., 1993), as evidenced by the deep levels of self-reflection in monthly end-of-class reflections and survey responses.

The CAMCC developed by Gregoire (2003) was a valuable guide for designing and evaluating this intervention, for it delineated the challenges inherent in nudging conceptual change in teachers and served as a roadmap for potential barriers to conceptual change at each step of the way. The survey I gave teachers during the first face-to-face class allowed me to become aware of some of their flawed paradigms (i.e. students are motivated by grades, or intelligence is fixed). Understanding their flawed paradigms helped me more effectively structure the "reform message" (in this case, new learning theory) so that it would be more likely to be processed deeply (Gregoire, 2003). I organized the learning to offer time for discussion and reflection, thus insuring what Gregoire (2003) described as "implication of the self." And finally, to encourage teachers to remain open to new learning and systematic processing--thus leading to accommodation of their beliefs and true conceptual change (Gregoire, 2003)-- I offered practical, easy-to-implement suggestions along with the new learning, and coaches provided follow up support as needed to mediate possible avoidance intentions.

Attending to the "hot" (emotional) context within which public school teachers currently work was a critical consideration in facilitating teacher belief change (Gregoire, 2003). Due to the high stakes that have been attached to student performance, teachers are under more pressure than ever. In each face-to-face class, attention was given to acknowledging the challenges of the

current public school climate and allowing teachers to discuss their feelings related to these challenges. By having a school leader acknowledge the difficulties inherent in teaching public school today, teachers seemed to feel a sense of agency (as their voices were being heard) and were in turn more open to new learning (Calvert, 2016). Attention was particularly given to the following, which Gregoire (2003) indicated were crucial to eliciting teacher belief change: reforms must make sense, be plausible, and help promote student learning. Perhaps because JRMS teachers could see evidence of the negative byproducts that have arisen from high-stakes testing in their own classrooms (Cochran-Smith & Lytle, 2006; Kinsey, 2006; Smith & Kovacs, 2011; Foley, 2013), they were open to new paradigms that offered solutions to their current challenges, thereby facilitating the process of conceptual change more smoothly. A teacher may also remain open to new learning even in the face of difficulties if she is optimistic about her chance of success in the future (Tschannen-Moran and Woolfolk Hoy, 2001). Though the challenges JHMS face were discussed regularly, an effort was made to keep the tone of all discussions positive and encouraging; I strived to acknowledge the challenges and then remind teachers that they had the power to influence student learning in their own classrooms even in spite of those challenges. In the end, the results of this study echo the findings of Elbert and Crippen (2010), indicating the usefulness of the CAMCC for predicting and assessing conceptual change in teachers engaged in professional development.

Summary

Based on the results of the quantitative portion of the survey, it is evident that having access to both personalized, in-house professional learning and instructional coaching led to conceptual change among some JRMS teachers and had an overall positive influence on teachers' sense of

efficacy. Based on feedback from the open-ended survey responses, the following conclusions were drawn:

1. Challenges for teachers at JRMS are the same as those for teachers in most U.S. public schools. They include time, both to complete all assigned duties and to teach the curriculum adequately; student-related issues such as discipline and motivation; and an instructional plan that feels restrictive and deficient at times.
2. Teachers at JRMS enjoyed the following aspects of the professional learning offered during the 2015-2016 school year: being able to collaborate and interact positively with colleagues, having access to new, evidence-based resources that are easily implementable in the classroom; and feeling as though they had a voice.
3. Based on survey responses, teachers at JRMS would like to see their future professional learning include: opportunities for peer observation, opportunities to meet with others in their discipline beyond their grade level and school, continued choice of professional learning activities, more subject-specific learning, expanded opportunities for online learning that enable them to work at their own pace, and continued small group collaboration in the same vein as this year's professional learning.
4. Teachers at JRMS need expanded instructional support from department colleagues, instructional leaders, and instructional coaches in order to encourage the continued positive development of their efficacy determinations.

Discussion

Participants in this study offered valuable insight regarding how school leaders might restructure teachers' professional learning in order to support improvement in their efficacy determinations. Overall, teachers were quite receptive to this site-embedded model and found value in both the learning itself and the opportunities for collaboration with peers. Because this intervention was the first of its kind at JRMS, I was unsure how teachers would respond to it. My hunch, based on discussions with colleagues and an examination of the literature, was that it would fill a gap in teachers' professional knowledge, but I had no idea until after the study was complete just how receptive teachers would be to this new professional learning format. It is evident that the supportive administrative team and the positive, cooperative culture that existed within the school were critical to the success of this intervention (Hoy, 2008). Based on the data gathered in this study, I compiled a list of recommendations for the consideration of JRMS leaders. Recommendations are organized into three categories, which are as follows:

Coaching

- Coaches should provide more targeted coaching to teachers in subjects other than reading and ELA, particularly ESE, as this department engaged in the fewest mean hours of coaching.
- To increase teachers' sense of efficacy, coaches should continue to model effective instructional techniques in classrooms and provide tools to support teachers' instruction so they will be able gain more mastery experiences (Bandura, 2003). The degree of

follow-up support provided teachers is a critical consideration in their willingness to modify beliefs in response to reform efforts (Abrami et al., 2010).

- In response to teachers' challenges with student discipline, continuing to offer support in planning engaging lessons and helping teachers scaffold learning so that all students may find success will help mitigate some of the behavior issues found in classrooms.

Professional Learning

- JRMS teachers listed student discipline as one of their challenges; most often, discipline issues occur when students are not engaged in the learning because it is either too difficult or too easy for them. Negative teacher-student relationships are also one of the greatest contributing factors to classroom discipline issues. Therefore, providing professional learning on classroom management and how to build positive student-teacher relationships would be an appropriate way to assist teachers who struggle in these areas and would likely decrease discipline problems.
- In response to teachers' ongoing challenges with motivating and engaging students (as revealed in the post-survey responses), professional learning leaders should continue to offer opportunities for teachers to better understand students using different motivational theories and assist them in using research-based methods for planning more engaging lessons.
- Research demonstrates that effective professional development can increase teachers' sense of efficacy (Bruce & Ross, 2008; Karami, 2011; Velthuis, Fisser, & Pieters, 2015). Additionally, the school's culture can influence enactment of teacher beliefs, making

improvements in practice more likely (Fives & Buehl, 2012). To support the continued effort to increase JRMS teachers' efficacy determinations, it would be helpful to designate a professional learning leader to coordinate site-based learning and facilitate a culture of ongoing teacher growth and development. This ideally should be a classroom teacher who is in touch with the current needs of the faculty and devotes a portion of his/her day to planning for and delivering ongoing professional learning. The professional learning leader should also facilitate professional learning opportunities in areas beyond the scope of his/her knowledge by bringing in other experts, either from the staff or outside the school.

- With regard to the format of professional learning, teachers overwhelmingly requested that JRMS retain the same format for monthly professional learning classes in the future. They enjoyed opportunities for small group discussion and collaboration, and therefore, I recommend continuing with this structure.
- Several teachers have indicated a preference for online learning due to the flexibility it allows them to be able to complete modules at their own pace. Expanding the online offerings so that teachers could pick and choose content that best suits their needs throughout the year would be helpful in supporting their autonomy (Deci & Ryan, 2000). However, teachers should be provided more opportunities to learn about the features of the new online learning platform so that they will become proficient in its use.
- The more deeply engrained a teacher's beliefs, the more difficult it is to modify them (Gooya, 2007). Because efficacy beliefs are most malleable early in learning (Tschannen-Moran and Woolfolk Hoy, 2001), I recommend providing expanded support

to novice teachers so that their beliefs may be pre-emptively shaped in a positive, more adaptive manner. Investing in these young teachers will insure that they have the best chance to develop into master teachers, and by creating a system in which they feel supported in their professional growth, they will be more likely to remain committed to teaching at JRMS.

Leadership

- The administrative team should continue to work on clearly communicating instructional expectations to teachers. Specifically, they should clarify the degree to which academic teachers are beholden to instructional plans and suggest ways in which they might inject their own creativity into their classrooms.
- There is so much about a teacher's job that she cannot control because of government mandates. School leaders should continue to work to foster a sense of agency among teachers so that they feel some sense of control over their own classrooms as much as possible, even in spite of certain external constraints. Keeping teachers positive is vital to the health and collective efficacy of JRMS (Hoy, 2008).
- One of the organizational features key to teachers' sense of efficacy is having an administration that listens to their concerns and encourages them to try new ideas (Tschannen-Moran and Woolfolk Hoy, 2001). The administrative team at JRMS demonstrated this year that teacher professional learning and growth is a priority by supporting this intervention study. Continuing to provide teachers supports that they need

to increase their pedagogical knowledge will insure that JRMS remains a thriving organization dedicated to the ongoing growth of individual members.

Limitations of the Study

This study focused on using professional development and coaching to improve the sense of efficacy beliefs of teachers at JRMS. Although the findings indicated there was an improvement in teachers' sense of efficacy beliefs after participating in this intervention, the fact that this was a quasi-experimental study rather than a true experimental design renders the findings less robust. Because this study focused primarily on teachers' sense of efficacy beliefs, no quantitative data was collected to investigate general changes in teachers' beliefs about student learning. And because the duration of the study was relatively brief, it was not possible to measure sustained changes in teachers' beliefs over time. In addition, though this study illuminated some common challenges faced by teachers in this school system, the results are not generalizable beyond the population of JRMS. Because I designed and delivered all the professional development and collected the data myself, it is possible that my colleagues' personal feelings towards me influenced the results of this study, as none of the data I collected from them was anonymous. And because the data collected at the comparison school was anonymous and therefore offered teachers the security that comes with anonymity, it is possible that only the most discontented teachers responded, thus accounting for the negative tone of many of the responses. As a result, this may not be a truly representative sample of the entire faculty. Finally, my role as a teacher at JRMS, while allowing me unique insight into the climate and culture of the school, also rendered it a challenge to maintain objectivity, as I held personal

opinions about the people with whom I worked and the state and local policies guiding the school's operation.

Implications for the Organization and Practice

The implications of this study are important both for JRMS and for the design of professional learning for teachers. Most importantly, this study revealed that teachers at JRMS are hungry for someone to listen to them. The challenges that public school teachers face today are greater than ever because of the pressures of the reform movement. Good teachers leave JRMS each year because of these challenges, and it is becoming harder to fill their positions. In fact, though it is considered one of the most desirable middle schools in the district among teachers, JRMS has had several teaching positions over the past two years go unfilled, forcing long-term substitutes or larger class sizes for other teachers in those departments. Fewer teachers than ever are enrolling in college of education today ("Backgrounds and beliefs of college freshmen," 2016), which means the pool of potential teachers will likely continue to shrink and it will be more difficult to find qualified teachers to fill these positions. This is why it is critical that school leaders work hard to retain good teachers at JRMS. Teachers should be treated as professionals by allowing them a voice in what happens day-to-day in their classrooms so that they will be deeply invested in their work and will therefore be less likely to leave at the first sign of stress. Just as importantly, novice teachers should be offered as much instructional support as possible so that they may grow and eventually develop into master teachers. Providing all teachers more instructional support will enable them to develop a higher sense of efficacy for teaching even those students they previously found most challenging.

There are a couple of general implications for practice that were illuminated by this study. The first is that providing teachers with professional learning and coaching support in areas in which they have expressed a need can be useful in improving their efficacy determinations. The second is that the process of teacher conceptual change must be undertaken systematically if it is to be successful. Modifying teacher beliefs is one of the most difficult endeavors a school leader can undertake; using a framework such as the CAMCC to guide the process is imperative to the success of reform efforts.

Recommendations for Future Research

This study adds to the extant body of research on teacher professional learning and teacher conceptual change. It also sheds light on the importance of listening to teachers and considering their needs when planning for professional learning opportunities in order to best support their growth. Future research should include:

1. Conducting a longitudinal study on the effects of teachers' efficacy determinations on student achievement. There have been few studies linking teachers' sense of efficacy to student achievement, and it would be useful to illuminate connections between teachers' sense of efficacy and both students' sense of efficacy and achievement.
2. Conducting a true experimental study to assess the effects of site-embedded professional learning on teachers' efficacy determinations at multiple schools in the district. By having both a control and an experimental group and using a larger sample size, the findings will prove more robust and generalizable.
3. Conducting a longitudinal study to assess changes in teachers' efficacy determinations over the course of their career. This would lend important insight to the sources of

efficacy determinations and the factors that influence them. Specifically, it would be useful to see the degree to which teachers' sense of efficacy is influenced by changes in grade level or subject.

4. Conducting an experimental study that uses the CAMCC as a framework to evaluate the process of teachers' conceptual change through professional learning in order to add to the empirical support for its usefulness.
5. Conducting a quantitative experimental study designed to assess teachers' belief changes over time in response to new learning, and also to examine connections between teachers' beliefs and student achievement.

Conclusion

The teachers who participated in this study offered keen insight into the challenges educators face in public schools today. Important information about new and better ways to provide professional learning to teachers in order to promote conceptual change was also gathered. Perhaps the most relevant lesson gleaned from this endeavor was that site-based professional learning can better meet teachers' needs, for those delivering the instruction are more in touch with teachers than are district personnel or outside consultants. Teachers will let school leaders know what their preferences for professional development are if they will only ask, and they are more likely to embrace conceptual change when the learning is tailored to their specific needs.

Creating a school culture where professional learning is something teachers engage in of their own volition is key to insuring that the school becomes a true learning organization. JRMS teachers are fortunate to have an administrative team that not only has the highest expectations

for student achievement but also recognizes the importance of supporting teachers in this pursuit. Their demonstrated commitment to professional learning and coaching this year has made a positive impact on the school's climate and has planted the seed for future growth. Next year, the administrative team has committed to providing increased support for professional learning by designating a professional learning leader who is given time during the school day to plan for and deliver the learning. They also remain committed to providing instructional coaching for teachers in order to support their individual growth. I am optimistic that leaders at JRMS can build on this year's successes and create more refined and effective methods for supporting teachers in the future.

This study demonstrated that providing teachers training on relevant learning theories along with methods for implementing them in the classroom can improve their sense of efficacy, but we must acknowledge that offering teachers better pedagogical techniques is not enough to sustain them. It is harder than ever to be a public school teacher, given the current educational climate, and teachers can easily become disheartened due to pressures beyond their control.

> Every profession that attracts people for "reasons of the heart" is a profession in which people and the work they do suffer from losing heart…[teachers] are asking, "How can we take heart again so that we can give heart to others?"-which is why they undertook their work in the first place (Palmer, 1998, p. 97).

Just as teachers must attend to students' affective states in the classroom, so too should school leaders be mindful of teachers' affective states through the process of conceptual change and provide supports for them--in community--so that they may learn to meet challenges they face

more adaptively. Only then will they be able to make meaning of their experiences and teach with passion and joy, two critical ingredients of dynamic, thriving classrooms.

APPENDIX A: IRB APPROVAL

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Melissa Roy**

Date: **October 08, 2015**

Dear Researcher:

On 10/08/2015, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	Professional Development and Coaching Intervention Designed to Increase Teachers' Sense of Instructional Efficacy
Investigator:	Melissa Roy
IRB Number:	SBE-15-11642
Funding Agency:	
Grant Title:	
Research ID:	n/a

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/08/2015 03:12:22 PM EDT

IRB Manager

APPENDIX B: SCHOOL DISTRICT APPROVAL

Seminole County
Public Schools

WALT GRIFFIN
Superintendent

Educational Support Center
400 E. Lake Mary Boulevard
Sanford, Florida 32773-7127
Phone: (407) 320-0000
Fax: (407) 320-0281

October 25, 2015

Ms. Melissa S. Roy
5632 Siracusa Lane
Sanford, FL 32771
melissajroy@icloud.com

Dear Ms. Roy,

I am in receipt of the proposal and supplemental information that you submitted for permission to conduct research in the Seminole County Public Schools. Thank you for very clearly delineating the required components of the research request. After a review of these documents, it has been determined that you are granted permission to conduct the study described in these documents.

Your study, "Increasing teachers' sense of efficacy for motivating and engaging all learners through a targeted professional development and peer coaching intervention," is of interest to district staff. The information you learn from your study may help to define future SCPS goals and actions that will improve how we motivate students and increase their opportunities to learn.

It is important that you and the participating teachers at Jackson Heights and Lawton Chiles complete the survey outside of contracted hours. Due to Ms. Mansur approving the professional development related to collaboration and coaching, it is understood that those sessions are conducted during contracted hours.

Best of luck with your research. I look forward to receiving a copy of your completed study.

Respectfully,
Anna-Marie Cote
Anna-Marie Cote, Ed.D.
Deputy Superintendent, Instructional Excellence and Equity

cc. Dr. Shelia Windom, Executive Director, Middle Schools
Ms. Sarah Mansur, Principal, Jackson Heights Middle School
Ms. Linda Mumey, Principal, Lawton Chiles Middle School

APPENDIX C: JRMS TEACHER NEEDS ASSESSMENT

Directions: Please rank the following topics in order according to your areas of greatest interest, with 1 being the one you would most like to learn more about and 5 being the one you would least like to learn more about. The two topics that receive the highest rankings will be the areas of focus for this year's faculty professional development.

1. Motivation: How can we engage students who are disengaged?
2. Cognition: How do students think and learn?
3. Context and Learning: What are some efficient ways to manage the classroom for optimal learning?
4. Social Context and Emotional Dimensions: Why are social context, interpersonal relations and emotional well-being important to student learning?
5. Assessment: How can we best assess student progress?
6. If you have questions, comments, or suggestions regarding this year's professional development, please feel free to share here. Thank you!

(*source for topics: "Top 20 Principles", 2015)

APPENDIX D: PRE-SURVEY JRMS

WELCOME. The purpose of this study is to gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Your participation will provide important insights to the researchers about teaching and learning. The questionnaire includes 33 items and will take approximately 10 minutes or less to complete. Please be assured that in keeping with the regulations of UCF's Institutional Review Board, none of your identifying information will be shared with your supervisors or anyone associated with SCPS.

Q1 Name

Q2 Age

Q3 Gender
- ❍ Male (1)
- ❍ Female (2)

Q4 What is your ethnicity?
- ❍ White (1)
- ❍ Hispanic or Latino (2)
- ❍ Black or African American (3)
- ❍ Native American or American Indian (4)
- ❍ Asian/Pacific Islander (5)
- ❍ Other (6)

Q5 What subject(s) do you teach?

Q6 What is your highest level of education?
- ❍ Bachelor's (1)
- ❍ Master's (2)
- ❍ Specialist (3)
- ❍ Doctorate (4)

Q7 Total years of teaching experience, including this year

Q8 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
1. How much can you do to get through to the most difficult students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
2. How much can you do to help your students think critically?	❍	❍	❍	❍	❍	❍	❍	❍	❍
3. How much can you do to motivate students who show low interest in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
4. How much can you do to get students to believe they can do well in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
5. How much can you do to help your students value learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
6. How much can you do to foster student creativity?	❍	❍	❍	❍	❍	❍	❍	❍	❍

7. How much can you do to improve the understanding of a student who is failing?	❍	❍	❍	❍	❍	❍	❍	❍	❍
8. How much can you assist families in helping their children do well in school?	❍	❍	❍	❍	❍	❍	❍	❍	❍
9. How well can you respond to difficult questions from your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
10. How much can you gauge student comprehension of what you have taught?	❍	❍	❍	❍	❍	❍	❍	❍	❍
11. To what extent can you craft good questions for your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
12. How much can you do to adjust your lessons to the proper level for individual students?	❍	❍	❍	❍	❍	❍	❍	❍	❍

13. How much can you use a variety of assessment strategies?	❍	❍	❍	❍	❍	❍	❍	❍	❍
14. To what extent can you provide an alternative explanation or example when students are confused?	❍	❍	❍	❍	❍	❍	❍	❍	❍
15. How well can you implement alternative strategies in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
16. How well can you provide appropriate challenges for very capable students?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q9 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
17. How well can you use reviews and practice testing to promote learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍

18. How much can you do to provide students with a schedule of repeated opportunities to practice and deepen new knowledge?	❍	❍	❍	❍	❍	❍	❍	❍	❍
19. How well can you design tasks with students' existing knowledge in mind?	❍	❍	❍	❍	❍	❍	❍	❍	❍
20. How well can you provide students specific feedback about their current state of performance as related to learning goals?	❍	❍	❍	❍	❍	❍	❍	❍	❍
21. How well can you break down tasks for students into smaller components?	❍	❍	❍	❍	❍	❍	❍	❍	❍
22. How well can you design activities	❍	❍	❍	❍	❍	❍	❍	❍	❍

that offer processing time and practice to aid in long-term memory retention?									
23. How much can you do to present the goals of lessons and tasks clearly to students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
24. How well can you organize the class period to include times of focus as well as times of more socially interactive learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
25. How much can you do to avoid social comparisons in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
26. How much can you do to provide cooperative learning opportunities in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
27. How much can	❍	❍	❍	❍	❍	❍	❍	❍	❍

you do to provide specific information to students about what they did well?									
28. How much can you do to encourage students to see mistakes as opportunities to learn?	❍	❍	❍	❍	❍	❍	❍	❍	❍
29. How much can you do to individualize the pacing of instruction?	❍	❍	❍	❍	❍	❍	❍	❍	❍
30. How much can you do to allow students a role in setting goals and monitoring their own progress?	❍	❍	❍	❍	❍	❍	❍	❍	❍
31. How much can you do to affect student learning outcomes?	❍	❍	❍	❍	❍	❍	❍	❍	❍
32. How much can you do to provide students	❍	❍	❍	❍	❍	❍	❍	❍	❍

choice in their learning activities?									
33. To what extent can you allow for creative problem solving in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q10 What other information would you like to add that might help us understand the challenges you face as an educator?

APPENDIX E: POST-SURVEYS

JRMS AND COMPARISON SCHOOL

Post-Survey Version 1: JRMS

WELCOME. The purpose of this study is to gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Your participation will provide important insights to the researchers about teaching and learning. The questionnaire includes 33 items and will take approximately 10 minutes or less to complete. Please be assured that in keeping with the regulations of UCF's Institutional Review Board, none of your identifying information will be shared with your supervisors or anyone associated with SCPS.

Q1 Name

Q2 Age

Q3 Gender

- ❍ Male (1)
- ❍ Female (2)

Q4 What is your ethnicity?

- ❍ White (1)
- ❍ Hispanic or Latino (2)
- ❍ Black or African American (3)
- ❍ Native American or American Indian (4)
- ❍ Asian/Pacific Islander (5)
- ❍ Other (6)
- ❍

Q5 What subject(s) do you teach?

Q6 What is your highest level of education?

- ❍ Bachelor's (1)
- ❍ Master's (2)
- ❍ Specialist (3)
- ❍ Doctorate (4)

Q7 Do you have a degree in education?

- ❍ yes (1)
- ❍ no (2)
- ❍

Q8 Total years of teaching experience, including this year

Q9 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
1. How much can you do to get through to the most difficult students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
2. How much can you do to help your students think critically?	❍	❍	❍	❍	❍	❍	❍	❍	❍
3. How much can you do to motivate students who show low interest in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
4. How much can you do to get students to believe they can do well in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
5. How much can you do to help your students value learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
6. How much can you do to foster student creativity?	❍	❍	❍	❍	❍	❍	❍	❍	❍
7. How much can you do to improve the understanding of a student who is failing?	❍	❍	❍	❍	❍	❍	❍	❍	❍

8. How much can you assist families in helping their children do well in school?	❍	❍	❍	❍	❍	❍	❍	❍	❍
9. How well can you respond to difficult questions from your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
10. How much can you gauge student comprehension of what you have taught?	❍	❍	❍	❍	❍	❍	❍	❍	❍
11. To what extent can you craft good questions for your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
12. How much can you do to adjust your lessons to the proper level for individual students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
13. How much can you use a variety of assessment strategies?	❍	❍	❍	❍	❍	❍	❍	❍	❍
14. To what extent can you provide an alternative explanation or example when students are confused?	❍	❍	❍	❍	❍	❍	❍	❍	❍

15. How well can you implement alternative strategies in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
16. How well can you provide appropriate challenges for very capable students?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q10 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
17. How well can you use reviews and practice testing to promote learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
18. How much can you do to provide students with a schedule of repeated opportunities to practice and deepen new knowledge?	❍	❍	❍	❍	❍	❍	❍	❍	❍
19. How well can you design tasks with	❍	❍	❍	❍	❍	❍	❍	❍	❍

students' existing knowledge in mind?									
20. How well can you provide students specific feedback about their current state of performance as related to learning goals?	❍	❍	❍	❍	❍	❍	❍	❍	❍
21. How well can you break down tasks for students into smaller components?	❍	❍	❍	❍	❍	❍	❍	❍	❍
22. How well can you design activities that offer processing time and practice to aid in long-term memory retention?	❍	❍	❍	❍	❍	❍	❍	❍	❍
23. How much can you do to present the goals of lessons and tasks clearly to students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
24. How well can you	❍	❍	❍	❍	❍	❍	❍	❍	❍

organize the class period to include times of focus as well as times of more socially interactive learning?									
25. How much can you do to avoid social comparisons in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
26. How much can you do to provide cooperative learning opportunities in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
27. How much can you do to provide specific information to students about what they did well?	❍	❍	❍	❍	❍	❍	❍	❍	❍
28. How much can you do to encourage students to see mistakes as opportunities to learn?	❍	❍	❍	❍	❍	❍	❍	❍	❍
29. How	❍	❍	❍	❍	❍	❍	❍	❍	❍

much can you do to individualize the pacing of instruction?									
30. How much can you do to allow students a role in setting goals and monitoring their own progress?	❍	❍	❍	❍	❍	❍	❍	❍	❍
31. How much can you do to affect student learning outcomes?	❍	❍	❍	❍	❍	❍	❍	❍	❍
32. How much can you do to provide students choice in their learning activities?	❍	❍	❍	❍	❍	❍	❍	❍	❍
33. To what extent can you allow for creative problem solving in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q12 What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges?

Q13 What have you found most helpful about the professional development opportunities you've had this year?

Q14 If you could customize your own professional learning next year, what would it look like?

Post-Survey Version 2: Comparison School

WELCOME. The purpose of this study is to gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Your participation will provide important insights to the researchers about teaching and learning. The questionnaire includes 33 items and will take approximately 10 minutes or less to complete. Please be assured that in keeping with the regulations of UCF's Institutional Review Board, none of your identifying information will be shared with your supervisors or anyone associated with SCPS.

Q1 Age

Q2 Gender
- ❍ Male (1)
- ❍ Female (2)

Q3 What is your ethnicity?
- ❍ White (1)
- ❍ Hispanic or Latino (2)
- ❍ Black or African American (3)
- ❍ Native American or American Indian (4)
- ❍ Asian/Pacific Islander (5)
- ❍ Other (6)

Q4 What subject(s) do you teach?

Q5 What is your highest level of education?
- ❍ Bachelor's (1)
- ❍ Master's (2)
- ❍ Specialist (3)
- ❍ Doctorate (4)

Q6 Do you have a degree in education?

- ❍ yes (1)
- ❍ no (2)

Q7 Total years of teaching experience, including this year

Q8 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
1. How much can you do to get through to the most difficult students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
2. How much can you do to help your students think critically?	❍	❍	❍	❍	❍	❍	❍	❍	❍
3. How much can you do to motivate students who show low interest in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
4. How much can you do to get students to believe they can do well in schoolwork?	❍	❍	❍	❍	❍	❍	❍	❍	❍
5. How much can you do to help your students value learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
6. How much can you do to foster student creativity?	❍	❍	❍	❍	❍	❍	❍	❍	❍
7. How much can you do to	❍	❍	❍	❍	❍	❍	❍	❍	❍

improve the understanding of a student who is failing?									
8. How much can you assist families in helping their children do well in school?	❍	❍	❍	❍	❍	❍	❍	❍	❍
9. How well can you respond to difficult questions from your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
10. How much can you gauge student comprehension of what you have taught?	❍	❍	❍	❍	❍	❍	❍	❍	❍
11. To what extent can you craft good questions for your students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
12. How much can you do to adjust your lessons to the proper level for individual students?	❍	❍	❍	❍	❍	❍	❍	❍	❍
13. How much can you use a variety of assessment strategies?	❍	❍	❍	❍	❍	❍	❍	❍	❍
14. To what extent can you provide an alternative explanation or example when	❍	❍	❍	❍	❍	❍	❍	❍	❍

students are confused?									
15. How well can you implement alternative strategies in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
16. How well can you provide appropriate challenges for very capable students?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q9 Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing (1)	(2)	Very little (3)	(4)	Some influence (5)	(6)	Quite a bit (7)	(8)	A great deal (9)
17. How well can you use reviews and practice testing to promote learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
18. How much can you do to provide students with a schedule of repeated opportunities to practice and deepen new knowledge?	❍	❍	❍	❍	❍	❍	❍	❍	❍

19. How well can you design tasks with students' existing knowledge in mind?	❍	❍	❍	❍	❍	❍	❍	❍	❍
20. How well can you provide students specific feedback about their current state of performance as related to learning goals?	❍	❍	❍	❍	❍	❍	❍	❍	❍
21. How well can you break down tasks for students into smaller components?	❍	❍	❍	❍	❍	❍	❍	❍	❍
22. How well can you design activities that offer processing time and practice to aid in long-term memory retention?	❍	❍	❍	❍	❍	❍	❍	❍	❍
23. How much can you do to present the goals of lessons and	❍	❍	❍	❍	❍	❍	❍	❍	❍

tasks clearly to students?									
24. How well can you organize the class period to include times of focus as well as times of more socially interactive learning?	❍	❍	❍	❍	❍	❍	❍	❍	❍
25. How much can you do to avoid social comparisons in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
26. How much can you do to provide cooperative learning opportunities in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍
27. How much can you do to provide specific information to students about what they did well?	❍	❍	❍	❍	❍	❍	❍	❍	❍
28. How much can you do to encourage students to see mistakes	❍	❍	❍	❍	❍	❍	❍	❍	❍

as opportunities to learn?									
29. How much can you do to individualize the pacing of instruction?	❍	❍	❍	❍	❍	❍	❍	❍	❍
30. How much can you do to allow students a role in setting goals and monitoring their own progress?	❍	❍	❍	❍	❍	❍	❍	❍	❍
31. How much can you do to affect student learning outcomes?	❍	❍	❍	❍	❍	❍	❍	❍	❍
32. How much can you do to provide students choice in their learning activities?	❍	❍	❍	❍	❍	❍	❍	❍	❍
33. To what extent can you allow for creative problem solving in your classroom?	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q11 What have been some of your greatest challenges this year as a teacher? To what do you attribute those challenges?

Q12 What types of professional development activities have you been able to participate in at your school this year?

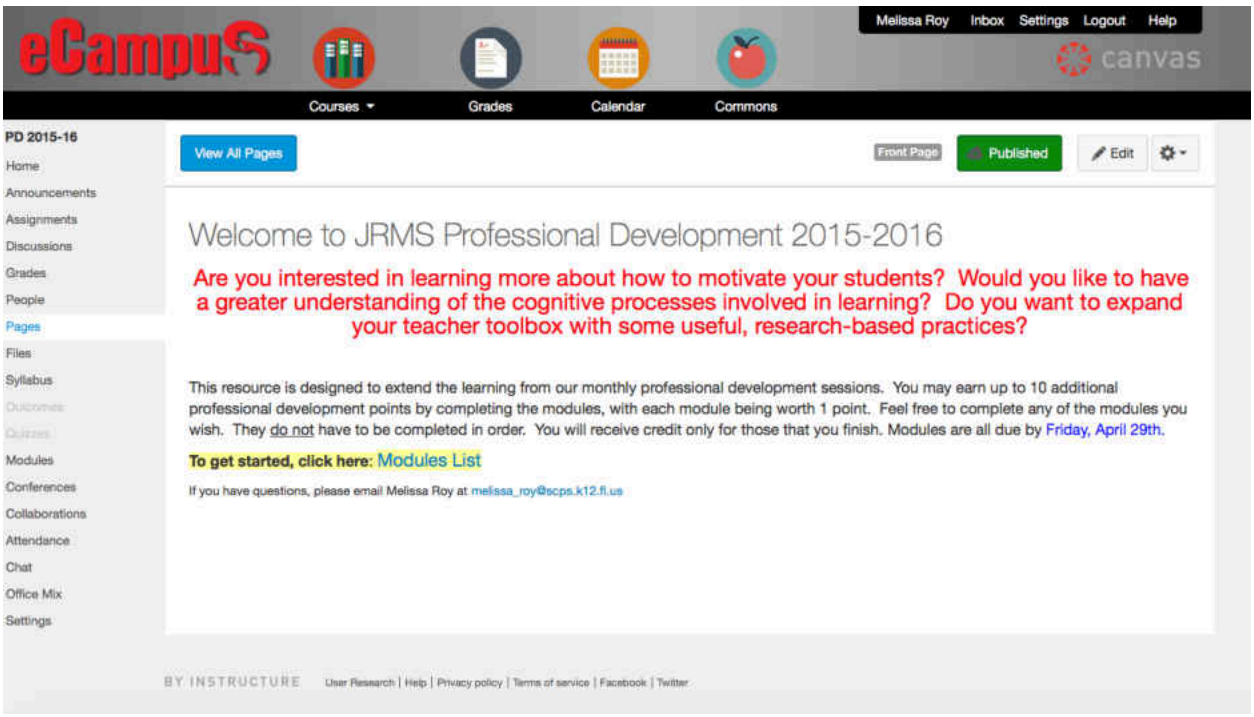
Q13 If you could customize your own professional learning next year, what would it look like?

APPENDIX F: SURVEY TO ASSESS TEACHER BELIEFS AND KNOWLEDGE

1. What are some things teachers can do to insure students' long-term knowledge retention?
2. What effect do teacher expectations have on student learning?
3. Which is more valuable to the learning process: intrinsic or extrinsic motivation? Why?
4. Can a person's IQ change over time? Explain.
5. What are some of the biggest challenges to motivating middle school students? Describe a specific situation where you or someone you know was unable to motivate a student. What do you think was the reason for that student's lack of motivation?

APPENDIX G: SCREENSHOTS OF ONLINE MODULES

Website homepage:



Example module homepage:

Introduction to Teacher Expectations- Read First

We know that this quote is quite often true for our students; we see every day that a child's mindset can have a strong impact on his achievement. Did you know that there is empirical evidence suggesting that a teacher's expectations can also have an impact on student achievement? Researchers in the area of teacher expectations might revise this quote for teachers so that it reads:

"Whether you think your students can or you think they can't,
you're right."

1. Resources for Reading

Here are some resources where you can learn more about the research we discussed in our class (some of it hotly debated) that has been done on this topic if you would like to take a look.

http://ww2.kqed.org/mindshift/2012/09/17/how-will-students-perform-depends-on-teachers-expectations/

http://ww2.kqed.org/mindshift/2016/01/07/how-saying-and-showing-kids-i-believe-in-you-can-empower-them-at-school/

http://educationnorthwest.org/sites/default/files/expectations-and-student-outcomes.pdf

Example module tasks:

Module Tasks:

1. Growth vs. Fixed Mindset Discussion
2. Overcoming False Growth Mindset

Optional resources for further learning:

http://www.theatlantic.com/education/archive/2014/11/too-many-kids-quit-science-because-they-dont-think-theyre-smart/382165/

http://www.gse.harvard.edu/news/ed/16/01/mistakes-were-made

Math teachers: How do you react when a student tells you "I'm not a math person?" Read this article for some fascinating evidence that ANYONE can be a "math person": http://ww2.kqed.org/mindshift/2015/11/30/not-a-math-person-how-to-remove-obstacles-to-learning-math/

Watch this short video of Carol Dweck explaining how praise affects a student's mindset:

For fun:

Test your own mindset using Carol Dweck's quiz.

http://mindsetonline.com/testyourmindset/step1.php

4. Module Tasks

Please complete the following:

Discussion 1: Changing How You Relate to Difficult Students

Personal Reflection

Optional:

Optional Discussion 2: Personal Biases

For fun:

Listen to this fascinating *Invisibilia* podcast from NPR called "How to Become Batman". http://www.npr.org/podcasts/510307/invisibilia

Description from the *Invisibilia* website:

In "How to Become Batman," Alix and Lulu examine the surprising effect that our expectations can have on the people around us. You'll hear how people's expectations can influence how well a rat runs a maze. Plus, the story of a man who is blind and says expectations have helped him see. Yes. See. This journey is not without skeptics.

Example module readings and resources:

Growth vs. Fixed Mindset

Growth mindset is probably the hottest topic in the popular education press today. But what is it exactly? This is a theory developed by Stanford professor Carol Dweck, Ph.D, that proposes a person's mindset can have a profound effect on his motivation and achievement. Those with growth mindset realize that intelligence is not fixed, and that they can grow smarter and more skilled through perseverance and hard work due to the malleability of the brain. Those with a fixed mindset inaccurately believe that a person is born with a certain degree of intelligence that cannot be modified, regardless of effort. They believe that talent is the key to success in any area, and you either have it or you don't. Dweck's research shows that those who adopt a growth mindset are more resilient and more likely to be higher achievers.

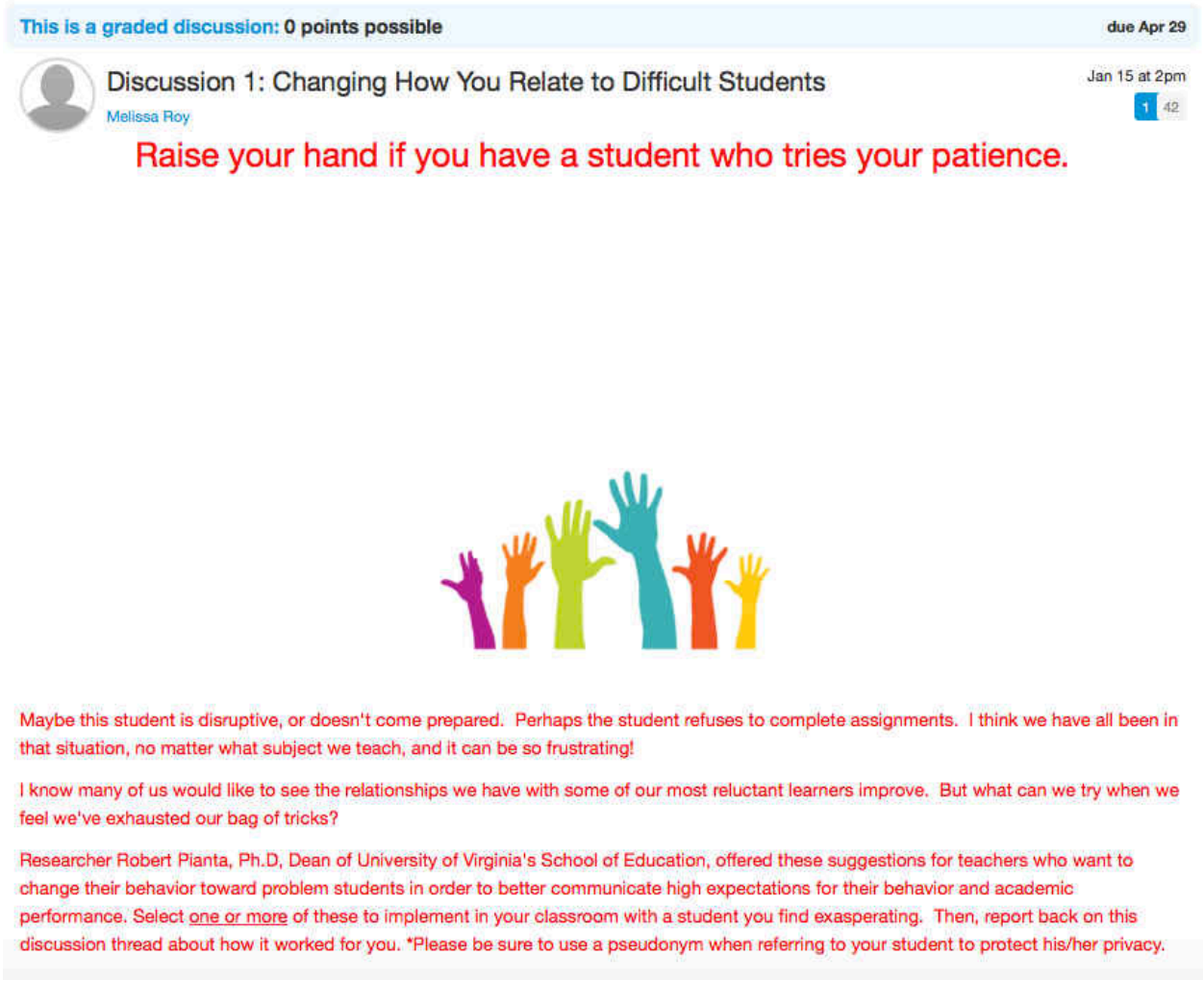
Module Readings and Resources

1. Read this interview with Carol Dweck to learn more about growth mindset:

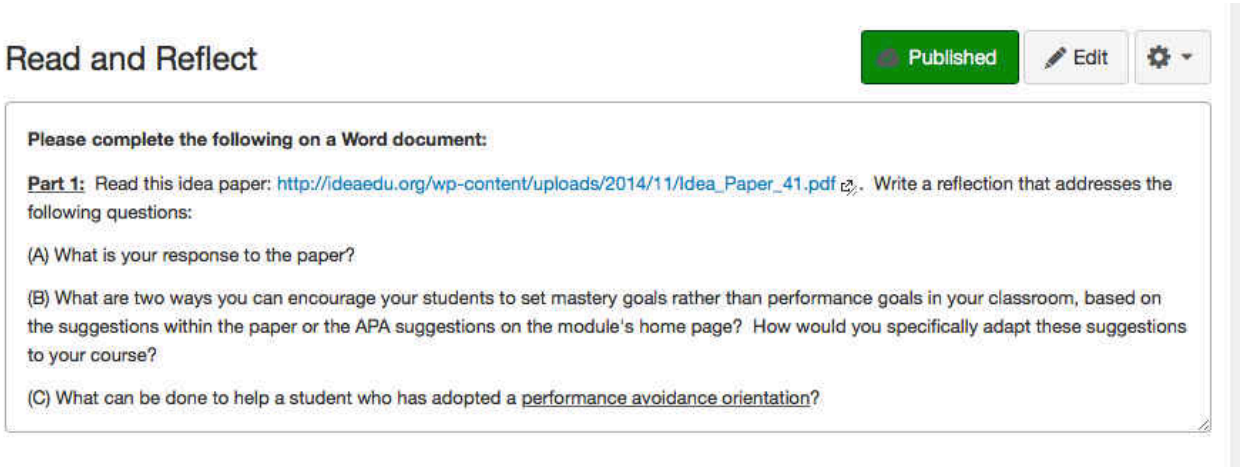
http://www.educationworld.com/a_issues/chat/chat010.shtml

2. Watch this Ted Talk to hear Dr. Dweck discussing her research and how it is applicable to the classroom:

Example online discussion:



Example personal reflection:



APPENDIX H: JRMS INSTRUCTIONAL COACHING LOG

Weekly Instructional Coaching Log

Name: _____ **Week Date:** _____

Date.	Activity/Other Staff Involved	Area
Mon		
Tue		
Wed		
Thurs		
Fri		
Other		

Teacher **S**upport	**P**rofessional **D**evelopment	**C**oaching **C**ycle	**S**tudent **A**ssessment **& D**ata	**M**eetings	**K**nowledge **B**uilding	**P**lanning	**Other**
(assisting teacher with class, Small gr., individual, Co-teach)	(Facilitating/ planning PD sessions such as workshops, training & PLCs to increase/facilitate educator's knowledge)	(Conferencing cycle, observations, model lessons, planning for coaching, co-planning, co-teaching, etc.)	(interpreting & gathering data, Assisting teachers in(interpreting & gathering data)	(Attending coaches meetings, leadership meetings, Grade Level, district meetings)	(Remaining current in trends through personal study or PD; finding and providing resources for teachers)	(Materials, curriculum, preparing for school visitations; preparing for Meetings and **PD**s)	

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