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EFFECTS OF A COLLABORATIVE TEACHING  
MODEL OF PROFESSIONAL DEVELOPMENT  
ON NEW SIXTH THROUGH TWELFTH GRADE TEACHERS' ATTITUDES,  
SELF-EFFICACY, MOTIVATION AND IMPLEMENTATION OF INSTRUCTION

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education in Instructional Leadership

in the

Department of Education and Educational Psychology

at

Western Connecticut State University

2008

## Abstract

# EFFECTS OF A COLLABORATIVE TEACHING MODEL OF PROFESSIONAL DEVELOPMENT ON NEW SIXTH THROUGH TWELFTH GRADE TEACHERS' ATTITUDES, IMPLEMENTATION OF INSTRUCTION, SELF-EFFICACY, AND MOTIVATION

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## ABSTRACT

The purpose of this study was to assess the effects of a collaborative teaching model of professional development on new sixth through twelfth grade teachers' attitudes, self-efficacy, motivation, and implementation of instruction. Educating students in the 21<sup>st</sup> century requires not only content expertise and the desire to teach, but pedagogical competence. To acquire these requisite skills, new classroom teachers need more than discrete, periodic, in-house or off-campus professional development programs.

This research investigated the effectiveness of a collaborative teaching model for 6<sup>th</sup> through 12<sup>th</sup> grade teachers ( $n = 23$ ) using a Pre/Post Quasi-Experimental Design. The dependent variables were the teachers' attitudes toward professional development, levels of self-efficacy, motivation, and implementation of instruction. The first three variables were measured by the *Semantic Differential Scale* (SDS), the *Teacher Efficacy Scale* (TES), and the *Work Motivation Inventory* (WMI), respectively. A one-way repeated measures ANOVA was employed to determine change over time. Implementation of

instruction was assessed using the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*. At the beginning and end of the study, observations ( $n = 6$ ) of three voluntary collaborative teacher teams were conducted using the school district's teacher evaluation form. To fully describe the effect of this dependent variable, data were described using means, standard deviations, and frequencies to view teacher classroom behavior. Lastly, a *Teacher Exit Questionnaire* assessed individual teacher ( $n = 23$ ) reflection of the professional development role of the collaborative model. In this study, the independent variable was the active participation in a collaborative teaching model.

The findings from the one-way repeated measures ANOVA revealed that the new 6<sup>th</sup> through 12<sup>th</sup> grade teachers ( $n = 23$ ) showed statistically significant differences on pre and post assessments on two dependent variables (attitude and motivation). The Bonferroni pairwise comparisons revealed the mean differences for both variables were significant at the .05 level. Descriptive data from the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* and the *Teacher Exit Questionnaire* regarding the implementation of instruction showed that 96% of the teachers noted an increase in their ability to identify different student learning needs and apply appropriate strategies. Thus, both the statistically significant repeated measures effect and the teachers' enacted and reported practice were impacted by the collaborative teaching model experience.

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Pauline E. Goolkasian, Ed.D.



*School of Professional Studies  
Department of Education and Educational Psychology  
Doctor of Education in Instructional Leadership*

Doctor of Education Dissertation

*Effects of a Collaborative Teaching Model of Professional Development on New Sixth through Twelfth Grade Teachers' Attitudes, Implementation of Instruction, Self-Efficacy, and Motivation*

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## DEDICATION

This dissertation is dedicated to my husband, Gregory, whose limitless confidence and belief in me and my goal afforded me constant love, support, and sustenance. To my daughters, Sarah and Meaghan, and my “son,” Paul, I say “thank you” for your love and understanding that goals are worth pursuing even when they demand sacrifice. And to my brother, Bill, I extend my love and appreciation of your limitless spirit.



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## CHAPTER ONE:

### INTRODUCTION AND IDENTIFICATION OF THE TOPIC

Whether a novice teacher or an experienced practitioner, education demands the same high quality student learning. In reality, from the moment they enter the classroom, new teachers are expected to implement the same curriculum and produce successful learners, regardless of teacher preparation, content expertise, or actual classroom experience. Research has demonstrated that both the content knowledge and the teaching experience of educators influence teacher effectiveness and student achievement (Stronge, 2002).

Recognizing the link between teacher efficacy and professional development, this study focused on the impact of a collaborative teaching model of professional development on new sixth through twelfth grade teachers' attitudes, self-efficacy, motivation, and implementation of instruction. Studies reported declines in general teaching efficacy and the optimism about one's ability to cope with obstacles in the teaching environment, during student teaching and after the first year (Housego, 1992; Hoy & Woolfolk, 1990).

Furthermore, the key to student learning lies in the balance of the two essential elements recognizing that embedded in the teaching experience is stronger content knowledge and confidence in pedagogical knowledge about the practice of teaching. Teachers with a strong sense of efficacy, a belief in their ability to successfully perform specific teaching behaviors in a given context, were more enthusiastic about teaching, had a greater commitment to teaching, and were more likely to be retained in the profession (Burley, Hall, Villeme, & Brockmeier, 1991). Therefore, attention to the development of a strong sense of efficacy among novice teachers is worthwhile, because, once established, efficacy beliefs of experienced teachers appear resistant to change (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

## Rationale for Selecting the Topic

A model of professional development is critical to new teacher satisfaction, professional growth, and the teachers' use of effective instructional methods. In the learning environment the gap between new content specialists, educators with minimal teacher training or classroom management skills, and the curriculum they must teach widens with each academic day. Ideally, learning should be facilitated by the efforts of teachers who are knowledgeable in their content area and skillful in teaching it to others. Without ongoing instructional leadership in teaching skills, new teachers in a content-driven school environment develop feelings of inadequacy and ineffectiveness in classroom teaching and management. Student learning suffers and the likelihood of retaining the novice teacher is diminished (Gold, 1996).

Academic support and on-going professional development for new teachers has existed, albeit in a variety of forms, since the early history of education (Fallon, 2007); however, the formal designation of collaborative classroom environments has evolved as a result of the *Individuals with Disabilities Education Improvement Act of 2004 (IDEA), 504 Plans*, and an increased diversity among middle and secondary students. Furthermore, the literature indicated a variety of collaborative approaches, some embedded in the academic curriculum as specific skills courses, while others were co-taught through a shared exchange of knowledge (Catterall, 2002). Clarity of purpose to ensure that learning occurs for all students, challenges teachers to develop additional skills and strategies. Thus, it is critical to measure the potential of collaboration as an effective instructional delivery program in inclusive teaching environments (Sharpe & Hawes, 2003). For the purposes of this study a collaborative teaching model of professional development was assessed to ascertain its effect on new sixth through twelfth grade teachers' attitudes, level of self-efficacy, motivation, and implementation of instruction.

### *Related Literature to Support the Rationale*

In partnership with administrators, department heads, school counselors, and classroom teachers, the collaborative model of instruction establishes a role as an academic support service for all students, a one-on-one support for at-risk students, and a form of in-house professional development for new teachers. The teacher resources described by Sharpe and Hawes (2003) included (a) faculty expertise in learning disabilities and differentiated instruction, (b) specific instructional strategies and consultation on teaching methodology, (c) individualized instructional work with academic departments, (d) ongoing development of teaching materials, and (e) the availability of reference materials on learning issues.

Academic or learning support services to enhance student performance appear in the teaching and learning literature at all grade levels, from pre-school to higher education, particularly in this era of public school reform based on the *No Child Left Behind (NCLB)* (Orfield, 2004) federal legislation of 2001, as well as the continued demands of the federal *Individuals with Disabilities in Education Act (IDEA)* (Blanc, DeBuhr, & Martin, 1983; Danielson, 2002; Jones, Bonnano, & Scouller, 2001); however, there remains a lack of studies that assess the effects of the collaborative model of instruction for teacher performance support and professional development. Thus, pertinent theoretical constructs, the collaborative model concept for classroom instruction, professional development role for educators, and several educational research studies are reviewed in Chapter Two to reveal the void in educational research that demonstrates the effectiveness of a collaborative model of classroom instruction on new teachers' professional development.

## Statement of the Problem

As long as there are middle and secondary school students present in classrooms the need for qualified new and experienced educators, content specialists skilled in the implementation of a challenging curriculum, remains critical for successful learning to occur. Two questions emerge: How do novice teachers acquire the critical elements necessary to engage in effective practice? How do we assist the novice practitioner to acquire this pedagogical background while he or she is actively engaged in classroom instruction?

In the 21<sup>st</sup> century educational standards and high stakes testing demand teacher content expertise and effective curriculum implementation (Sharpe & Hawes, 2003). In the sixth through twelfth grades, content specialists comprise the majority of classroom teachers. While this teaching model supports basic general education needs, the increased student diversity in today's classrooms requires instruction based on content knowledge that is differentiated for learner comprehension (Parsad, Lewis, & Ferris, 2000). Without strategic instructional support, students struggle with the curricular inconsistencies that result from the weak pedagogical knowledge of novice instructors (Featherstone, 1993; Gold, 1996; Shank, 2005).

A school's mission recognizes that academic and social growth are major goals accomplished through a learning community dedicated to creating opportunities that inspire teamwork and excellence. Collaborative educators, two person teams composed of a regular educator and a special educator instructing in a single classroom, work to achieve this mission on a daily basis. This role combines an understanding of behavioral theory, as well as recognizing individual and group trait theory to accomplish daily goals in the learning workplace (Shulman, 2004).

A collaborative, co-teaching model promotes inspiration in lesson planning and provides a frame for decisions regarding the amount of structure and management required in the balance of direct teaching, brainstorming, and guided practice versus side-by-side independent work. In this study, the collaborative teaching model was composed of a general educator (a content specialist) and a special educator who together taught a class composed of both general and special education students. The special educator role was to complement the content knowledge instruction by providing differentiation strategies to address student accommodation and modification needs during instruction, as well as to provide additional classroom management support.

In this study, the collaborative teaching model consisted of a general educator and a special educator assigned to teach together in a content course (English, mathematics, science, social studies) at either the middle or secondary school. At the middle school the teachers are assigned to a specific grade level, 6 through 8. At the secondary level, teachers are assigned by courses, which may include grade levels, 9 through 12. The collaborative teams shared responsibility for the classes taught, including daily lessons, review, and assessment. It was expected that the general educator would be the content specialist, while the special educator would provide the differentiation strategies. Each team had one new teacher with five or less years teaching experience.

Without a collaborative process of classroom instruction, new teachers find themselves struggling to provide meaningful instruction for today's diverse middle and secondary school learners (Darling-Hammond & Ifill-Lynch, 2006; Mandel, 2006).

## Significance of the Study

The purpose of this research study was to investigate if an embedded form of collaborative professional development is an effective method for improving the teaching/learning experience for new teachers with five years or less teaching experience at the middle and secondary school levels. This research examined the effects of a collaborative teaching model on new teacher attitudes, self-efficacy, motivation, and implementation of instruction. The literature suggests that professional development must be consistent, ongoing, and relevant to the pedagogical knowledge needed by the teachers. Coupled with their content knowledge skills, this pedagogical experience assesses their feelings about collaboration, beliefs about their abilities to effect a course of action, and the effort they expend (Pajares, 2002). This study was designed to explore the impact of this collaborative professional development on new middle and secondary teachers' practice.

## Definition of Key Terms

The following terms are relevant to this research:

1. Social Cognitive Theory is a sociocognitive perspective that enables individuals to exercise self-control over cognitive processes and behaviors rather than react to events (Bandura, 2001, 1986).
2. Self-efficacy is the belief in one's ability to plan and implement a course of actions to achieve a given result (Bandura, 1977; Schunk & Pajares, 2002).
3. Motivation, in this study, is the consistent effort of a teacher expended in a given instructional setting and the persistence demonstrated when confronted with obstacles (Bandura, 2000; Gibson & Dembo, 1984).

4. Professional Development is the formal and informal learning activities/experiences intended to advance teachers' professional knowledge, pedagogic skills, and attitudes (Bredeson & Scribner, 2001; Darling-Hammond, 2000; Fenstermacher & Berliner, 1983; Smylie, 1988).
5. A New Secondary School Teacher is an individual instructor in grades nine through twelve, prepared in a specific content area with five years or less classroom teaching experience for the purpose of this study.
6. A New Middle School Teacher is an instructor in grades six, seven, and eight, prepared in a specific content area with five years or less classroom teaching experience for the purpose of this study.
7. Collaboration is the consistent, combined expertise of a general educator and a special educator in the implementation of the instructional practice and educational focus in diverse classroom settings (Friend, 2007; Shank, 2005).

## Methodology

### *Research Questions*

By using a systematic approach, this research addressed the following questions:

1. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development?
2. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of self-efficacy?
3. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of motivation?

4. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' implementation of instruction in the classroom?

### *Hypotheses*

By using a systematic approach, this research responded to the following hypotheses:

1. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' attitudes toward professional development.
2. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of self-efficacy.
3. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of motivation.
4. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' implementation of instruction in the classroom.

### *Subjects*

The sample school district is located in a small-sized, middle socio-economic, culturally expanding, suburban town in New England. The local population, according to the last census, was 18,067. The school system included 3,230 students in one high school, one middle school (grades 6-8), one upper elementary school (grades 4-5), and two primary (Pre-K-3) schools. Free and reduced lunch programs were used by 7.2% of the students compared to the state average of 27.3%. In addition, 9.4% of the students came from non-English speaking homes compared to the state average of 12.8% (Connecticut State Department of Education (CSDE), Strategic School Profile, 2006 - 2007).

There are 79.8 full-time equivalent (FTE) teachers at the high school and 58.5 full-time equivalent (FTE) teachers at the middle school with an average of 13.5 years of experience



teaching in Connecticut. The sample included 23 faculty members, each with 5 years or less teaching experience as full time classroom teachers in a collaborative assignment in either the middle school or the high school. If it was their first year, teachers participated in a new teacher orientation at the beginning of the school year and new teacher monthly meetings with the principal. All participated in ongoing monthly teacher meetings and professional learning community meetings throughout the school year. Of the 23 teachers, 15 were female and 8 were male, while age spanned the years from 23 to 50 in the sample studied.

Each faculty member in the study possessed minimally a bachelor's degree in a specific content area and a Connecticut Elementary or Secondary School Teacher certification. Some teachers also held master's degrees in their specialized content areas.

### *Instrumentation*

The study of sixth through twelfth grade teachers utilized five instruments: *Semantic Differential Scale* (Pizzo, 1981), the *Teacher Efficacy Scale* (Hoy & Woolfolk, 1993), the *Work Motivation Inventory* (Blais, Lachance, Vallerand, Briere & Riddle, 1993), the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* (2006), and the *Teacher Exit Questionnaire* created by the researcher. The *Semantic Differential Scale* (SDS) was utilized as a valid and reliable assessment of teachers' attitudes toward the collaborative model of teaching, based on their affective reaction to opposite word pairs. The *Teacher Efficacy Scale* (TES) was administered as a valid and reliable assessment of teachers' perceptions of their capacity to affect student performance utilizing a collaborative approach to instruction. The *Work Motivation Inventory* (WMI) was administered to measure teachers' levels of motivation toward collaborative classroom instruction. The *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* was used to identify the core behaviors that define the positive

classroom performance sought in beginning teachers. The *Teacher Exit Questionnaire* was distributed to elicit a reflective response about the collaborative experience at the end of the study.

#### *Description of the Research Design*

A Pre/Post Quasi-Experimental Design was conducted and data were quantitatively analyzed. The dependent variables were the teachers' attitudes toward professional development, levels of self-efficacy, motivation, and implementation of instruction. The first three variables were measured by the *Semantic Differential Scale*, the *Teacher Efficacy Scale*, and the *Work Motivation Inventory*, respectively. There was one independent variable, trained active participation in a collaborative teaching model over time with no comparison group. Data were collected from new middle and secondary teachers ( $n = 23$ ) at pre and post active participation in a collaborative teaching model using the three instruments. The data were analyzed using a repeated measures ANOVA procedure to determine change over time.

In addition, at the beginning and end of the study, observations ( $n = 6$ ) of three randomly selected collaborative teacher teams were conducted using the school district's teacher evaluation form. These data were quantified as descriptive data, including means, standard deviations, and frequencies, on the actual classroom behaviors of the teachers. Lastly, a *Teacher Exit Questionnaire* was administered to all 23 subjects to assess individual teacher reflection of the collaborative experience.

#### *Data Collection Procedures and Timeline*

The sample of 23 teachers participated as practitioners in collaborative teaching assignments in their middle or secondary classrooms during the fall term, 2007. The following procedures were abided by to facilitate the assessment of reflective collaboration as an ongoing

form of effective professional development for the new middle and secondary teacher according to the stated research questions.

Informational meetings, written instructions, and online memos were utilized during the study period. These forms of communication were used to introduce the study at the start of school, to obtain signed consents and demographic data, and, at the end of the study, to administer an exit survey questionnaire to the teachers. The *Semantic Differential Scale* (SDS), the *Teacher Efficacy Scale* (TES), and the *Work Motivation Survey* (WMI) were completed at the beginning of the study, and again, as part of the exit process.

Observations of instruction implementation were conducted by a trained observer (an educator familiar with the assessment tool) using two randomly sampled probes of collaborative teaching in three classrooms (all high school). Applying the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* form used by the subjects' school district, additional data were collected at the beginning and end of the study. This descriptive information was reported as data in the forms of frequencies, means, and standard deviations.

The data analysis procedures included:

1. *The Statistical Package for the Social Science* (SPSS) 13.0 for Windows XP, Graduate Package, was used for statistical analyses.
2. Differences over time in the collaborative teacher group ( $n = 23$ ) attitudes, self-efficacy, and motivation were analyzed using a repeated measures ANOVA using the *Semantic Differential Scale*, *Teacher Efficacy Scale*, and the *Work Motivation Inventory*. The collaborative teaching model experience served as the independent variable. The attitudes, self-efficacy, motivation, and implementation of

instruction of the teachers served as the dependent variables. The observation and exit questionnaire data were quantified and presented as descriptive data.

### *Limitations of the Study*

The limitations in the study's pre and post quasi-experimental research design that restrict the study's scope include the limited sample of 23 teachers from a single school district, teaching experience, researcher background, lack of a control group, and the study instruments. Certainly, the pre-service, student teaching, and new teacher experiences of the faculty members significantly impacted their responses. Another significant point was the effect of the researcher's enthusiasm for the collaborative model and its potential as a successful instructional model. In addition, the sample was one of convenience and random assignment to groups was not possible. Ideally, the researcher would like to survey a larger number of middle and secondary teachers through a process of random sampling from similar schools in other school districts with collaborative teaching models.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

Specific concept descriptions and models supplied the lenses to appraise the myriad of literature related to an inquiry regarding new teachers, collaboration, and professional development. In this era of accountability in education, development of teacher expertise and continued improvement of instructional practice are recurring themes in discussions of the teacher workforce; however, with an increasing need to replace retiring educators with new teachers each school year, districts are forced to establish ongoing recruitment programs to ensure that classrooms are staffed appropriately. Often this leaves little time to consider purposeful new teacher induction and staff development for school-wide improvement outlined by national and state organizations, such as the *Connecticut State Guidelines for Teacher Evaluation and Professional Development* (1999). The collaborative model of professional development offers both general and special educators a means to cooperatively address these demands.

The ever-changing knowledge of teaching and the processes of learning demand relevant, on-going, and consistent professional development for educators to maintain and expand their understanding of evolving knowledge bases, differential student needs, and recent research-based teaching methods (Hawley & Valli, 1999 in Maldonado, 2002). The key to this professional development model is a partnership of teachers who learn through constant collaboration and instructional practice (Sparks, 2001). This philosophy is a collaborative exchange of teachers reflecting on their practice, exchanging ideas, and sharing strategies (Guskey, 2003). A school environment that endorses co-teaching for new teachers motivates professionals to work together

to develop their practice, while encouraging seasoned teachers to reflect on and improve their instructional strategies (Friend, 2007).

Chapter Two contains a review of the research and literature relevant to the models of social cognitive theory, teacher professional development, and instructional collaboration. This review introduces the conceptual framework for the study, which includes a brief overview of the social cognitive theory of development with its subconstructs of self-efficacy and motivation. Additionally, a discussion of professional development as an on-going process of teacher learning is included to complete the conceptual foundation. To link the conceptual framework to practice, collaborative instruction, a co-teaching strategy model is combined with professional development to highlight how collaboration could become an embedded form of professional development. Finally, specific descriptions of teacher attitudes, self-efficacy, and motivation are described to suggest how new sixth through twelfth grade teachers might be impacted by this research.

### Social Cognitive Theory

The theoretical construct of Albert Bandura's (1986) social cognitive theory of self-efficacy and motivation served as the foundation for this study. Rather than simply reacting to events, a person self-regulates their cognitive processes and behaviors to respond. Bandura postulated that individuals possess a proactive approach to personal development based on self-beliefs that can elicit responses by their actions (Bandura, 1995; Pajares, 2002). Furthermore, Bandura believed that a person's conviction about his or her capabilities was more powerful than that individual's actual abilities. Therefore, the self-belief an individual possesses acts as a lifelong driving force. It determines a person's levels of motivation, well-being, and personal accomplishment.

Historically, the idea of the self has influenced the study of human behavior, from William James' early 20<sup>th</sup> century description of self-esteem, to Abraham Maslow's 1950's construct of self with its motivational process toward self-actualization (Pajares, 2002). These studies, coupled with personal research, set the stage for Bandura's realization (1986) that a critical aspect, self-efficacy was missing from his own social learning theory and other theories. This idea of self cast a powerful new light on the individual's impact on his or her learning.

Thus, Bandura posits that individuals possess the ability to change their own behavior, and are not simply coerced or acted upon by their environment (Pajares, 2002). Bandura believes that human performance is prompted by self-interactions with cognition and the social environment. Inherent in this theory is the belief that what a person thinks, believes, and feels "affects how they behave" (Bandura, 1986, p. 25). Given this theoretical construct it appears that human cognition plays a key role in teacher self-efficacy and motivation, whether personal or professional in nature.

### *Self-Efficacy*

Standing at the center of Bandura's Social Cognitive Theory are self-efficacy beliefs, which provide the basis for individual motivation, satisfaction, and personal accomplishment (Pajares, 2002). Performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousals are the four sources of personal efficacy described by Bandura. These beliefs form the central tenet of personal agency, that individuals exert some power over their own actions and outside forces (Bandura, 2001). Often, it is the strength of these beliefs that determine the success individuals experience from their capabilities even when confronted with substantial obstacles. In addition, self-efficacy beliefs act as vital determinants of how effectively new information and skills are acquired (Bandura, 2000). There exists a body of research that

suggests a link between a teacher's sense of self-efficacy and professional development; however, the context, delivery, and duration of the learning experience play a key role in its effect (Darling-Hammond, Chung, & Frelow, 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001). Darling-Hammond, Chung, and Frelow examined 2,956 new teachers' sense of efficacy in their study of preparation programs (2002). They found the teachers' feelings of preparedness (e.g. handle discipline issues, teach diverse populations, and use technology to enhance instruction) was significantly related to a sense of efficacy. In the Garet et al. study, a sample of 1,027 mathematics and science teachers, three core indices of professional development that influences individual teacher efficacy emerged: (a) a focus on knowledge, skills, and teaching practices; (b) promotion of active teacher learning; and (c) extent of relevance to individual teacher learning needs.

### *Motivation*

Understanding what motivates teachers to learn enhances teacher development and transforms the school into a community of learners with a shared vision. Recent literature describes effective professional development as embedded in the daily lives of teachers, providing a myriad of opportunities for growth (Joyce, Wolf, & Calhoun, 1993). To successfully improve instruction for educators these "teachable moments" must be actualized into planned, relevant, connected learning experiences based on teaching and learning standards.

According to Bandura (1994) motivation plays an integral role in self-efficacy. It is a teacher's call to action reflected in the choices of course of action, and in the degree and persistence of effort. Furthermore, Tschannen-Moran et al. (1998) found that novice teachers' views of self-efficacy seem to develop early in the teaching career and are less subject to change later. Therefore, it is important to develop new teachers' knowledge, skills, and sense of ability



to influence teaching outcomes early. The Hoy and Woolfolk study (1990) of novice teachers showed that level of support correlated with positive changes in efficacy as assessed by the Bandura (1986) and personal teacher efficacy (PTE) measures. The study examined the influence of the teaching experience on three teacher perspectives: orientations toward control, social problem-solving style, and efficacy. Orientation toward control was defined as the ability of a teacher to establish and maintain order in the classroom. Social problem-solving style was defined as the teacher's approach to student/teacher relations. Efficacy was defined as the teachers' sense of his or her own ability to positively affect student learning. The link between teacher self-efficacy and motivation suggests that sustained and meaningful professional development in the immediate teaching environment could affect teacher course of action choices (Tschannen-Moran et al., 1998).

### Professional Development

While the intent of professional development (PD) programs implies change in teacher knowledge, instructional practices, and beliefs (Clarke & Hollingsworth, 2002), this is not always the outcome experienced by the participants. Driven by the needs and interests of the staff themselves, professional development enables them, as adult learners, to expand their content knowledge and practice, which is directly linked to their work with students in the classrooms (Elmore, 2002). It is critical to recognize and build upon the self-directedness, autonomy, prior knowledge and experience, and competence of these adult learners.

The question is what type of support, informal or formal, and how it should be implemented. Overwhelmingly the research shows that the increased federal and state accountability demands mandate that some planned program for ongoing teacher learning must occur at the district level (Bredeson & Scribner, 2000; Darling-Hammond & McLaughlin, 1995).

Historically, the conceptual construct of professional development described by Fenstermacher & Berliner (1983) describes advancing teacher knowledge, behaviors, and attitudes. It further suggests, and research supports, that ongoing teacher learning is essential for personal teacher growth and decisions for change, thus linking it to the development of self-efficacy (Bandura, 2000; Burley, Hall, Villeme, & Brockmeier, 1991; Smylie, 1988). The path analysis study findings of teacher volunteers in a staff development program by Smylie (1988) suggested that, in the absence of school or district pressures, individual change is a direct function of personal teacher efficacy. In another study of one school, Joyce, Wolf, and Calhoun (1993) found that K – 12 teachers, even with comprehensive training, only implemented 10% of strategies learned in professional development, unless the training was supported by facilitated classroom experience. Thus, without the link between individual teacher learning and practice, professional development programs fall short of their intended purpose.

Throughout the 1990s and into the new millennium professional development has relied on individual, out-of-school, expert-delivered workshops or mass group, in-house topical presentations on district curriculum issues. Design principles for effective professional development including teacher engagement in teaching tasks, grounded inquiry, teacher collaboration, teacher-student interaction, and connectivity to school change were discussed (Darling-Hammond & McLaughlin, 1995). Yet today, staff development research still highlights the need for replacement of “... a belief in experts who deliver knowledge of good teaching in workshops with communities of teachers who learn through ongoing collaboration and practice” (Sparks, 2001, p. 2). While a growing trend toward Professional Learning Communities (PLC) for teachers has emerged, additional real-time in classroom instruction venues with goal-oriented, constructive feedback structured on collaborative exchange (Guskey, 2003) are needed.

This involves a commitment to "... regular times for teachers to create, test, and refine their lessons and strategies together" (Schmoker, 2004, p. 8). Rather than a random, informal exchange of ideas among new and seasoned teachers, this is a planned meeting time for deliberate discussion, development and exchange of knowledge and strategies for classroom implementation.

### *Professional Development and Collaboration*

In the June 23, 2007 Alliance for Excellent Education report, *Tapping the Potential*, professional development is described as "... a sustained, intensive effort to improve teaching and learning" that "... must be collaborative, long term, and content driven" (Fallon, p. 16). Findings from a national survey of teachers confirmed that professional development that is continuous, encourages collegiality, is concurrent with current reform efforts, and increases professional communication exerts substantial positive influence on teacher practice (Garet, et al., 2001). Findings from the Teacher Effectiveness Study (US Department of Education, 2002) by the American Education Research Association (AERA) suggested that the shift from the norm-referenced schooling of the 20th century to the standards-based approach mandated by the No Child Left Behind Act (NCLB), Public Law 107-110, of 2001 significantly altered the work of teachers and students (Orfield, 2004). No longer could pre-service and practitioner professional development be treated as separate cultures; instead, explicit, continuous staff development must be part of the design for ongoing teacher learning (Schalock, H., Schalock, M., & Ayers, 2006).

Employing a descriptive case study design, Thibodeau (2006) investigated collaboration as embedded professional development found substantial positive and sustained influence on the teachers, particularly in their capacity for new learning and change. Both the quantitative and

qualitative data showed that: (a) as a group, the teachers' knowledge of content strategies grew over the 8-month study period; (b) teacher participation in this form of ongoing professional development changed how they viewed their professional responsibilities; and (c) the collaborative experience positively affected their instructional practices (Thibodeau). The research further suggested that the success of such small collaborative groups confirms the importance of dynamic, job-embedded professional development, and its potential to affect the larger school organization (Thibodeau). These networks draw new teachers into a learning community, formally changing teaching into a collaborative profession sharing best practice ideas (Fallon, 2007).

The Garet, et al. (2001) teacher survey supported the idea of regular work-day professional development, rather than the traditional pull-out forms to make connections with classroom teaching and provide continuity in practice. Teacher responses in the Garet, et al. studies suggested that professional development embedded in the instructional practice of a regular school day provided, not only content learning, but also application, strategic practice, and ongoing constructive feedback. Moreover, a dual-site descriptive case study by Kozaryn-Miskavitch (2006) examined how general and special educators viewed their collaborative practice while working in inclusive school settings. It further described the necessity for a well designed professional development plan for successful collaboration to meet both student and teacher learning needs. In this study, general education and special education teachers' perceptions of their collaborative practices were assessed by applying the collaboration framework of Friend and Cook (2007). Findings showed that although these teachers were working together to meet student needs, their practice had not yet evolved to the level of teacher interdependency necessary for sustained effective teacher development (Kozaryn-Miskavitch).

Given the self-efficacy research and action research that demonstrates new teachers' need for support to improve their practice in the beginning years, a school vision of a goal-oriented, collaborative staff development program seems inevitable to meet student needs and the changes of a demanding educational arena.

#### *Connecticut State Guidelines for Teacher Evaluation and Professional Development*

As federal and State educational reforms have redefined the standards for learning, individual states have defined the standards for professional practice. The Connecticut State Department of Education adopted a framework entitled the *Connecticut State Guidelines for Teacher Evaluation and Professional Development* (1999). It sets high standards of performance for teachers and administrators to improve student learning by outlining specific guidelines for evaluating teaching practice. School districts throughout the state formulated teacher evaluation procedures based on this document. The Connecticut State Department of Education (1999) *Common Core of Teaching* (CCT) is a policy document developed to delineate effective teaching strategies. The CCT provides two sections that focus on teacher knowledge and its application. Part of the third section, Foundational Skills and Competencies, focuses on collaboration and student achievement. Teachers are expected to work with colleagues in their schools to create a collaborative culture to address the needs of the students. These documents highlight the value of collaboration, but fall short of defining it as an expected model of sustained professional development for teachers.

#### *Teachers' Attitudes toward Professional Development*

In the last decade teachers' experiences with professional development have evolved from simply additional graduate course work, outside conferences, and in-house staff development days to the meaningful, ongoing collaborative experiences happening among

educators today. These experiences have fostered a change in the attitude toward professional development from one of criticism about sufficient time, relevance to classroom practice, and meaningful content to perceptions of meaningful connected learning that leads to change in instructional practice. Teachers' attitudes have evolved from positions of wasted time to acknowledgements of personal development and learning; however, the teaching practice is unlikely to change unless an organized structure, including relevant content, hands-on practice, and integration of the PD with what teachers are teaching occurs (Garet, et al.; Smith & Gillespie, 2007). The opportunities for active on-site learning from peer experts in content and pedagogy have contributed to this positive shift. This sharing of expertise to improve student achievement removes the control for teacher development from administrators and gives teachers ownership of their own learning. Attitudinally, this strikes a positive chord with educators who are trying to instill just such behavior in their students (Lieberman, 1995). It resonates with beliefs about the relevance of their professional teaching activities to their classroom instruction and the potential to promote positive professional change (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; Schalock, Schalock, & Ayres, 2006).

#### Implementation of Instruction: Collaborative Teaching

Federal legislation, including No Child Left Behind (NCLB) (2001) and the Individuals with Disabilities Act (IDEA) (2004), focused attention on providing access for all students to the academic standards of the general education classroom. This inclusive model of education demanded that approaches to the implementation of instruction include greater collaboration among general and special educators (Friend & Cook, 2007). More specifically, such collaboration requires a defined service delivery model, such as co-teaching, to best combine the content expertise of the general educator with the specialized instruction strategies of the special

educator (Friend & Cook). This construct, not only maximizes instruction for students, but also affords new teachers a practice model for embedded teacher professional development.

In the *Teacher Preparation and Professional Development: 2000* survey the National Center for Education Statistics reported that collaboration with other teachers accounted for 69% of the collaborative activity for public school educators and that this co-teaching model was critical for providing teachers with continuing training opportunities (U.S. Department of Education, 2001). Since the early 1900s, Vygotsky's work on the critical nature of the social environment for learning with the seminal concept of the "zone of proximal development" emphasized that individuals learn best through mentoring or collaboration (Schunk, 2000). Teachers, as learners, require programs aimed at meeting their needs for professional growth. Teachers should no longer practice in isolation, but work together with colleagues and students to expand, share, and reflect on their learning (Darling-Hammond, 2000).

Both Danielson (2002) and Blankenstein (2004) address the need for creating a school environment where every student fulfills his or her learning potential in a learning community that is student-focused, rather than content-focused. Appropriate academic teacher and student resources are critical for this goal to be achieved. The variations and vehicles for providing collaborative support require that the learning program, according to Jones et al., (2001) be flexible and responsive to the "external and internal changes affecting all partners in learning support" (p. 18). These researchers concluded that education lends itself to a collaborative approach to teaching and learning practices and opportunities to establish powerful partnerships, which can result in improved teacher and student successes.

Blanc, DeBuhr & Martin (1983) demonstrated how the incorporation of supplemental instruction effectively developed greater teacher/ learning faculty collaboration, which translated

into improved student performances. The collaboration was proactive, began on the first day of a student's course, was offered in context with the instructors' course plan, and provided daily, ongoing support. The authors believed this partnership approach, provided meaningful learning for the students and the regular opportunity for the teachers to receive useful feedback on their teaching. This last point highlights an issue unique to schools where teaching faculty are content specialists who lack pedagogical knowledge. By pairing a more experienced peer, such as a special educator, with a new content teacher both the students and teachers gained the opportunity to participate in a positive learning experience.

According to DuFour (2003), "... the best practice for meeting the needs of students and improving professional practice in schools is to build a collaborative culture" (p. 1). Such a culture requires a thorough understanding of the collaborative process and teacher commitment. In discussing collaboration as it relates to teachers, Catterall (2002) examines the case study interview data from four different higher education partnerships (in the fields of education, business, and nursing) involving collaborative teaching to illustrate the necessity of the collaborator and expert learning faculty roles. The partnerships combined the expertise of the language and academic advisor (LAS) with that of the subject specialist into a collaborative teaching team. In each study the co-teaching approach assisted the subject specialist classroom teacher to incorporate pedagogy, such as the understanding of learner needs for differentiated instruction strategies, and how to integrate these into lesson planning and implementation. The interview data suggested that the processes involved in collaboration lend themselves to change in teaching and learning practices that are sustainable (Catterall). One of the most commonly discussed collaborative partnerships occurs between a general educator and a special educator. With the reauthorization of the Individuals with Disabilities Education Act, Public Law 105-17,



(IDEA) passed in 1997, and the enactment of the NCLB legislation of 2001, the need for general education and special education teacher collaboration soared. Now, the combined expertise of a teaching model with both a general and a special educator offers the potential for ongoing effective instruction in diverse classrooms.

### Self-Efficacy of Teachers

For teachers, a perception of self-efficacy can translate into an increase in or lack of effort, persistence, and self-confidence in personal improvement in the teaching environment (Bandura, 2001). He emphasized that “self-efficacy is a situation-specific determinant of behavior rather than a global personality trait” (Fritz, Miller-Heyl, & MacPhee, 1995, p. 200). Teaching experience can influence professional development instructively through the cognitive processing of efficacy information and reflective thought (Bandura, 2000). However, experience alone does not guarantee teacher efficacy; it occurs only through experiential collaboration and reflection (Ward, 2005). Three components determine the best gains in self-efficacy and performance: (a) modeling; (b) guided practice; and (c) transfer of knowledge to the work arena (Woolfolk Hoy, 2000). In a collaborative model of teaching, new teachers and special educators are already paired for such interaction to occur; however, instructional feedback and reflection mechanisms require shared time and space considerations. Informative feedback through modeling affords new teachers the opportunity to apply the feedback received to correct personal instructional behaviors, while the guided practice provided by the experienced educator adds focus and meaning to their co-teaching, thus increasing both individuals’ beliefs in their self-efficacy, rather than merely improving skills. In this environment, mutual benefits arise out of collaborative experimentation within a professional community.

Increased self-efficacy beliefs, nurtured through on-going professional development, present a strong motivation for new teachers to develop personally and professionally (Lewandowski, 2005). Tschannan-Moran and Woolfolk Hoy (2002) found that support in the beginning years of teaching appeared critical to the development of teacher efficacy; however, the obligatory twice a year observation/evaluation does not appear to be enough feedback for enhancing a new teacher's self-efficacy. Their findings demonstrate a need to further distinguish among the "...sources of efficacy information" (Tschannan-Moran & Woolfolk Hoy, p. 7) that influence teachers at various stages of their careers. While one's sense of self-efficacy may seem just one part of an individual, it is a crucial factor that determines a teacher's personal judgment about their capability to impact outcomes in the learning environment. This ultimately affects teacher behavior and student achievement.

#### Motivation of Teachers

Motivation provides a critical source of cognitive influence, particularly goal-setting and reflective evaluation, measured as a teacher's persistence and pursuit of positive educational outcomes (Bandura, 2001, 1977). The self-efficacy beliefs of teachers determine the effort they will expend on an activity, the perseverance employed to overcome obstacles, as well as the resilience demonstrated in adverse circumstances (Pajares, 2002). Such self-motivated behavior acts as a standard-setting mechanism, which the individual employs to achieve a balance between internally, and externally imposed standards, and an acceptable outcome performance (Bandura, 2001). Regardless of other motivating factors, efficacy beliefs are the basis for an individual's belief that one's behavior can overcome obstacles and produce desired outcomes.

For a beginning teacher, the link between perceived self-efficacy and motivation is paramount. The research on motivation and self-efficacy postulates that "efficacy expectations

are presumed to influence level of performance by enhancing intensity and persistence of effort” (Bandura, p. 212). From the social cognitive perspective, motivation is the individual self-regulation, influence and control, over one’s environment. In teachers, the activation of a self-regulatory response demonstrates the levels of motivation. While efficacy beliefs provide the foundation of a teacher’s capability, it is their subsequent actions that form the basis of teacher motivation. For example, in the educational workplace six new teachers interviewed for a case study found themselves on a journey of self-discovery and reshaping (Featherstone, 1993). Over the course of the first year of teaching these teachers participated in two Beginning Teacher Study Groups that met once every two weeks. Taped narratives of their experiences formed the basis for the study of teaching experience. The challenging classroom experiences encountered, not only affected their competence, but also involved cognitive and affective self learning of their perceived capabilities, which would translate into either positive or negative teacher classroom behaviors. Underlying each teacher narrative was a strong personal motivation to succeed as a teacher. The task specific nature of self-efficacy is motivating and liberating for a beginning teacher because it suggests that a poor demonstration in one area, such as classroom questioning techniques, does not singularly determine good or bad teacher performance (Woolfolk Hoy, A., 2004). While a teacher’s belief in his or her capability provides an inner strength, it is the level of motivation toward work that leads to action (Blais, Lachance, Vallerand, Briere, & Riddle, 1993). Thus, new teachers’ motivation levels, as well as self-efficacy beliefs, continue to develop throughout their teaching experiences and impact instructional practice and commitment, making them vital to a discussion of the effects of a collaborative teaching model of professional development.

## Conclusion

This review of the literature affords the theoretical and empirical foundation for the study of the effects of a collaborative teaching model of professional development on new sixth through twelfth grade teachers' attitudes, self-efficacy, motivation, and implementation of instruction. Moreover, the literature reveals a lack of investigation into the specific responses of new teachers as participants in a co-teaching model of on-going professional development. The overview of social learning theory (Bandura, 1977; Schunk, 2000), as well as the professional development (Maldonado, 2002; Thibodeau, 2006), and the collaborative teaching (Friend, 2007; Sharpe & Hawes, 2003) models provide the structure for discussion and consideration of co-teaching as an effective form of embedded professional development for new middle and secondary teachers.

## CHAPTER THREE: METHODOLOGY

This chapter describes the research design and methodology of this study examining the collaborative teaching model of professional development as it relates to new sixth through twelfth grade teachers' attitudes, implementation of instruction, self-efficacy, and motivation. The research questions that prompted the study are outlined and the hypotheses drawn from these inquiries are stated. The design of the study is explained followed by a description of the research methodologies employed. The demographic data include information regarding the population, teacher sample, school, and community. Validity and reliability of the assessment instruments are outlined, as well as the particulars of the research design, data sources, and collection procedures. Methods for analyzing the data are summarized. The chapter concludes with a discussion of the strengths and limitations of the study.

### Research Perspective

Recognizing the educational challenges faced by new sixth through twelfth grade teachers in the classroom, the question of how to support their efforts arises. While traditional forms of professional development continue, they are criticized as being ineffective in providing the duration, practice, and content learning necessary for today's teachers to be successful in addressing the challenging learning needs of an increasingly diverse student group (Garet, et al.). In addition, the shift to a standards-based curriculum arising out of the legislation of the 1990s, demanded that educators be highly qualified almost at the moment they stepped into a classroom (NCLB, 2001). For new teachers, this requisite ability seemed daunting given their limited classroom experience. While informal collaboration has often occurred among teachers in individual schools or districts, this study questioned whether a formalized program of

collaborative professional development between general and special educators would afford the new teachers greater opportunity for improved attitudes toward learning, self-efficacy, and motivation.

### Research Questions

By using a systematic approach, this study addressed four research questions:

1. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development?
2. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of self-efficacy?
3. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of motivation?
4. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' implementation of instruction in the classroom?

### Hypotheses

By using a systematic approach, this research responded to the following hypotheses:

1. H<sub>1</sub>. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' attitudes toward professional development.
2. H<sub>2</sub>. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of self-efficacy.
3. H<sub>3</sub>. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of motivation.
4. H<sub>4</sub>. Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' implementation of instruction in the classroom.

## Description of the Setting and the Subjects

### *Setting*

The school district is located in a small-sized, middle socio-economic, culturally expanding, suburban town in New England. The local population, according to the last census, was 18,067. The school system included 3,230 students in one high school, one middle school (grades 6-8), two upper elementary schools (grades 4-5), and two primary (Pre-K-3) schools. Free and reduced lunch programs were used by 7.2% of the students compared to the state average of 27.3%. In addition, 9.4% of the students came from non-English speaking homes compared to the state average of 12.8% (Connecticut State Department of Education, Strategic School Profile, 2006-2007).

### *Subjects*

There are 79.8 full-time equivalent (FTE) teachers at the high school and 58.5 full-time equivalent (FTE) teachers at the middle school with an average of 13.5 years of experience teaching in Connecticut. The study sample included 23 faculty members, each with less than five years teaching experience as full time classroom teachers in a collaborative assignment in either the middle school or the high school. Of the participants, 15 were female and 8 were male. The ages ranged from 23 to 50 years, with 11 teachers holding master's degrees and 12 with bachelor's degrees. All the teachers in the study were Connecticut certified in either elementary or secondary school. Sixteen held specific content area certification (art, English, reading, mathematics, and social studies), while seven possessed comprehensive (kindergarten through grade 12) certification in special education. Grades six through twelve were represented in the study group by at least one participant. If it was their first year, teachers participated in a new

teacher orientation at the beginning of the school year and new teacher monthly meetings with the vice-principal. All participated in ongoing monthly department meetings and professional learning community meetings throughout the school year.

### Research Design

A Pre/Post Quasi-Experimental (Gall, Gall, & Borg, 2003) approach was conducted using a quantitative research design with a descriptive component for data analysis and collection. Four research questions addressed the impact of active participation in a collaborative teaching model on new middle and secondary teachers': (a) attitudes toward professional development, which was assessed using quantitative methods; (b) levels of self-efficacy, which were investigated quantitatively; (c) levels of motivation, also measured quantitatively; and, (d) implementation of instruction that was explored using descriptive quantitative measures.

These effects on teachers were determined using data collected at the beginning of the fall semester in September and at the end of that semester in December from the teachers engaged in the collaborative classes. Since the ultimate goal of the study was to examine and measure growth and change in subjects, person and practice over time, no comparison groups were used.

Social settings, such as school classrooms, afford an opportunity to collect data in an organized experimental manner, albeit without the full control over time and subjects, particularly randomization, available in the laboratory (Campbell & Stanley, 1963). The quasi-experimental design highlights research that might not be possible otherwise, thus leaving a research void in most social science arenas. This study provided a pragmatic, real-life situation for measuring and observing the effects of an embedded collaborative practice model of professional development for new teachers in middle and secondary schools.



While the preponderance of data collection and analysis during the five-month study entailed a quantitative design method to show the effects of the collaborative teaching model on attitudes, self-efficacy, and motivation which were collected and analyzed at the beginning of the study, and again, at the end to show a change over time. Observations of three collaborative teams, conducted twice for each team ( $n = 6$ ), at the beginning and endpoint of the study, supplied descriptive data. Lastly, an exit questionnaire offered additional descriptive insights into the teachers' perceptions of their collaborative experience. Campbell (1963) argues that it is the quality of the probative powers, and subsequent care, in interpreting the results of the study that qualifies the research design.

Data were collected from new middle and secondary teachers ( $n = 23$ ) at the beginning and endpoint of the study using the following three instruments: the *Semantic Differential Scale* to assess teacher attitudes, the *Teacher Efficacy Scale*, and the *Work Motivation Inventory*. The constructs of teachers' attitudes toward collaboration, levels of self-efficacy, and motivation were measured by these three instruments.

In addition, at the start and end of the study, the fourth dependent variable of implementation of instruction, was assessed using two observations of three randomly selected collaborative teacher teams ( $n = 6$ ), each composed of a new general educator and a special educator. These observations were all conducted by an objective teacher observer using the school district's teacher evaluation form, *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* (see Appendix A). At the end of the study the teachers completed a *Teacher Exit Questionnaire* (see Appendix B).

The one independent variable was the trained active participation of new sixth through twelfth grade teachers in a collaborative teaching model over time. This construct was viewed

selectively through the descriptive observations of three collaborative teams. In addition, the 6-item short answer exit questionnaire of the individual teacher's perceptions of his or her collaborative teaching experience was also used to assess implementation of instruction.

### Instrumentation

Data were collected using the following five instruments. The *Semantic Differential Scale* was employed to assess teacher attitudes, the *Teacher Efficacy Scale* addressed levels of self-efficacy, and the *Work Motivation Inventory* elicited levels of work motivation. To evaluate teacher implementation of instruction the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* and the *Teacher Exit Questionnaire* were administered.

#### *Semantic Differential Scale*

The *Semantic Differential Scale* (SDS) (Pizzo, 1981) is a highly generalizable measurement technique for accessing certain types of attitudinal information. The scales and concepts used in a particular study depend upon the research purpose. Pizzo's SDS includes 4 scales: (a) Evaluative (good-bad); (b) Activity (fast-slow); (c) Potency (strong-weak); and (4) Stability (calm-anxious). These scales comprised of 12 opposite descriptive pairs- 3 word pairs for each of the 4 factors, demonstrate the instrument's face validity. The Kudar-Richardson Formula 21 employed to assess the reliability coefficient demonstrated a .98 coefficient for the first administration and a .99 coefficient for the second administration (Pizzo, 1981).

For the purpose of this study, attitudes of teachers towards a collaborative teaching model of professional development were assessed using the *Semantic Differential Scale*. In this investigation, the SDS was administered to each participant at the beginning of the study, and again at the end of the study. Each subject completed a total of two assessments to evaluate the

effect change in teacher attitude toward this ongoing professional development over the course of the study.

### *Teacher Efficacy Scale*

The *Teacher Efficacy Scale* (TES), a short, 10-item survey, was developed by Hoy and Woolfolk (1993) based on Albert Bandura's (1977) seminal work on the effect of motivation on people's actions and the anticipated consequences of those actions and Gibson and Dembo's (1984) 30-item survey, which corresponded to Bandura's theory of self-efficacy. Hoy and Woolfolk modified the Gibson and Dembo instrument to reflect general teaching efficacy (GTE) and personal teaching efficacy (PTE), each measured by five survey items.

Responses to the *Teacher Efficacy Survey* are scored on a 6-point Likert scale of 1 = Strongly Agree through 6 = Strongly Disagree. Reliabilities for the PTE of .77 and the GTE of .72 were reported (Hoy & Woolfolk, 1993). Validity was assessed by Gibson and Dembo (1984) using a multi-trait-multimethod analysis that supported both convergent and discriminant validity of the instrument (Hoy & Woolfolk, 1990).

### *Work Motivation Inventory*

The *Work Motivation Inventory* (WMI) (Blais, Lachance, Vallerand, Briere, & Riddle, 1993) is composed of 15 items divided into 5 groupings, each introduced with an "I Teach" statement. Each of these statements corresponds to a level of teacher motivation toward work: (a) intrinsic motivation, (b) identified regulation, (c) introjected regulation, (d) extrinsic motivation, and (e) lack of motivation. The dichotomous scale is designed to identify the more self-determined to the least self-determined forms of teacher motivation based on the item checked in each group by the respondent (Blais, Lachance, Vallerand, Briere, & Riddle, 1993; Deci & Ryan, 1985; Vallerand, Blais, Briere, & Pelletier, 1989). Each of the 15 items was assigned a weight on

a 4-point scale, which ranged from 3 (high), 2 (moderate), 1 (low), to 0 (no check) on the self-determination items. This assessment provided scores for five indicators of teacher self-determination toward work. A factor analysis supported the five-factor structure of the groups (Blais et al.). Internal consistency was determined using Cronbach's alpha, which measured .80 across the five indices.

In this research, the WMI was administered twice to the participants, once at the start and once at the completion of the study, to assess whether a change had occurred in the teachers' motivation toward their work following their collaborative practice experience. Furthermore, the assessment offered additional insight into how motivation might be viewed in the context of instructional practice.

#### *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*

The *Teaching Competencies Non-Tenured Teacher Appraisal Program Observation* (Common Core of Teaching, 2006) was used to assess implementation of instruction during the collaborative teaching experience. This instrument is composed of 22 items grouped in three competencies: (a) The Management of the Classroom Environment, (b) Instruction, and (c) Assessment of Student Understanding and Consequent Adjustment of Instruction. This protocol was developed to identify the core competencies sought in beginning teachers. Each item is measured on a 5-point scale that ranges from 1 (not applicable) to 5 (exemplary). This observation format provides scores for five critical aspects of classroom performance that were used to describe the new teachers' instructional experience.

#### *Teacher Exit Questionnaire*

The *Teacher Exit Questionnaire* was developed by the researcher to gather descriptive data on the implementation of instruction construct as perceived by the teachers. It is composed

of six open-ended, short answer questions aimed at probing the reflections of new teachers following a collaborative teaching experience. Key ideas highlighted in the question statements include: meaningfulness of experience, applicable new and applied skills, instructionally altering experience, instructional revision ideas, and the desire to collaborate. These descriptive data were used to further describe the new teachers' professional development as collaborative educators.

### Treatment

The treatment experienced by each teacher in the study included participation in 12 weeks of collaboration in a content class with another teacher at one or more grade levels (6<sup>th</sup> through 12<sup>th</sup> grades). Each subject was a member of a collaborative team at either the middle or secondary school level. The subjects were introduced to the study at the beginning of the school year. The Collaborative teams were each composed of 1 general educator and 1 special educator; one team member is a new teacher with five or less years of classroom teaching. These teachers worked together to provide instruction, accommodation and/or modification of lessons, and assessment activities during each class session, approximately four classes per week. While each teacher had planning time in his or her individual schedule, the collaborative teams had to establish team specific planning times to develop their shared instructional goals and objectives.

New teacher meetings and department meetings were attended by each teacher on a monthly basis. In addition, Professional Learning Community (PLC) meetings also occurred twice during the study period. Each of these sessions offered the new teachers additional learning in classroom instruction and management, as well as support for developing formative and summative student assessments.

## Data Collection Sources, Procedures, and Timeline

The data for this study were collected from the teacher-participants and the teacher observations of the observer-participant. These sources provided data to examine the effects on new middle and secondary school teachers' attitudes, self-efficacy, and motivation from participation in a collaborative teaching model of professional development and the effect on implementation of instruction. Table 1 demonstrates the relationship of the research questions to the sources of data.

Table 1

*Research Questions, Hypotheses, Instrumentation, and Analyses*

Research Question	Hypotheses	Subjects	Data and Analysis
Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development?	Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' attitudes toward professional development.	23 new middle school and secondary school teachers	<i>Semantic Differential Scale (SDS)</i> given at the start and end of the study  Repeated measures ANOVA
Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of self-efficacy?	Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of self-efficacy.	23 new middle school and secondary school teachers	<i>Teacher Efficacy Scale (TES)</i> administered at the start and end of study  Repeated measures ANOVA
Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of motivation?	Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of motivation.	23 new middle school and secondary school teachers	<i>Work Motivation Inventory (WMI)</i>  Repeated measures ANOVA
Does active participation in a collaborative teaching model affect the implementation of instruction in the classroom?	Active participation in a collaborative teaching model will affect the implementation of instruction in the classroom.	Observations of 3 collaborative teams (3 from the high school)	<i>Non-Tenured Teacher Appraisal Program Observation Form</i> (observations at the beginning and end of the study)
		23 new middle school and secondary school teachers	<i>Teacher Exit Questionnaire</i> Frequencies, means, and standard deviations

### *Informational Meetings*

To provide information and to gather descriptive data, informational in-person and electronic communication were used.

1. An introductory contact meeting, at the start of the school year in September 2007, was held with the proposed sample of teachers to introduce the researcher, outline the study, answer questions, and obtain the subject teachers' informed signed consent for participation. E-mail reminders were sent during the study to encourage data collection.
2. All teachers' demographic data were recorded and collected at the beginning of the study. Teachers indicated their age, gender, years of classroom teaching experience, degrees obtained, and experience with a collaborative model of instruction.
3. An exit questionnaire was completed by each participant in the study in November 2007 using the 6-item *Teacher Exit Questionnaire* to engage the subject teachers in a reflective assessment of their experiences with collaboration.

### *Assessment Procedures*

1. All participants in the study completed the *Semantic Differential Scale (SDS)* at the beginning of the study in September 2007. This provided the researcher with a baseline attitudinal profile of each participant. The identification of initial attitudes toward collaborative teaching was essential in assessing the effect of ongoing professional development.



2. All participants completed the *Teacher Efficacy Scale* (TES) at the initial meeting. This provided the researcher with information about each teacher's perceived self-efficacy prior to his or her involvement in the study.
3. Each teacher also completed a *Work Motivation Inventory* (WMI) at the beginning of the study to establish a personal motivation toward work baseline that the researcher utilized to measure the effect of a collaborative model on individual teacher motivation.
4. Finally, at the end of the study in December 2007, during the exit meeting, each teacher again completed the testing packet including the SDS, the TES, and the WMI.

*Observations: Collaborative Teaching Practice*

1. To assess the implementation of instruction, three randomly sampled observations of the collaborative instruction in three secondary classrooms were conducted in early fall and in late November 2007.
2. This information provided descriptive data in the form of frequencies and percentages.
3. These observations were conducted by a trained observer, an educator familiar with the implementation of the teacher evaluation instrument.
4. The *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* form for the school district was used.

### *Data Analysis Procedures*

1. *The Statistical Package for the Social Science (SPSS) 13.0 for Windows XP, Graduate Package*, was used for statistical analyses.

Differences over time among the new teachers ( $n = 23$ ) on the collaborative teams were analyzed using a repeated measures ANOVA. New teachers' attitudes, self-efficacy, and motivation were assessed at the beginning of the study and again, at the end of the study by analyzing the differences in scores over time on the *Semantic Differential Scale*, *Teacher Efficacy Scale*, and the *Work Motivation Inventory*. The attitudes, self-efficacy, and motivation of the teachers were the first three dependent variables.

2. The observation data from the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* and the *Teacher Exit Questionnaire* responses described the fourth dependent variable, the implementation of instruction, and were reviewed and presented as descriptive data, including percentages and frequencies
3. These descriptive data further supported the first research question, the teachers' attitude toward the collaborative experience of professional development. This study was designed to demonstrate how a collaborative teaching model might provide an on-going, consistent, classroom model for the professional development of new teachers.

### Statement of Ethics and Confidentiality

Permission to participate in this research was sought from the district superintendent, each school principal, and all the teacher participants (see Appendix C). To assure

confidentiality, each participant was assigned a confidential identification number. All data were stored in a locked filing cabinet in the researcher's home or office and were maintained there until the findings were published; these data were accessible only to other researchers for whom the data will prove useful in further comparative analyses and who are enrolled in Western Connecticut State University's Doctor of Education in Instructional Leadership Program.

## CHAPTER FOUR:

### ANALYSIS OF DATA AND EXPLANATION OF THE FINDINGS

The purpose of this study was to measure the effects of a collaborative teaching model on new sixth through twelfth grade teachers' attitudes, self-efficacy, motivation, and implementation of instruction, as described by observational and exit questionnaire data. Four research questions were addressed: (a) Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development? (2) Does active participation in a collaborative teaching model affect new middle and secondary teachers' levels of self-efficacy? (3) Does active participation in a collaborative teaching model affect new middle and secondary classroom teachers' levels of motivation to work? (4) Does active participation in a collaborative teaching model affect the implementation of instruction in the classroom? Chapter Four presents the results of this research inquiry. The results are presented in four sections: (a) descriptive information, (b) data screening process, (c) descriptive statistics, and (d) analysis of the findings including tables and figures. Following a presentation of the descriptive data obtained from the *Teacher Efficacy Scale* demographic section, the results of the statistical analyses of the data collection are provided that reflected on the four research questions posed at the beginning of the study.

#### Descriptive Information

The total number of teachers in the study was 23, eighteen secondary teachers and 5 middle school teachers. Complete data for the attitude and efficacy scales and the motivation inventory were collected at the beginning of the collaborative teaching experience in September 2007 and again, after 12 weeks of collaboration, in December 2007. Six high school classroom observations also were conducted with teachers who had consented to being observed with the

*Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*. The *Teacher Exit Questionnaire* was also collected from all the teachers. Of the participants, 15 were female and 8 were male. The ages ranged from 23 to 50 years, with 11 teachers holding master's degrees and 12 with bachelor's degrees. Sixteen teachers were certified in specific content areas (art, English, reading, mathematics, and social studies); while seven held comprehensive certification in special education. Grades six through twelve were represented in the study group by at least one participant.

### Data Screening Process

#### *Data Value Cleaning*

Once data collection was completed, the data collected using the *Semantic Differential Scale*, the *Teacher Efficacy Scale*, and the *Work Motivation Inventory* were viewed for value cleaning. This verification process checked the appropriateness of the numbers for each value in the study (Meyers, Gamst, & Guarino, 2006). The cleaning procedures established whether the value for each variable under study contained only valid numbers, and if these values seemed reasonable. The purpose of the cleaning was not to attest to the trueness of the values, but to verify if each number falls within a specific range.

Visual inspection was the first step in the data cleaning process. Since the sample ( $n = 23$ ) was small, the data were examined visually for missing values. There were no missing values, so the sample size remained stable.

The next step in the data cleaning procedure involved the detection of univariate outliers. Again, the size of the sample allowed for a visual review to detect extreme scores across the cases in the study. Based on the recommendation of Hair, Anderson, Tatham and Black (1998), SPSS was used to convert the values for each case to standard scores with a mean of 0 and a

standard deviation of 1. Case scores with  $z$  scores exceeding  $\pm 2.5$  were considered outliers and carefully reviewed for possible deletion (Hair, Anderson, Tatham & Black, 1998).

In addition, sphericity is assumed under Mauchly's Test (Meyers, Gamst, & Guarino, 2006) for homogeneity of variance in a within-subjects design where there are only two levels of the repeated measures. This test determines that the two assumptions are met. First, it checks for homogeneity of variance by testing if the dependent variable variance-co-variance matrices show equality or homogeneity for a within-subjects design. By assessing the equality of variances across the levels of the repeated measure, it acts analogous to the Levene's test for between-subjects design. Second, Mauchly's test assesses whether the correlations between the levels of the within-subjects variable are comparable. However, in this one-way repeated measures design there were only two levels, pre and post treatment, of the dependent variables of attitude, efficacy, and motivation; therefore, "...the Mauchly test will not produce useful results" (Meyers, Gamst, & Guarino, p. 331).

## Descriptive Statistics

### *Teacher Efficacy Scale*

The 10 items from the *Teacher Efficacy Scale* and the total score are represented in Table 2 and Table 3. These tables demonstrate that there were no code violations for both the pretest and posttest scores. Means and standard deviations on these continuous variables all appear reasonable, within expectations for the results of a 6-point Likert scale instrument. It seems from this initial screening that these variables are "clean."

Table 2

*Pre-Test Frequencies and Statistics for the Teacher Efficacy Scale (n = 23)*

	<u>Efficacy</u>					
	<u>Total</u>	<u>Family</u>	<u>Discipline</u>	<u>Effort</u>	<u>Environs1</u>	<u>Parents</u>
Mean	29.39	4.00	2.65	2.17	3.70	3.26
Median	31.00	4.00	2.00	2.00	4.00	3.00
Std. Deviation	4.098	1.128	1.112	1.072	1.020	.915
Skewness	-.256	.000	.339	.350	-.163	1.374
Std. Error						
Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	-1.360	-.654	-.688	-1.138	-1.032	2.863
Std. Error						
Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	23	2	1	1	2	2
Maximum	35	6	5	4	5	6

Note: There were no missing values.

Table 2 (continued)

*Pre-Test Frequencies and Statistics for the Teacher Efficacy Scale (n = 23)*

	Disruptive				
	Memory	Student	Assignments	Try Hard	Environs 2
Mean	2.65	1.96	2.04	2.61	4.35
Median	3.00	2.00	2.00	2.00	5.00
Std. Deviation	.885	.706	1.022	.839	1.071
Skewness	-.077	.061	.747	.384	-.782
Std. Error Skewness	.481	.481	.481	.481	.481
Kurtosis	-.562	-.820	-.387	-.638	.371
Std. Error Kurtosis	.935	.935	.935	.935	.935
Minimum	1	1	1	1	2
Maximum	4	3	4	4	6

Note: There were no missing values.



Table 3

*Post-Test Frequencies and Statistics for the Teacher Efficacy Scale (n = 23)*

	<u>Efficacy</u>					
	<u>Total</u>	<u>Family</u>	<u>Discipline</u>	<u>Effort</u>	<u>Environs 1</u>	<u>Parents</u>
Mean	29.04	3.87	2.57	2.61	3.74	3.04
Median	27.00	4.00	2.00	2.00	4.00	3.00
Std. Deviation	4.940	1.180	1.273	.988	1.054	1.430
Skewness	.851	.092	.782	.289	-.190	.326
Std. Error						
Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	.323	-.697	-.293	-1.108	-1.169	-.808
Std. Error						
Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	23	2	1	1	2	1
Maximum	42	6	5	4	5	6

Note: There were no missing values.

Table 3 (continued)

*Post-Test Frequencies and Statistics for the Teacher efficacy Scale (n = 23)*

	Disruptive				
	Memory	Student	Assignments	Try Hard	Environs 2
Mean	2.35	1.96	2.04	2.52	4.35
Median	3.00	2.00	2.00	2.00	5.00
Std. Deviation	.832	.706	.976	.730	.885
Skewness	.792	.061	1.514	.301	-.355
Std. Error of Skewness	.481	.481	.481	.481	.481
Kurtosis	-.274	-.820	3.117	-.058	-.918
Std. Error of Kurtosis	.935	.935	.935	.935	.935
Minimum	1	1	1	1	3
Maximum	4	3	5	4	6

Note: There were no missing values.

### *Semantic Differential Scale*

Fourteen interval level variables (pre and post teacher attitude total and the 12 items of the *Semantic Differential Scale*) were chosen to represent the variables in the data set. Table 4 demonstrates that there were no code violations for these continuous variables. Means and standard deviations on these variables all appear reasonable. It seems from this initial screening that these variables are “clean.”

Table 4

*Pre-Test Frequencies and Statistics for the Semantic Differential Scale (n =23)*

	Attitude Total	Confused Clear	Energetic Tired	Nervous Calm	Strong Weak	Tense Relaxed
Mean	44.70	3.83	3.91	3.74	3.57	3.61
Median	48.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation	7.882	.717	.848	1.010	.728	1.196
Skewness	-.823	-1.349	-.804	-.292	-.634	-.369
Std. Error Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	-.114	2.648	.682	-.904	.253	-.723
Std. Error Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	27	2	2	2	2	1
Maximum	56	5	5	5	5	5

Note: There were no missing values.

Table 4 (continued)

*Pre-Test Frequencies and Statistics for the Semantic Differential Scale (n = 23)*

	Wonderful	Shaky	Certain	Bad	Peaceful
	Terrible	Steady	Uncertain	Good	Frustrated
Mean	3.83	3.70	3.61	3.91	3.52
Median	4.00	4.00	4.00	4.00	4.00
Std. Deviation	.834	.974	.941	.996	.898
Skewness	-.163	-1.255	-.523	-.418	-.896
Std. Error of Skewness	.481	.481	.481	.481	.481
Kurtosis	-.509	1.777	-.496	-.900	1.736
Std. Error of Kurtosis	.935	.935	.935	.935	.935
Minimum	2	1	2	2	1
Maximum	5	5	5	5	5

Note: There were no missing values.

Table 4 (continued)

*Pre-Test Frequencies and Statistics for the Semantic Differential Scale (n = 23)*

	Dull	Success
	Sharp	Unsuccess
Mean	3.74	3.74
Median	4.00	4.00
Std. Deviation	.689	.752
Skewness	-1.436	-.218
Std. Error of Skewness	.481	.481
Kurtosis	2.331	.072
Std. Error of Kurtosis	.935	.935
Minimum	2	2
Maximum	5	5

Note: There were no missing values.

Table 5

*Post-Test Frequencies and Statistics for Semantic Differential Scale (n = 23)*

	Post					
	Attitude	Confused	Energetic	Nervous	Strong	Tense
	Total	Clear	Tired	Calm	Weak	Relaxed
Mean	48.04	3.87	4.04	4.04	3.70	4.22
Median	50.00	4.00	4.00	4.00	4.00	4.00
Std.						
Deviation	7.100	.458	.706	.928	.765	.736
Skewness	-1.268	-.595	-.911	-.839	-1.402	-.376
Std. Error						
Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	1.904	1.886	2.322	.174	1.485	-.975
Std. Error						
Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	28	3	2	2	2	3
Maximum	58	5	5	5	5	5

Note: There were no missing values.

Table 5 (continued)

*Post-Test Frequencies and Statistics for the Semantic Differential Scale (n = 23)*

	Wonderful	Shaky	Certain	Bad	Peaceful
	Terrible	Steady	Uncertain	Good	Frustrated
Mean	4.04	3.91	4.04	4.26	4.00
Median	4.00	4.00	4.00	4.00	4.00
Std. Deviation	.706	.900	.825	.810	.798
Skewness	-.911	-1.047	-.617	-.534	-.588
Std. Error of Skewness	.481	.481	.481	.481	.481
Kurtosis	2.322	.897	.167	-.900	1.736
Std. Error of Kurtosis	.935	.935	.935	.935	.935
Minimum	2	2	2	3	2
Maximum	5	5	5	5	5

Note: There were no missing values.



Table 5 (continued)

*Post-Test Frequencies and Statistics for the Semantic Differential Scale (n = 23)*

	Dull	Success
	Sharp	Unsuccessful
Mean	3.87	4.04
Median	4.00	4.00
Std. Deviation	.757	.767
Skewness	-.461	-.076
Std. Error of Skewness	.481	.481
Kurtosis	.473	-1.223
Std. Error of Kurtosis	.935	.935
Minimum	2	3
Maximum	5	5

Note: There were no missing values.

### *Work Motivation Inventory*

The five items from the *Work Motivation Inventory* and the total score are represented in Table 6. These two tables demonstrate that there were no code violations for both the pretest and posttest scores. Means and standard deviations all appear reasonable. It seems from this initial screening that these variables are “clean.”

Table 6

*Pre-Test Frequencies and Statistics for the Work Motivation Inventory (n = 23)*

	Motivation	Teaching			Job	
	Total	Role	Importance	Fulfill	Demands	Rationale
Mean	9.78	2.43	2.43	1.04	1.13	1.09
Median	10.00	3.00	3.00	1.00	1.00	1.00
Std. Deviation	1.347	.843	.843	.825	.694	1.345
Skewness	.555	-1.519	-1.021	.981	1.605	1.177
Std. Error of Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	-.093	1.885	-.763	1.314	3.808	.155
Std. Error of Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	8	0	1	0	0	0
Maximum	13	3	3	3	3	4

Note: There were no missing values.

Table 6 (continued)

*Post-Test Frequencies and Statistics for the Work Motivation Inventory (n = 23)*

	Post					
	Motivation	Teaching			Job	
	Total	Role	Importance	Fulfill	Demands	Rationale
Mean	9.78	2.61	2.52	1.70	1.39	1.57
Median	10.00	3.00	3.00	1.00	1.00	1.00
Std.						
Deviation	1.347	.583	.730	.822	.722	.896
Skewness	.555	-1.217	-1.231	.647	1.605	1.033
Std. Error						
Skewness	.481	.481	.481	.481	.481	.481
Kurtosis	-.093	.684	.161	-1.190	1.130	-.943
Std. Error						
Kurtosis	.935	.935	.935	.935	.935	.935
Minimum	8	1	1	1	1	1
Maximum	13	3	3	3	3	3

Note: There were no missing values.

*Assessment of Univariate Outliers*

An assessment of univariate outliers performed using SPSS for the variables of efficacy, attitude, and motivation, yielded box plots for each of the three variables. Since the box plot provides specific information regarding the exact outliers present in a set of data, it was chosen to determine univariate outliers (Meyers, Gamst, & Guarino, 2006). The representative box plots for the pre and post treatment variables, Teacher Efficacy, Attitude, and Motivation, shown in Figure 1, represent the univariate outlier screening performed for these variables.

*Figure 1. Teacher Efficacy, Attitude, and Motivation Scale Box Plot for Pre Treatment*

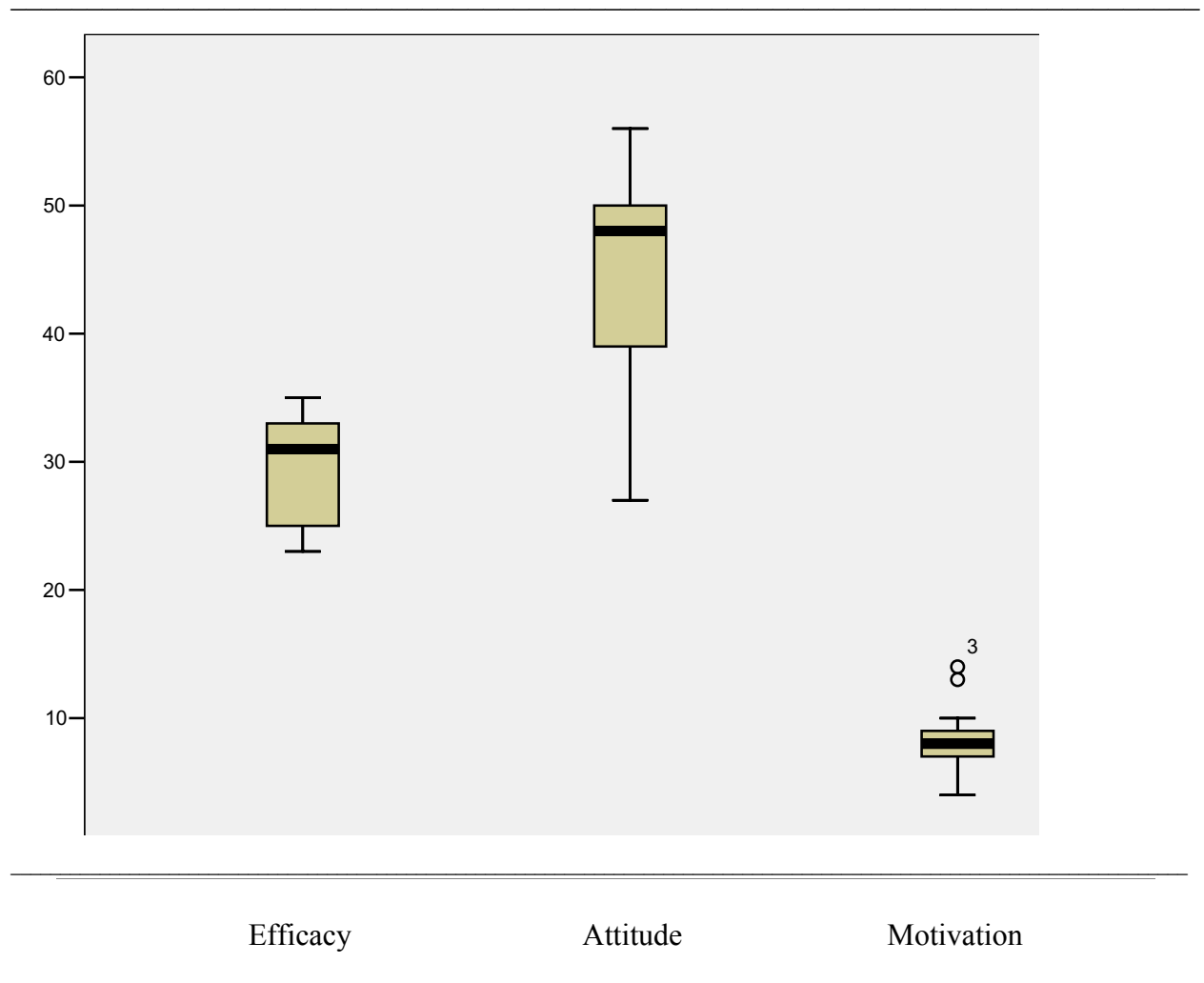


Figure 1 (continued). Teacher Efficacy, Attitude, and Motivation Scale Box Plot for Post Treatment

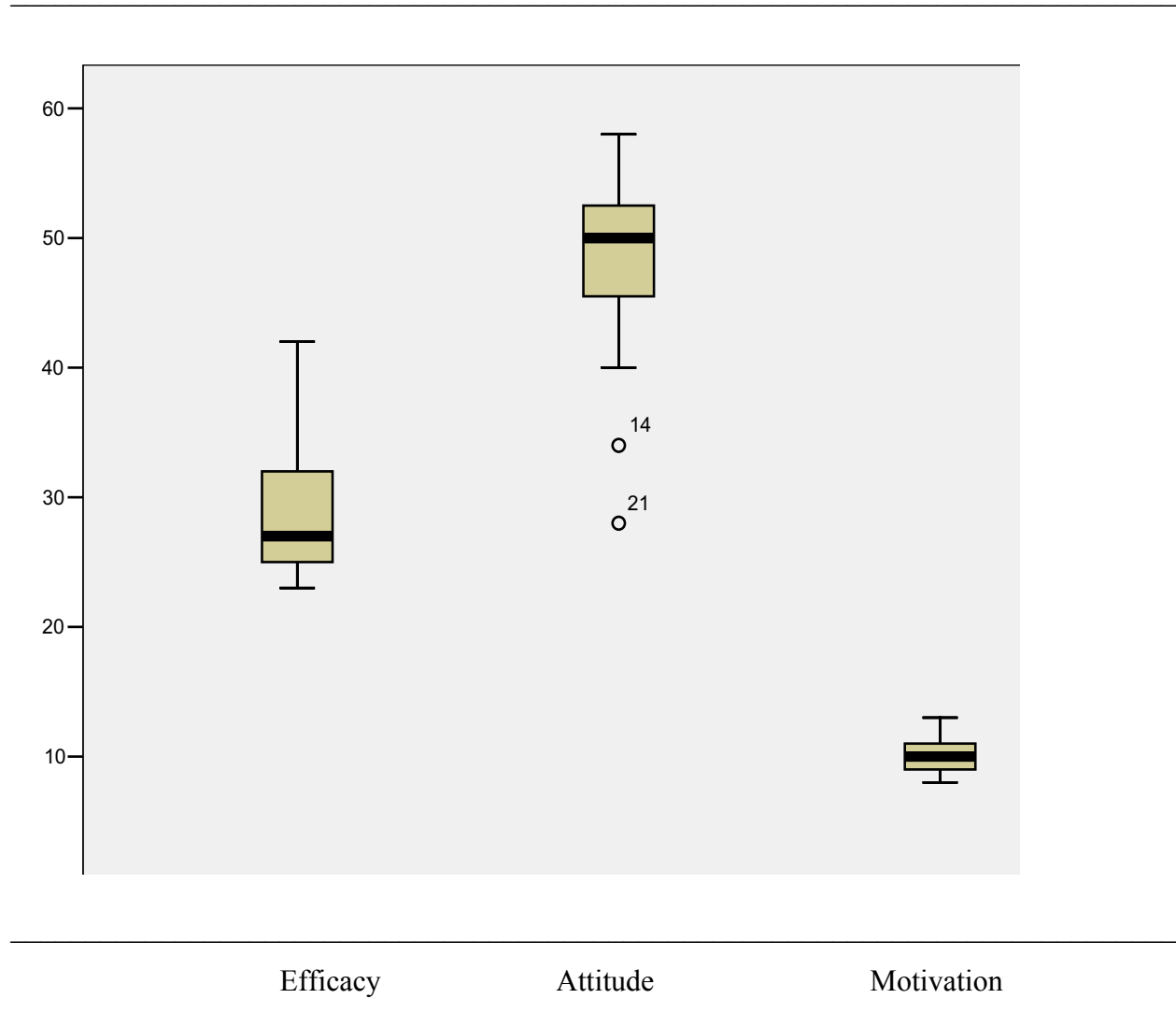


Figure 1. These pre and post variable box plots indicate that there were two univariate outliers (3, 3) for the motivation variable in the pre treatment and two outliers (14, 21) in the attitude variable in the post treatment; however, none were considered extreme or unusual enough to require deletion from the study group. According to Meyers, Gamst, and Guarino (2006) SPSS provides an indication of the outliers in a set of data, but only the researcher, who knows the

purpose of the study and the impact of these data, can determine whether deletion is the appropriate action. Since the purpose of this study was to examine the effect, whether positive or negative, of the collaborative teaching model on these variables, it was not necessary to delete these data.

*Summary of Descriptive Statistics*

The descriptive statistics presented in Table 8 represent the final pre-group and post-group data set used for the statistical analysis following the initial data screening process.

Table 7

*Descriptive Statistics for Pre and Post Attitude, Self-Efficacy, and Motivation*

	<u>Treatment</u>		<u>Std.</u>	
	<u>Group</u>	<u>Mean</u>	<u>Deviation</u>	<u>N</u>
<i>Semantic Differential Scale</i>	Pre-Attitude	44.70	7.882	23
	Post-Attitude	48.04	7.100	23
<i>Teacher Efficacy Scale</i>	Pre-Efficacy	29.39	4.098	23
	Post- Efficacy	29.04	4.940	23
<i>Motivation Inventory</i>	Pre-Motivation	8.13	2.262	23
	Post-Motivation	9.78	1.347	23

Analysis of Data

Utilizing *The Statistical Package for the Social Sciences (SPSS)* 13.0 for Windows XP, Graduate Package, the data analysis determined the effects of a collaborative model of

professional development on new sixth through twelfth grade teachers' attitudes, self-efficacy, motivation, and implementation of instruction. First, a One-Way Repeated- Measures ANOVA was used to measure the effect of the independent variable of collaborative teaching on the three dependent variables of attitude, self-efficacy, and motivation. Secondly, frequency descriptive statistics were compiled regarding three teachers' collaborative classroom experiences using the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* to probe the fourth dependent variable, implementation of instruction. Lastly, the *Teacher Exit Questionnaire* provided additional descriptive data about teaching and the collaborative model for each of the dependent variables. An alpha level of .05 was pre-established as appropriate for the quantitative statistical analysis. The data analyses produced results that were examined closely by the researcher and are described in this section with the respective research questions they sought to address.

#### *Research Question One and Hypothesis One*

Research Question One: Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development?

Hypothesis One: Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' attitudes toward professional development.

*Quantitative Analysis.* A one-way within-subjects ANOVA was conducted to determine the effects of professional development on a new teacher's attitude toward collaboration. The observed  $F$  value was statistically significant,  $F(1, 22) = 7.392, p < .013$ , Partial Eta Squared = .251. Bonferroni pairwise comparison tests ( $p < .05$ ) suggested that, after an embedded professional development collaborative teaching model experience, teachers ( $M = 48.04, SD = 7.100$ ) evidenced a more positive attitude toward collaboration than at the start of the



collaborative treatment experience ( $M = 44.70, SD = 7.882$ ). The findings confirmed the hypothesis that experience over time in a collaborative teaching model did significantly affect new teacher attitudes toward a collaborative model of embedded professional development.

Table 8 illustrates the results of this ANOVA.

Table 8

*One-Way Repeated Measures ANOVA for Semantic Differential Scale (n = 23)*

---

*Attitude*

	<u>Sum of</u>		<u>Mean</u>		
	<u>Squares</u>	<u>df</u>	<u>Square</u>	<u>F</u>	<u>Sig.</u>
Within Groups	128.891	1	128.891	7.392	.013
Between Groups	383.609	22	17.437		
Total	512.500	23			

---

*Descriptive Data.* The descriptive responses from the *Teacher Exit Questionnaire* provided additional supportive data regarding teacher attitudes toward collaboration. Of the 22 teachers responding to question six, which asked if the teachers would choose to practice collaboratively again, 96% answered affirmatively. In spite of a noted lack of planning time, the majority of participants would choose to collaborate because they saw it as beneficial for both the teachers and the students.

### *Research Question Two and Hypothesis Two*

Research Question Two: Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of self-efficacy?

Hypothesis Two: Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' levels of self-efficacy

*Quantitative analysis.* A one-way repeated measures' ANOVA examined the differences over time among the 23 teachers in the study group on the *Teacher Efficacy Scale* scores. The results of the ANOVA were as follows:  $F(1, 22) = .122, p = .731, \text{Partial Eta Squared} = .005$ . The observed  $F$  value was not statistically significant since  $p = .731$  is greater than the .05 level pre-established maximum for demonstration of significance, given the sample size, power, and variables involved. Bonferroni pairwise comparison tests ( $p < .05$ ) suggested that, after an embedded professional development collaborative teaching model experience, teachers ( $M = 29.04, SD = 4.940$ ) evidenced a reduced level of self-efficacy following collaboration than at the start of the collaborative treatment experience ( $M = 29.39, SD = 4.098$ ). Based on the repeated measures ANOVA analysis described above, the effect of the collaborative teaching model on new teacher self-efficacy was not significant. Table 9 illustrates the results of this ANOVA.

Table 9

*One-Way Repeated Measures ANOVA for Teacher Efficacy Scale (n = 23)*

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Self-Efficacy

	<u>Sum of</u>		<u>Mean</u>		
	<u>Squares</u>	<u>df</u>	<u>Square</u>	<u>F</u>	<u>Sig.</u>
Within Groups	1.391	1	1.391	.122	.731
Between Groups	251.609	22	11.437		
Total	254.391	23			

---

*Descriptive Data.* To further explore the variable of self-efficacy and its effects on a collaborative model of professional development, the information gathered on the *Teacher Exit Questionnaire*, Table 14, was reviewed. Twenty-two subjects (87%) identified an increase in their content knowledge and assessment skills, while (52%) noted an improved ability to differentiate using pacing, chunking, and multiple delivery models, and lastly, 22% of the 21 teachers who responded to question number six felt they were able to engage in some teacher reflection. With improvement in each of these teaching skills an increase in a teacher's belief in his/her self-efficacy might begin to emerge.

#### *Research Question Three and Hypothesis Three*

Research Question Three: Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of motivation?

Hypothesis Three: Active participation in a collaborative teaching model does affect new sixth through twelfth grade teachers' levels of motivation.

*Quantitative Analysis.* A one-way within-subjects ANOVA was conducted with the independent variable being the collaborative teaching model of professional development and the dependent variable being the teachers' *Work Motivation Inventory* scores. The results of the ANOVA presented in Table 10 indicated a significant effect in teacher motivation toward work from the beginning of the study to its completion,  $F(1, 22) = 8.567, p = .008$ , multivariate Partial Eta Squared = .280.

Table 10

*One-Way Repeated Measures ANOVA for Work Motivation Inventory (n = 23)*

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Motivation

	<u>Sum of</u>		<u>Mean</u>		
	<u>Squares</u>	<u>df</u>	<u>Square</u>	<u>F</u>	<u>Sig.</u>
Within Groups	31.391	1	31.391	8.567	.008
Between Groups	80.609	22	13.664		
Total		23			

---

The Bonferroni technique establishes a more rigorous alpha level for each of the separate tests used. As a result, these tests become more demanding, thereby decreasing the chance that a Type I error will occur (Huck, 2004, p. 199). In this study, the Bonferroni pairwise comparisons ( $p < .05$ ) suggested that, after an embedded professional development collaborative teaching

model experience, teachers demonstrated ( $M = 9.78$ ,  $SD = 1.347$ ) a significant increase in motivation from the level present at the start of the collaborative treatment experience ( $M = 8.13$ ,  $SD = 2.262$ ). The analyses indicate a positive change in the motivation levels of new middle and secondary teachers engaged in a collaborative teaching model of professional development.

*Descriptive Data.* Furthermore, a review of the descriptive data from Tables 14, 15, and 16 of the *Teacher Exit Questionnaire* data revealed a desire to acquire differentiation strategies, a recognized need for more planning time, and a willingness to collaborate. These traits characterize individuals motivated to seek a change in their teaching practice (Friend, 2007).

#### *Research Question Four and Hypothesis Four*

Research Question Four: Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' implementation of instruction in the classroom.

Hypothesis Four: Active participation in a collaborative teaching model will affect new sixth through twelfth grade teachers' implementation of instruction in the classroom.

The analysis of research question number four included descriptive data from a teacher exit questionnaire and classroom observations.

*Quantitative Analysis.* The subject responses on the 23 *Teacher Exit Questionnaires* were quantified using frequencies and percents. These numbers added clarity to the descriptive data gathered from the written responses. There were six questions posed that generated three to four response topics that were totaled and a percent calculated from the total number of respondents for each question.

*Descriptive Data.* The exit questionnaire afforded the subjects an opportunity to reflect on their collaborative philosophy and practice. In the observation experience, collaborative teams were observed during classroom instruction. The data were collected using the *Teaching*

*Competencies: Non-Tenured Teacher Appraisal Program Observation* for (a) team one observation data; (b) team two observation data; and (c) team three observation data. These data provided snapshots of the collaborative process in action.

*Six Teaching Competencies: Non-Tenured Teacher Appraisal Program Observations* of three collaborative teams (one general educator and one special educator) of secondary school teachers were collected to probe the effects of collaboration on instruction in the classroom. No middle school teachers were observed due to time and availability issues. Data were collected on the three observed teams in early September, and again in late November. Each observation lasted for 57 minutes during which time the observer noted teacher competencies listed on the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*. This instrument described three competencies: (1) Management of the classroom Environment; (2) Instruction; and (3) Assessment of Student Understanding and Consequent Adjustment of Instruction. Each of these competencies was composed of specific attributes: (a) the management competency listed seven attributes that a new teacher should possess; (b) the instructional competency had thirteen attributes; and (c) the adjustment to instruction competency assessed two attributes. The rating scale for this instrument was comprised of five indicators: (a) Exemplary, (b) Effective, (c) Needs Improvement, (d) Unsatisfactory, and (e) Not Applicable. Exemplary means that the teacher demonstrated skills related to the competency which could serve as a model for other beginning teachers in terms of effectiveness, thoroughness, creativity, and insight. Effective is defined as demonstrations of skills related to the competency which are sound educational practice and lead to targeted outcomes. When the teachers need further development of skills, the Needs Improvement rating is assigned. Unsatisfactory observations show that the teacher was not effective in using necessary skills to meet a specific competency.

The Not Applicable rating identifies the competency as not applying to the lesson or to the position held by the teacher.

(a) *Team one observation data.* The observation took place in a freshman English class composed of 22 students. Team one, a first-year teacher and an experienced special educator, was first observed on October 5, 2007 while implementing a lesson on how to analyze a quotation from literature. The first-year teacher achieved an effective rating in six (86%) of the seven attributes in classroom management; transition skills were weak and led to student confusion and off task behaviors. She demonstrated effectiveness in seven of the 13 attributes (54%) in the instructional competency, with a needs improvement rating in the other six, which assessed lesson development and student learning. In three of the attributes, the teacher initiation, sequencing and closing of the lesson lacked recognition of the specific needs of the students. While the topic of the lesson, Quotation Analysis, was appropriate, “the students had a difficult time understanding it” based on the instructional implementation. In addition, the three teacher communication attributes were also rated as needs improvement. These referred to the use of precise language, clear speech, and appropriate oral expression. In the third competency, instructional strategy adjustment, the new teacher monitored the level of student understanding through questioning and written responses effectively achieving 50% effectiveness rating; however, the ability to adjust instructional strategies during the lesson needed improvement. The special educator recognized the need to assist the teacher to edit and revise the lesson. By modeling the use of relevant verbal analogies and how to apply the graphic organizer for the quotation analysis assignment, the focus and task completion of the students improved. The first-year teacher demonstrated flexibility while observing the experienced co-teacher’s actions, and willingly participated in this differentiating process.

During the second observation, in late November 2007, the first-year general educator presented a lesson on open-ended responses to short answer questions about *Romeo and Juliet*. First, she clearly reviewed the lesson objectives, which were listed on the board. Then, she and her collaborating teacher distributed graphic organizers outlining the ICE (Introduce, Cite, and Explain) procedure for answering open-ended questions to each student. Using the example question, “Describe how Romeo and Juliet met”, the teacher elicited comments from the students, while the collaborating teacher modeled an organizer response on the board. Then, the students were given a practice question to respond to using the organizer. On the classroom management competency, the new teacher demonstrated effectiveness in six out of seven attributes. Transitioning between activities was better, but still lacked sufficient wait time for students to complete the task. She was rated as effective in 11 out of the 13 attributes (85%) in the instructional competency. Improvement was shown in lesson delivery and in communication skills. In the third competency, adjustment of instruction (differentiation), the teacher noted that she learned a great deal by working with another teacher, especially regarding different teaching techniques. Overall, the observations of this first-year teacher demonstrated a positive collaborative experience highlighted by an improvement from 54% to 85% effectiveness as a first-year teacher in the instructional competency.

(b) *Team two observation data.* The observation took place in a freshman English class composed of 12 students. While the lesson presentation went well, it was the teachers’ ability to assess student understanding and mastery of the process that led to the 100% competency rating. Team two, a second-year teacher and an experienced special educator, participated in an observation on September 27, 2007, which showed the new teacher delivering a lesson on a written response to a piece of literature, a short story. The teacher provided the students with the



response question and outlined the steps of the response process: (a) introduction, (b) citation, and (c) explanation (ICE). In the instructional and adjustment of teaching strategies' competencies, the teacher received an effective rating on all attributes (100%). While the lesson closed with completed drafts by all students, not all students were able to articulate what they had done. The teacher and the special educator reviewed the steps of the lesson and answered student questions. Although the students had followed the steps and produced an organized written response, the collaborative teachers recognized the need for review, discussion, and reinforcement of the response to literature writing process.

On November 19, 2007, the second year teacher obtained an exemplary rating in three of the attributes in the instructional competency and an effective rating in 10, thus achieving a 100% effectiveness rating overall. In creating a structure for learning through initiation and sequencing the lesson, this teacher showed clarity, creativity, and organization. The use of a board model graphic organizer, the acronym, CCTM (character, conflict, theme, mood), and a guided writing activity to teach the steps for developing a quotation analysis demonstrated model lesson planning. A need to edit and revise the lesson during delivery occurred, but with greater experience between the collaborating pair, the lesson differentiation unfolded smoothly with less miscommunication between students and teachers. So, in the third domain assessed, this new teacher was rated as effective on both attributes, the students' level of understanding and the ability to adjust instructional strategies.

(c) *Team three observation data.* Team three, a fourth-year general educator and an experienced special educator, presented a new algebraic concept lesson to the students on October 5, 2007. This fourth-year teacher modeled a 50% exemplary, 31% effective lesson, with only the questioning strategy attribute obtaining a needs improvement rating in the instructional

competency. The lesson included a step-by-step written example on the board, which the teacher used to define the steps of the solution process. In addition, a guided practice sheet was provided for the students. While the special educator walked around the room assisting individual students, the new teacher delivered the lesson using a paced sequence to allow for questions and feedback. The general educator used direct instruction to review the algebraic problem-solving approaches of substitution and elimination. At the end of each problem worked, the solution was reviewed and several students were invited to write their approaches on the board. There were two teachers in the room, but instructional collaboration was minimal. Although the plan was appropriate, the teacher questioned only some of the students, which left others out of the solution discussion.

During the second observation, the new teacher demonstrated a shared approach to classroom instruction. Prior knowledge of students and the use of multiple strategies to revise the problem solving lesson presentation to include student board work, questioning, group work, a written response, and individual guided practice promoted learning for all students. In addition, both teachers assisted with lesson differentiation as questions arose and 1:1 support was given during practice. In the instructional competency, the fourth-year teacher received an 11 out of 13 (85%) exemplary rating, and in the ability to adjust teaching strategies attribute, a 100% effective assessment.

*Teacher exit questionnaire.* In addition to the observation data, a *Teacher Exit Questionnaire* was only administered to each of the 23 participants in the study. Tables 11 through 16 present the topics that emerged from the responses. The exit survey reflected a 100% response rate with varying detail on the six individual survey questions. Ninety-six percent of the responses described collaboration as a co-teaching experience to which the new teachers brought

content expertise. One hundred percent of the respondents saw it as a positive experience that afforded them an opportunity to experience a variety of learning styles and to recognize the need to differentiate instruction based on different student learning needs. From this study experience with a collaborative model, a majority of new teacher subjects, 18 out of 21 (78%), noted an increase in their exposure to new teaching methods and new perspectives regarding classroom instruction. At the end of the 12-week study, the response data showed that 21 out of 22 respondents (91%) saw collaboration as a way of improving their instructional expertise. While all new teachers stated they would continue to practice collaboratively, one specifically noted a desire to also teach independently as well.

#### *Descriptive Data from the Teacher Exit Questionnaire*

Each of the six questions from the 23 questionnaires was reviewed and the topic responses or themes were identified from the actual teacher comments.

Table 11

*Question One from the Teacher Exit Questionnaire*

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What does collaboration in the classroom mean to you?

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Number Responding ( $n = 23$ ):	Topic Responses:
22 (96%)	general educator and special educator working together to deliver instruction
16 (70%)	sharing of ideas and responsibility
18 (78%)	differentiate instruction to provide all students an opportunity for success

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Table 12

*Question Two from the Teacher Exit Questionnaire*

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What skills do you feel you brought to this collaborative experience?

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Number Responding ( $n = 23$ ):	Topic Responses:
22 (96%)	content expertise
8 (35%)	knowledge of teaching and learning styles
10 (43%)	interpersonal skills; flexibility

---

Table 13

*Question Three from the Teacher Exit Questionnaire*

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How did this experience change your approach to classroom instruction?

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Table 14

*Question Four from the Teacher Exit Questionnaire*

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Did you acquire any new skills by collaborating with another teacher?

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Number Responding ( $n = 23$ ):

Topic Responses:

20 (87%)

content knowledge and assessment

12 (52%)

differentiation skills, such as  
pacing, chunking, multiple delivery  
models

5 (22%)

teacher reflection

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Table 15

*Question Five from the Teacher Exit Questionnaire*

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How would you revise your collaborative approach to classroom teaching?

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Number Responding ( $n = 23$ ):

Topic Responses:

23 (100%)

more joint planning time

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Table 16

*Question Six from the Teacher Exit Questionnaire*

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Would you choose to practice collaboratively again? Why or Why not?

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Number Responding ( $n = 23$ ):	Topic Responses:
23 (100%)	Yes
21 (91%)	Beneficial for students

---

Overall, the *Teacher Exit Questionnaire* responses reflected the teachers' introspective views of the factors influencing their implementation of instruction. The data revealed specific recognition of their content expertise, but acknowledged the need for increased knowledge of differentiation strategies and methods for ensuring that all students succeeded in their classrooms. In addition, the questionnaires corroborated a positive stance toward collaboration as a teaching method that fosters teacher development.

### Conclusion

The analyses presented in this chapter sought to summarize the responses to the four research questions posed at the initiation of the study. The data analysis for research question one investigated whether a collaborative model of teaching, an embedded form of professional development, would affect the attitudes of new sixth through twelfth grade teachers. The results indicated a significant positive change in the attitudes of new teachers from the onset of the study to its completion. Research question two explored the effect that a co-teaching model might exert

on teachers' levels of self-efficacy. The results showed that experience in a collaborative teaching model did not significantly affect new middle and secondary teachers' levels of self-efficacy. The third research question examined the effect of the collaborative model on new teachers' levels of motivation. The results showed a significant increase in the level of motivation among the teachers in the study group from pre to post testing. Research question four probed the question of whether the collaborative model affected implementation of instruction in the classroom. The topic responses to the *Teacher Exit Questionnaire* indicated that 18 out of 21 participants (86%) acquired and attempted to apply new teaching strategies. Furthermore, the six observation probes suggested that the collaboration experience promoted a shared teaching environment where teachers were better able to recognize and meet individual student needs.

These findings provide valuable information about the collaborative model as an embedded form of professional development for new middle and secondary school teachers. Both attitude and motivation were positively affected by the collaborative teaching experience. While self-efficacy did not demonstrate significance on the one-way repeated measures scores, the descriptive data from the observations and the responses from the exit questionnaires did provide additional information about the effects of teacher collaboration and how it can improve new teacher instruction. Nonetheless, the information obtained by this research is important to the social science researcher interested in understanding the relevance of collaboration as an embedded form of professional development in new teacher development and retention.

## CHAPTER FIVE

### SUMMARY AND CONCLUSIONS

The five sections of Chapter Five expand on the fundamental idea of examining the effects of a collaborative teaching model on new teachers' attitudes, levels of self-efficacy, motivation, and implementation of instruction. The Summary section will provide an overview of the complete study. The Findings' section reviews the statistical analyses of new middle and secondary school teachers' attitudes, implementation of instruction, self-efficacy, and motivation as they relate a collaborative teaching model of professional development discussed in the literature review in Chapter Two. The Limitations section expands on the assertions made in Chapter Three through a candid look at the issues and questions raised during the research study. The Implications section proposes suggestions for use of the study results, and offers ways of implementing the suggestions. Finally, the Future Research section outlines proposals on what might be done to further study on collaboration as an ongoing, embedded, professional development approach for new educators.

#### Summary of the Study

The impetus for this study developed from the observation that a collaborative teaching model of professional development offered new middle and secondary school teachers a consistent, cooperative learning opportunity to address the increased intensity and expansion of the teacher role. A collaborative, co-teaching classroom model promotes inspiration in lesson planning and provides a frame for decisions regarding the amount of structure and management required in the balance of direct teaching, brainstorming, and guided practice versus side-by-side independent work. Without a deliberate collaborative process of classroom instruction, new



teachers confronted by today's diverse middle and secondary school learners struggle to provide meaningful instruction.

This study aimed to measure the effects of a particular teaching model, collaborative classroom teaching between a general and special educator, as embedded professional development through a quantitative analysis a new teachers' attitudes, self-efficacy, motivation, and implementation of instruction. The research questions that guided the research were:

1. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' attitudes toward professional development?
2. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of self-efficacy?
3. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' levels of motivation?
4. Does active participation in a collaborative teaching model affect new sixth through twelfth grade teachers' implementation of instruction in the classroom?

Data were collected in five forms: (a) attitudes toward collaboration were measured using The *Semantic Differential Scale* (Pizzo, 1981); (b) self-efficacy was evaluated using The *Teacher Efficacy Scale* (Short Form) (Hoy, W.K. & Woolfolk, A.E. (1993); (c) motivation was measured through the *Work Motivation Inventory* (Blais, M. R., Lachance, L., Vallerand, R. J., Briere, N. M., Riddle, A. S. (1993). The Work Motivation Inventory in Pellitier, L. G., Seguin-Levesque, C., & Legault, L. (2002); and (d) implementation of instruction was assessed with the school district's *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* and the *Teacher Exit Questionnaire*. A One-Way Repeated Measures ANOVA was performed on three of the dependent variables (attitude, self-efficacy, and motivation). Frequencies and

percentages were calculated for the dependent variable, implementation of instruction, and descriptions of the new teacher observations and the exit questionnaire responses of the new teachers were discussed. The pre/post quasi-experimental research design utilized in this study utilized a quantitative approach and descriptive data to investigate the four research questions.

Twenty-three teachers participated in the study. Each of the teachers were assessed both pre and post collaborative teaching model treatment, on three of the dependent variables, attitude, self-efficacy and motivation. Three of the 18 secondary school teachers, consented to two classroom observations, they were observed implementing instruction at the beginning and the end of the study.

The participants in this research were a *sample of convenience* selected to suit the purposes of the study. The target population was a group of sixth through twelfth grade teachers ( $n = 23$ ) assigned to a collaborative team for classroom teaching. Research was conducted in a small, suburban school district. The target sample is representative of the teacher population in gender makeup and ethnicity.

### Findings

The quantitative approach sought to determine the effects of a collaborative teaching model of professional development on new teachers' attitudes, level of self-efficacy, motivation, and implementation of instruction. A one-way repeated measures analysis of variance (ANOVA) was conducted on the three variables: attitude, self-efficacy, and motivation. Furthermore, descriptive data (means, standard deviations, frequencies, and percentages) were calculated on observational and questionnaire information to describe the dependent variable, implementation of instruction. The data sets were analyzed using the independent variable, the collaborative model, with two levels, for a pre and post treatment.

The findings from the one-way repeated measures ANOVA demonstrated that the new teachers showed a statistically significant difference on two of the four dependent variables (Attitude and Motivation) at the  $p < .05$  confidence level. The Partial Eta Squared Effects for two of the dependent variables (Attitude and Motivation) showed 25% and 28% effects respectively. These two variables account for an effect percentage of 53% for the collaborative model of professional development.

The observations revealed descriptive data from the instruction and adjustment to instruction competencies that support a change over time in teacher behaviors while each new teacher participated in a collaborative model. Moreover, the teacher exit information from items in the form of frequencies and percents further supports teacher implementation of instruction and levels of self-efficacy. The importance of these findings will be highlighted in the implications' section of this chapter.

#### Comparison and Contrast of Findings

The Review of the Literature in Chapter Two suggested that collaboration and professional development research connects to the constructs of Albert Bandura (1995), Frank Pajares (2002), Anita Woolfolk (2004), and Linda Darling-Hammond (2000). While some research spans decades of investigation into a theoretical concept, such as social cognitive theory (Bandura), other studies use these seminal works to support present day teaching practice models (Fallon, 2007; Thibodeau, 2006). This study supported the assertion that the collaborative teaching model acts as a form of embedded professional development that promotes new teachers' attitudes, motivation, and implementation of instruction. The subjects' quantitative measures and descriptive responses demonstrated positive attitudes, increased motivation toward

work, changes in teaching competencies over time, as well as positive reflections about the collaborative experience.

The models of social cognitive theory, teacher professional development, and instructional collaboration all support the belief that teachers should no longer practice in isolation, but work together with colleagues and students to expand, share, and reflect on their learning (Darling-Hammond, 2000). Practice networks draw new teachers into a learning community, formally changing teaching into a collaborative profession sharing best practice ideas (Fallon, 2007). This involves a commitment to "... regular times for teachers to create, test, and refine their lessons and strategies together" (Schmoker, 2004). The responses of the study subjects support a desire to collaborate, but, most importantly, the need to find time to exchange ideas, plan, and share feedback. Therefore, the self-belief an individual possesses acts as a lifelong driving force that determines a person's levels of motivation, well-being, and personal accomplishment. The task specific nature of self-efficacy is motivating and liberating for a beginning teacher because it suggests that a poor demonstration in one area, such as classroom questioning techniques, does not singularly determine good or bad teacher performance (Woolfolk Hoy, A., 2004). Tschannan-Moran and Woolfolk Hoy (2002) found that support in the beginning years of teaching appear critical to the development of teacher efficacy; however, present forms of professional development appear to fall short of enhancing a new teacher's self-efficacy(Garet et al.). The Hoy and Woolfolk study (1990) of novice teachers also showed that level of support correlated with positive changes in efficacy as assessed by Bandura (1986) who believed that a person's conviction about their capabilities was more powerful than their actual abilities. Research suggests a link between a teacher's sense of self-efficacy and professional development; however, as evidenced by the study respondents, the context, delivery, and

duration of the learning experience play a key role in its effect. This study endeavored to highlight the learning environment, the real time instructional classroom where a general educator and a special educator collaborate to enhance new teacher classroom management, instruction, and differentiation skills.

As federal and state accountability systems continue to evolve in education, the development of teacher expertise and continued improvement of instructional practice recur as themes in teacher workforce discussions and administrative decisions; however, with increasing retirements and attrition rates, districts are forced to establish ongoing recruitment induction programs that must provide in-house professional development. These programs must be integrated into the daily practice of the educational system, recognizing both the needs of the teachers and the students. To accomplish this goal, Reeves (2007) proposes a coaching model, whose first requisite is that the new teacher agrees that a change in performance will be useful, which combines easily with an effective collaborative teaching model, as defined in this study. Secondly, the key to successful collaboration is linking teacher learning with teaching performance. Certainly, this is a goal recognized by the teacher respondents in the collaborative study. Third, the experience must be built on feedback, which is often the missing element that undermines successful co-teaching. This model operates as a collaborative exchange of teachers trading ideas and sharing strategies, while striving to develop a consistent reflective practice (Guskey, 2003). In this study, new teachers met weekly with their collaborative teachers, either before or after school, or during a planning period, or over lunch. In addition, the new teacher, department, and PLC monthly meetings offered additional times for new teachers to discuss and share ideas for lesson development and teaching strategies with the experienced teachers.

Marilyn Friend (2007) summarizes the assertion that a collaborative teaching model defines the value of embedded, ongoing professional development as a way of "... bringing out the best in teachers and providing them with ongoing collaborative support as they meet the many challenges of contemporary public education" (p. 52). For the beginning educational practitioner, professional development that sets them on a course toward increased self-efficacy and motivation can only better the educational environment for all stakeholders. This research study on teachers' attitudes, levels of self-efficacy, motivation, and implementation of instruction, provides additional information that strengthens the link between theory and practice in the area of collaboration and professional development in education. The findings show that a collaborative teaching model improves teachers' attitudes, motivation, and instructional practice by developing an embedded professional development model that supports teaching and learning. When new teachers' attitudes toward a form of embedded professional development, collaboration, and motivation toward work are positively affected, individual teacher behaviors are opened to change and develop. The attitude and motivation results of this study support that new teachers participating in a collaborative teaching model demonstrate these positive changes in behavior.

#### Limitations of the Study

The most significant limitation of the study was the pre-determined collaborative teaching teams at both the middle and secondary schools. This reduced the number of new middle and secondary teachers available for the study, since not all teachers had the option to collaborate. Furthermore, the sample potential may have been reduced because teachers were less comfortable undertaking a co-teaching role. This was evidenced in the final sample size of 23; while 30 invitations to participate in the study were offered, only 23 accepted the

opportunity. Given the sample size in this study, it is important to note that the critical element concerning the sample is the quality. How the sample is obtained determines how successful the inferential process will operate. The quality, rather than size, of the sample makes statistical inference work (Huck, S. W., 2004, p. 119).

Lack of choice about collaboration was initially a concern for some teachers; however, over the course of the study period most of the participants used the co-teaching opportunity to improve their teaching skills. Another significant limitation was the use of two study sites, the middle and the secondary school. The researcher was a secondary school teacher. This may have influenced the lack of consent for observation by the middle school teachers.

Certainly, the lack of a control group of new teachers not involved in a collaborative teaching model limited the extent to which collaboration can be viewed as an effective new teacher professional development model. The control group would have provided a comparison of individual attitude, self-efficacy, motivation, and implementation of instruction not influenced by external forces. It would also have highlighted some of the effects that other variables such as teacher peers, mentors, department chairpersons, and untenured teacher evaluations might have had on new teachers' attitudes, self-efficacy, motivation, and implementation of instruction.

Lastly, the lack of information by the other collaborative teacher, most often the experienced special education teacher, but, in two instances, the experienced content teacher may have limited the positive effect of the collaborative teaching model. Their information was dependent on the new teacher sharing the study process. In setting up the observations both teachers were aware of the process and the emphasis being placed on collaboration. This may have affected the outcomes of those experiences.

### *Threats to External Validity*

The external validity of this study is directly linked to the make-up of the collaborative team (one general educator and one special educator). The extent to which the findings of this study can be generalized suggest that similar results would be achieved in suburban middle and secondary high schools employing a collaborative classroom teaching approach; however, further research would be required to assert that the collaborative teaching model will produce statistically improved ongoing, professional development. Since the population was drawn from an experimentally available population, it is valid to generalize these findings from the 23 study participants to the middle and high school teachers in the district from which the sample was taken. Nevertheless, generalizing these results to another setting would violate external validity (Bracht & Glass, 1968).

### *Threats to Internal Validity*

Further limitations are impressed upon the study by the extent to which the extraneous variables of individual instructional approaches and ability to co-teach provide plausible explanations of the experimental results. While collaborative teams were not individually determined for the study itself, an attempt was made through new teacher meetings and follow-up discussion with teacher teams during the study to control extraneous variables. Obvious limitations arise from additional factors such as new teacher maturation and familiarity with the instrumentation (Gall, Gall, & Borg, 2003). Teachers may have become more comfortable with their collaborative role, which may have influenced the data collected. Also, three of the instruments were used for both pre and post testing, thus increasing teacher familiarity with the instruments, which may have influenced their responses more than the treatment.



## Implications

This study provided support for the implementation of a collaborative teaching model as an embedded form of professional development that affects new middle and secondary teachers' attitudes, self-efficacy, motivation, and implementation of instruction. It does not appear to positively change levels of self-efficacy in this study sample. The findings represented by the data suggest that the use of this model had a statistically significant effect on teachers' attitudes and motivation using the *Semantic Differential Scale* and the *Work Motivation Inventory*, respectively. The descriptive statistics derived from the *Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation* and the *Teacher Exit Questionnaire* supported that the collaborative model treatment affected positive change and development in the teachers' instructional techniques. This section will address the extent to which the effect of the treatment was observed in the teachers, both pre and post, using a one-way repeated measures analysis of variance.

### *Implications of the Effects of Repeated Measures Design*

A one-way repeated measures analysis of variance (ANOVA) was conducted on the three dependent variables: Attitude, Self-Efficacy, and Motivation. The independent variable was the collaborative model of professional development assessed over time using pre and post testing. On two of the dependent variables, Attitude and Motivation, new middle and secondary teachers demonstrated a significant positive effect over time following the collaborative teaching experience. The literature suggests that as teacher attitude and motivation increase over time, self-efficacy will follow (Bandura; Tschannen-Moran & Wolfolk Hoy). Given the attitude and motivation results of this study, one might imply that teacher self-efficacy among teachers participating in this collaborative teaching model in this setting might increase over time.

Teachers demonstrating a positive change in Attitude and Motivation are more likely to approach collaboration with an outlook built on knowing themselves, their co-teaching partner, their students, and their content (Keefe, Moore, & Duff, 2004, p. 37). These two behaviors encourage teachers to persevere in the instructional process as they work through developing a mutually beneficial co-teaching practice. A structured collaborative experience with clear expectations and resources provides new teachers with the opportunity to demonstrate progress toward professional growth.

The significance level of both attitude and motivation at the  $p < .05$  level reveals that new teachers engaged in the collaborative model of professional development experienced a positive impact on their teaching experience characterized by a positive change in both attitude and motivation. From pre to post measurement, the teachers increased their attitude and motivation to improve their instructional approaches and ability to adjust instruction for students with different needs.

While self-efficacy was not significant at the  $p < .05$  for new teachers, this belief in oneself as a teacher to produce a desired result requires a positive attitude to accept challenges and to persevere in the face of obstacles (Bandura, 2001, p. 10). Thus, as attitude reinforces self-efficacy beliefs, motivation grows and can subsequently strengthen a new teacher's ability to produce desired instructional goals (Bandura). Given a strong attitude and continued motivation, new teachers' levels of self-efficacy may increase with additional time in a collaborative teaching model.

#### Suggestions for Future Research

A review of the literature in the area of collaboration as a form of embedded professional development reveals a dearth of research investigating its effect on the attitudes, self-efficacy,

motivation, and implementation of instruction of new middle and secondary school teachers. Much has been written about the positive impact self-efficacy can have on student achievement and professional development; however, additional investigation into the effect of a collaborative model on these variables and in developing the instructional expertise of new teachers is warranted. Moreover, the collaborative coach model described by Reeves (2007) could provide another professional development method for introducing collaboration into a teacher learning environment. This would entail developing the role for experienced educators to provide “... specific, accurate, and timely feedback ...” to the new teacher in addition to the real-time in classroom instruction venues with goal-oriented, strategy application, and differentiation experiences.

#### *Quantitative Research and Teacher Collaboration*

Limited studies exist that use quantitative measures to assess the impact of collaboration as an embedded form of professional development. Future research in the area of collaboration needs to use more comprehensive quantitative measures to collect data on new teachers’ levels of self-efficacy. As new teachers practice collaboratively, data should be collected to monitor the connection of this teaching model with the change in teaching strategy development. While this study focused on new teachers, future studies must also look at teachers with over five years of teaching experience to assess the effect of collaboration on these teachers’ attitudes, levels of self-efficacy, implementation of instruction, and motivation. Identification of the “tipping point” for increased self-efficacy might provide indicators for the type and intensity of collaborative support and feedback needed for teachers’ professional growth.

#### *Qualitative Research and Teacher Collaboration*

Future research must also concentrate on collaboration as it qualitatively affects teachers' attitudes. As this educational model gains momentum, the teacher role as the sole educator in a classroom is diminished. Additional information on how this role change affects teachers' behaviors as they attempt to implement new instructional strategies will provide important data on the challenges and obstacles teachers face. Research studies using teacher interviews, as well as classroom observations, might supply important data to elucidate the critical issues surrounding teacher development and retention. In addition, teacher attitudinal information might further clarify how school districts can balance the need to develop teachers professionally with the challenge to help all students learn.

#### *Longitudinal Studies Focusing on Teacher Self-Efficacy*

While a longitudinal study may be time consuming and challenging, such data gathering would enhance the body of existing research on the effects of a collaborative teaching model on professional development. The ability to follow a group of middle or secondary school teachers from the beginning of their teaching career to the fifth year of teaching experience would substantially add rich detail to the research data on the critical elements that support teacher professional development. In addition, such an approach would foster further research into the specific elements of teaching that support student achievement in system-wide educational reform.

#### Summary

Chapter Five of this dissertation discussed the impact of this study on teachers' attitudes, levels of self-efficacy, motivation, and implementation of instruction. A repeated measures analysis of variance afforded critical insights into the effects of a collaborative model of professional development on each of the following variables; attitude, self-efficacy, and

motivation. Implementation of instruction was described using observation in the classroom and exit survey questions. The findings of this study suggest that teacher attitude and motivation may be positively influenced by a collaborative model of professional development. It further demonstrates that a teacher's ability to instruct and the ability to adjust one's teaching strategies are positively affected by this model. This was evidenced in the descriptions of instructional change from first to second observations of the collaborative teaching model teams where one new teacher improved from 54% to 85% effectiveness, a second from effective to exemplary, and a third from 77% exemplary to 85% exemplary in instructional practice.

A substantial body of literature in the areas of self-efficacy, professional development, and teacher collaboration supports the assertions advanced by this research. A review of more recent studies reveals a need for additional empirical investigation to test the effectiveness of collaboration to retain new teachers. This study endeavored to connect the theoretical precepts of social cognitive theory with the practice of collaboration as a form of professional development in a comprehensible process that can be replicated. Despite an indication for future research, the present findings support the implementation of a collaborative teaching model to improve new middle and secondary school teachers' attitudes, motivation, and implementation of instruction.

In this era of educational reform and standardized assessment it remains critical that the existing body of theoretical literature, as well as new practice studies, be reviewed and used to support proposals for teacher education and development. This study focused on new middle and secondary teachers based on a need to meet the growing student differentiation needs in the general education classroom. The data presented clearly support collaboration as a viable form of professional development that influences instructional practice for new teachers.

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Appendix A:

*Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*

Appendix A  
(Teacher Number)

*Teaching Competencies: Non-Tenured Teacher Appraisal Program Observation*

This observation document is based upon the Common Core of Teaching (CCT). This State evaluation model defines critical aspects of a teacher's classroom performance without reference to specific grade levels, subject matter or special population. We recognize that the competence of the beginning teacher as a decision-maker should be differentiated from that of experienced teacher. If teaching is thought of as a continuous decision-making process, the standards embodied in the CCT indicators require professional competence, but do not require that the beginning teacher make the optimal choices that an expert teacher might make. The Non-Tenured Teacher Appraisal Program identifies the core of effective teaching and outlines the defining attributes of the competencies we seek in beginning staff members.

<b><u>Rating:</u></b>	<b><u>Competency:</u></b>	<b>The Management of the Classroom Environment to be assessed through classroom observations.</b>
___ (1.1)	The teacher promotes a positive learning environment by establishing rapport with all students. <i>(Patience, acceptance, empathy, and/or interest in students are demonstrated through verbal and non-verbal exchanges. Enthusiasm for the content and for learning is obvious.)</i>	
___ (1.2)	The teacher promotes a positive learning environment by communicating expectations for student achievement. <i>(All children are encouraged to achieve through explicit verbal directives or through the teacher's approach to assigning tasks and devising assistance or rewards.)</i>	
___ (1.3)	The teacher promotes a positive learning environment by establishing a classroom setting that is safe and conducive to learning.	
___ (1.4)	The teacher maintains appropriate standards of behavior. <i>(A statement of the rules and responses to student behavior communicate and reinforce standards and facilitate learning. Consequences are consistently applied and appropriate to the circumstances.)</i>	
___ (1.5)	The teacher engages students in the activities of the lesson. <i>(At least 80 percent of the students meet the expectations and directions of the lesson. When students move off-task, strategies to re-engage them are successful.)</i>	
___ (1.6)	The teacher effectively manages routine and transitions. (Non-instructional organizational or administrative events occur with a sense of planning and structure. Time spent on routines and transition is appropriate for their purpose and makeup of the class.)	
___ (1.7)	The teacher maintains contact with individual students throughout the lesson. <i>(Mobility and proximity are apparent strategies to engage student attention.)</i>	



<b><u>Rating:</u></b>	<b><u>Competency:</u></b>	<b>Instruction to be assessed through classroom observations.</b>
___ (2.1)		The teacher presents appropriate lessons by aligning content with lesson objectives. <i>(Materials, discussion, activities, practice, modeling, demonstrations, presentations, and questions are targeted to a clear lesson purpose.)</i>
___ (2.2)		The teacher presents appropriate lesson content by adjusting the level of difficulty. <i>(Lessons are suitable for the level of students' cognitive, social, and emotional development. Vocabulary and language are appropriate to the learners as judged by responses and behavior.)</i>
___ (2.3)		The teacher presents appropriate lessons by ensuring that the content is accurate. <i>(Concepts and skills reflect the curriculum and transmit knowledge and learning strategies that are correct.)</i>
___ (2.4)		The teacher creates a structure for learning by <u>initiating</u> the lesson in such a way as to facilitate student understanding. <i>(Lesson objectives are previewed and explain what is to be learned, why it is to be learned, and how it relates to past or future learning.)</i>
___ (2.5)		The teacher creates a structure for learning by <u>closing</u> the lesson in such a way as to facilitate student understanding. <i>(The purpose of the lesson, what was learned, why it was learned, and how it relates to past learning is repeated.)</i>
___ (2.6)		The teacher develops the lesson <u>sequence</u> to promote the achievement of identified objectives. <i>(Lesson development exhibits an order within and among lesson elements, demonstrates a link between related lesson elements, and leads students to learn the content of each element.)</i>
___ (2.7)		The teacher develops the lesson to promote the achievement of identified objectives through the use of instructional arrangements and materials. <i>(Materials and instructional arrangements purposefully support the development of the lesson, promote student interest and involvement in the lesson.)</i>
___ (2.8)		The teacher uses questioning strategies that are appropriate to the objectives of the lesson. <i>(Recognition that a variety of questioning strategies including recall, analysis, evaluation, or synthesis may be appropriate.)</i>
___ (2.9)		The teacher uses questioning strategies that respond to student replies and failures to answer previous questions. <i>(Responses may include clarifying, refocusing, acknowledging correct answers, providing corrective feedback, extending, or prompting.)</i>
___ (2.10)		The teacher uses questioning strategies that provide opportunities for student involvement. <i>(All students have an opportunity to answer questions, an awareness of wait time, and student-initiated questions are strategies evidenced.)</i>

**Rating:      Competency:      **Instruction to be assessed through  
classroom observations. (continued)****

- \_\_\_ (2.11)      The Teacher communicates clearly, using precise language. (*Precision refers to clarity of meaning – communicating in a coherent manner, avoiding vagueness and ambiguity.*)
- \_\_\_ (2.12)      The Teacher communicates demonstrating a clarity of speech. (*Clarity refers to the technical quality of articulation, volume, and rate of delivery that contributes to student understanding.*)
- \_\_\_ (2.13)      The Teacher communicates using appropriate oral expressions. (*Incorrect grammar, slang, vulgarity are to be avoided.*)

**Rating:      Competency:      **Assessment of student  
understanding and  
consequent adjustment of instruction is assessed  
through classroom observations.****

- \_\_\_ (3.1)      The teacher monitors the level of understanding of a variety of students at appropriate points during the lesson. (*Strategies include questioning, spontaneous responses, practice opportunities, written responses.*)
- \_\_\_ (3.2)      The teacher adjusts instructional strategies to improve student understanding. (*Re-presenting information, asking different types of questions, changing the pace of instruction, and providing enrichment are appropriate strategies.*)

**The Rating Scale:**

<b>Exemplary</b>	<b>(EX)</b> Observations demonstrate skills related to the competency which could serve as a model for others beginning teachers in terms of effectiveness, thoroughness, creativity, and insight.
<b>Effective</b>	<b>(EF)</b> Observations demonstrate skills related to this competency which are sound educational practice and lead to targeted outcomes.
<b>Needs Improvement</b>	<b>(NI)</b> Observations demonstrate that the teacher needs to direct further development of skills in this competency area.
<b>Unsatisfactory</b>	<b>(U)</b> Observations demonstrate that the teacher was not effective in using skills necessary to meet this competency.
<b>Not Applicable</b>	<b>(NA)</b> Observations demonstrate that the competency cited does not apply to the lesson or to the position held by the teacher.

**Administrative Summary:**

Appendix B:

*Teacher Exit Questionnaire*

## Appendix B

### *Teacher Exit Questionnaire*

Teacher ID# \_\_\_\_\_

Date \_\_\_\_\_

1. What does collaboration in the classroom mean to you?
2. What skills do you feel you brought to this collaborative teaching experience?
3. How did this experience change your approach to classroom instruction?
4. Did you acquire any new skills by collaborating with another teacher?
5. How would you revise your collaborative approach to classroom teaching?
6. Would you choose to practice collaboratively again? Why or why not?

Appendix C

District Letter of Consent

Appendix C:

*District Letter of Consent*

**Voluntary Consent Form**

I grant **Pauline E. Goolkasian**, Doctoral Candidate at Western Connecticut State University, permission to meet with teachers, distribute surveys to middle and secondary teachers, and to carry out observations with teachers during the 2007 – 2008 school year as part of her dissertation research. I understand that participation is voluntary, the middle and/or high school can withdraw at any time, and that data will not be linked to any specific teacher, school or school district. I have received an unsigned copy of this form to keep in my possession.

NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

SCHOOL DISTRICT \_\_\_\_\_

SCHOOL \_\_\_\_\_

POSITION \_\_\_\_\_

ADDRESS \_\_\_\_\_

---

\_\_\_\_\_ Please check here if you would like a complimentary copy of the study results.

Pauline E. Goolkasian, MEd  
Principal Investigator

Karen Burke, CSJ, EdD  
Primary Advisor  
Instructional Leadership Program  
Western Connecticut State University  
Danbury, CT 06810

Appendix D

*Teacher Participant Consent Form*



Appendix D

*Teacher Participant Letter of Consent*

As a doctoral candidate at Western Connecticut State University, I have been given permission to conduct a research study within the School District, at the Middle and High Schools. This particular study involves measuring and observing the effects of a collaborative teaching model of professional development on new sixth through twelfth grade teachers' attitudes, implementation of instruction, self-efficacy, and motivation. The study will be conducted by Pauline E. Goolkasian as part of her doctoral dissertation under the supervision of Dr. Karen Burke, major faculty advisor.

If you agree to participate in the study, you will be asked to complete 2 brief survey scales, and 1 motivation inventory, once at the beginning of the study and once at the end. A demographic sheet will be filled out only once at the first meeting. In addition, 6 collaborative teams (3- middle school and 3- high school) will also be observed once, at the start and end of the semester, during the study. All assessments combined should not require more than 20 minutes of your time. Your individual participation in this study has the potential to raise your self-awareness of the effects of collaboration as professional development on your practice, as well as contribute to the improvement of the collaborative model practiced in other classrooms.

If you are willing to participate in the study, you will receive a unique identification number, which will be used to identify you on the various instruments that relate to the study. Your personal information will be kept strictly confidential. The confidentiality of your research records will be strictly maintained by using codes and keeping the consent forms separate from the data collected to make sure that your name will not become known or linked to any information that you divulge. Your name and other identifying information will not be disclosed to anyone other than the researcher and the individual who will conduct the 6 classroom observations. This individual is a highly qualified educator who has extensive experience observing and evaluating classroom instruction. Your name and data will be kept private and confidential.

Participation in this study is voluntary. It is your right to refuse to participate in this study and to withdraw from the study at any time without penalty. You have the right to skip or not answer any questions that you prefer not to answer. If there is anything about the study and your participation that is unclear or that you do not understand, or if you have any additional questions or wish to report a research-related problem, please contact Pauline E. Goolkasian or Dr. Karen Burke.

For questions about your rights as a research participant, you may contact the Institutional Review Board, Western Connecticut State University, 203-837-8567.

I received a copy of this consent document to keep.

I would be willing, with my team member, to be observed in the classroom twice during this study.

---

**Agreement to Participate**

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
**ID# (from folder and forms)**

Contact Phone Number (please indicate: home, work, or cell phone): \_\_\_\_\_

**Please return this form in the folder to Pauline E. Goolkasian**

Appendix E

*Human Subjects Research Review Form*

Appendix E

Human Subjects Research Review Form

HUM-1

Protocol # \_\_\_\_\_

**WESTERN CONNECTICUT STATE UNIVERSITY**

**Human Subjects Research Review Form**

**Principal Investigator** Pauline E. Goolkasian

Department Instructional Leadership

Address signed form should be sent to \_\_\_\_\_

E-mail \_\_\_\_\_

Phone number \_\_\_\_\_

New research project  Continuation \_\_\_\_\_ Modification \_\_\_\_\_ Teaching \_\_\_\_\_  
\_\_\_\_\_ Exempt Review (attach a completed copy of the "Application for Exemption")

Expedited/Full Review

To complete this form, please follow the instructions in sections A and B.

=====

**CHECKLIST FOR ATTACHMENTS:**

Completed Application for Exemption (if claiming exemption)

Answers to A1 through A6

Survey or questionnaire

Informed consent form

Student's current NIH training certificate

\_\_\_\_\_ Instructor's current NIH training certificate

\_\_\_\_\_ Chair's current NIH training certificate

=====

The **department chair** and the **principal investigator (PI)** must sign this form. If the PI is a student, his/her faculty supervisor must also sign.

**Assurance of continued compliance with regulations regarding the use of human subjects.** I certify that the information provided for this project is accurate. If procedures for obtaining consent of subjects change, or if the risk of physical, psychological, or social injury increases, or if there should arise unanticipated problems involving risk to subjects or others, I shall promptly report such changes to the Institutional Review Board. I shall report promptly unanticipated injury of a subject to my department chair and to the Institutional Review Board.

\_\_\_\_\_  
Principal Investigator's Signature Date

\_\_\_\_\_  
Faculty Supervisor's Signature (if PI is a student) Date

\_\_\_\_\_  
Department Chair's signature Date

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**Committee Action:**

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|--|---|
| <input type="checkbox"/> Approved through exempt review    | <input type="checkbox"/> Approved by full committee review                    |
| <input type="checkbox"/> Approved through expedited review | <input type="checkbox"/> Not approved; clarification<br>modification required |

\_\_\_\_\_  
IRB Chair's Signature

\_\_\_\_\_  
Date

**A. Instructions for completing the HUM-1 Form (attach answers):**

**For further information on questions 1-6 see the attached dissertation proposal.**

1. Describe the characteristics of the subject population (anticipated number, age ranges, gender, ethnic background, and health status).

The target population will be a group of new middle and secondary teachers in grades 6 through 12 where the  $n = 30$ . Research will be conducted at a small, suburban school district with a total student population 3,230 and a teacher population of 247.5 FTE. Demographically, the teacher population's socio-economic backgrounds are middle to upper class, with more female than male teachers. The target sample is representative of the schools' teacher populations in gender make-up and ethnicity.

2. Explain the rationale for use of special classes of subjects (children, mentally disabled, elderly, prisoners, or others).

The purpose of this study is to understand the effects of a collaborative teaching model of professional development as it relates to new seventh through twelfth grade teachers' attitudes, implementation of instruction, self-efficacy, and motivation. The researcher will be using only collaborative teachers for the study. During the observations of the 4 collaborative pairs the researcher will be present in the collaborative classrooms.

3. Identify the records or data to be obtained for individually identifiable living human subjects.

No school records of teachers or students will be used for this study. An attitude scale, a self-efficacy scale, and a motivation inventory will be administered, but none of these individual forms will be a part of the teachers' personal records or reported to the administrators of the district. Names will not be recorded. Subjects will be recorded as "teacher 1". Four observations will be recorded in four classrooms; however, no names will be recorded.

A teacher questionnaire will be completed by all new middle and secondary teachers at the end. Teachers will be recorded as teacher "1-30". Results will not be part of any employment records.

4. Describe plans for recruitment of subjects and the consent procedures to be followed, or explain why consent is not needed.

Middle and secondary teachers will be a sample of convenience. Each teacher will be asked to sign a consent form at the introductory meeting at the beginning of the 2007-2008 school year, the start date for the study.

5. Describe safeguards to assure anonymity and voluntary participation of subjects. In the case of student subjects, indicate that failure to participate in or withdrawal from the project will not affect class grade.

Information provided by the subjects will remain confidential. All names will be numerically coded to increase the confidentiality. Results of the study will not be reported to outside school districts, thus possibly affecting employment potential. No individual information will be included as part of the teacher employment records, or be specifically reported to the employer.

6. "Subject at risk" means any individual, who may be exposed to the possibility of injury, including physical, psychological, or social injury, as a consequence of participation as a subject in any research, development, or related activity that departs from the application of those established and accepted methods. [45CFR 46.3(b)]

The study will not expose any subject to an environment of physical, psychological, or social risk or injury. Results will remain confidential.

**B. Answer the following (if you answer yes to either question, the protocol requires full review):**

- Does your project involve **risk of physical injury** to subjects?

Yes  No

(If yes, describe the nature of the risk, the justification for undertaking the risk, and the procedures used to obtain the subject's informed consent to take the risk.)

- Does your project involve **risk of psychological or social injury** to human subjects?

Yes  No

(If yes, describe the nature of the risk, the justification for undertaking the risk, and the procedures used to obtain the subject's informed consent to take the risk.)

**NOTE:** If participation in the research involves physical, psychological, and/or social risk to the subject, the informed consent form **must say so in bold type**.

**Please send the completed form (if the protocol requires full review, send 12 copies) to: Director of Grant Programs, 321 Warner Hall. If you have questions, call 7-8281.**

6/26/06

