THE IMPACT OF INSTRUCTIONAL COACHING ON

TEACHER COMPETENCY, JOB SATISFACTION, AND STUDENT GROWTH

by

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Student Growth

Dissertation directed by Professor Dick Carpenter.

ABSTRACT

Instructional coaching has become a popular and widely-used form of professional

development for educators. The influence instructional coaches have on individual

teachers, students in classes where teachers are coached, and the general effectiveness of

coaching programs can be complicated to decipher. This dissertation analyzed the

instructional coaching arm of a program entitled Teachers Coaching Teachers (TCT),

collaboratively created through a partnership with district leadership and a local teachers'

union. Two analyses were conducted. Pre and post instructional survey results from 139

teachers on instructional competency and job satisfaction, and student growth data from

30 teachers' classes over the course of two years were analyzed using a first differencing

statistical approach. In both studies, coaching was found to produce a statistically

significant positive impact.

oversight and guidance over many years have built TCT into a strong force for good in our school district.

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CHAPTER 1

INTRODUCTION

Purpose

The purpose of this dissertation is to explore the impact of instructional coaching on teacher competency, job satisfaction, and student growth. It is organized as two studies— one on teacher competency and job satisfaction and the second on student growth. This dissertation is significant because it assesses the effectiveness of instructional coaching, a relatively recent support strategy for teachers implemented in school districts throughout the United States with the hope of raising student achievement.

Publication of *A Nation at Risk* (Gardner, 1983) resulted in heavy criticism of public education in the 1980s. To address the issues raised, rigorous standards were developed, and more testing ensued to analyze how well students were meeting standards. High levels of teacher and school accountability with associated consequences were also implemented throughout the years of *No Child Left Behind* (NCLB; Bush, 2001). In general, this approach did not yield the hoped for increases in student achievement (Cohen & Moffit, 2009). Lee (2006) reported:

> …neither a significant rise in achievement, nor closure of the racial achievement gap is being achieved. Small early gains in math have reverted to the preexisting pattern. If that is true, all the pressure and sanctions have, so far, been in vain or even counterproductive. (p. 7)

Instructional coaches and coaching programs were added to professional development options in school districts across the United States with the hope that through their help teachers could deliver instruction more effectively, and as a result, students would achieve at higher levels. Funding was made available to hire coaches in response to the

findings of *The Eisenhower Professional Development Program*, also known as Title II of the Elementary and Secondary Education Act. Title II was "the federal government's largest investment that is solely focused on developing the knowledge and skills of classroom teachers" (Garet, Porter, Desimone, Birman, & Yoon, 2001, p. 918). Longitudinal data from roughly 300 teachers were examined with the goal of identifying and implementing effective professional development practices. Porter (2004) summarized the results as follows:

> Large-scale change in teaching practice would require districts and schools to specify the areas of teaching in which change is desired. Then, districts and schools would need to plan and provide professional development activities that focus on these areas, that are aligned with other reforms, and that have the 6 characteristics of effective professional development: longer, reform type, school-based activities that focus on content, provide opportunities for active learning and are coherent with teachers' goals, standards and assessments and professional community. (p. 34)

Coaching, considered a reform type of professional development, addresses each of the identified characteristics for successful professional development defined by the Eisenhower project, "…longer, reform type, school-based activities that focus on content, provide opportunities for active learning and are coherent with teachers' goals, standards and assessments and professional community" (Porter, 2004, p. 34).

Coaching can expand the time of exposure to new strategies and incorporate active learning opportunities such as providing observations with feedback, co-teaching, modeling, collaboratively setting goals, and planning with teachers. Knight (2007) wrote that "The IC [Instructional Coach]…collaborates with teachers so they can choose and implement research-based interventions to help students learn more effectively" (p. 13).

A great deal of time and resources are funneled into the development of coaches and coaching programs. Is the investment paying off? Education leaders and coaches want to know if the work of coaching is making a positive difference for teachers and students.

Two studies were performed using first differencing statistical analyses (Wooldridge, 2001). These studies were conducted as part of an ongoing commitment by coaches in a school district's Teachers Coaching Teachers (TCT) program to continually improve and effectively meet teacher needs. One specific area of interest to the coaching team was to find a way to make a credible connection between coaching and student growth. Measures of student growth were included into regular processes for individual teachers who were coached, but finding ways to determine if coaching made a difference in student growth for a group of coached teachers using a common student assessment had been challenging since teachers chose different instructional goals and the program was relatively small.

Similarly, TCT coaches wanted to investigate whether high levels of growth in teacher competency and job satisfaction, recorded by surveys in previous years, could withstand a comparison to control groups. Another purpose for the study was to collect more information to determine whether TCT philosophies, coaching protocols and processes, training procedures, and a focus on human connection made a positive difference for teachers.

Teachers' internal beliefs related to their levels of competency and how satisfied they were with the job of being a teacher before and after coaching were measured through an instructional survey that defined specific elements of teaching practice and assessed overall job satisfaction. Recording teacher perceptions addressed the need for research

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about how specific pieces of teaching practice are influenced through coaching and how supporting teachers in specific areas could increase teacher confidence. Ross (1992) suggested that future research could

> …focus more precisely on the *tasks of teaching* in measuring teacher efficacy. In general, efficacy is assessed by asking subjects to report their confidence in executing a specific behavior…A similar approach in teacher efficacy research might elicit teachers' feelings of effectiveness in solving various curricular problems (selecting objectives, conceptualizing student growth, developing teaching strategies, assessing performance). (p. 61)

Locating specific information about coaching programs confirmed through research to be effective at improving teachers' instructional delivery, their overall job satisfaction including their social-emotional health, and the bottom-line measure of student growth, has been somewhat limited due to coaching being a relatively new education initiative. However, new findings focused on the benefits of specific processes or types of coaching are surfacing. Some recent examples include a content-focused coaching model developed by educators at the University of Pittsburgh (Bickel, Bernstein-Danis & Matsumura, 2013) that raised student achievement on state tests, and a new coaching model developed by Knight et al. (2015) after five years of research on coaching best practices. This new model incorporates specific steps organized under three general categories, "Identify, Learn, and Improve" (p. 10).

Education leaders and instructional coaches are looking for details about how effective coaching programs operate. Questions they might have could include: (a) What philosophies do effective coaching programs build their programs upon and how are those philosophies implemented? (b) What are their day-to-day processes? (c) How does their coaching impact the daily work and emotional health of teachers? and (d) Do their coaching interactions lead to student growth? The three research questions guiding this

dissertation and information included address some of these questions. The findings from this work will add to the growing body of instructional coaching research providing information about whether coaching is an effective professional development strategy, and what types of coaching models and programs result in greater teacher effectiveness and increased student learning.

This dissertation was designed to collect and analyze information from two important sources: (a) the daily work of teachers and instructional coaches (TCT instructional survey with job satisfaction) and (b) student growth results through Measures of Academic Progress (MAP), a nationally normed, validated and reliable student assessment.

Research Questions

The following research questions guided this dissertation:

1. Is there a significant relationship between instructional coaching and teacher competency?

2. Is there a significant relationship between instructional coaching and teacher job satisfaction?

3. Is there a significant relationship between instructional coaching and student growth?

Overview of Research Processes

Table 1 provides an overview of the participants, the school years involved, the instruments involved, and the analyses used for each of the two studies.

Table 1

Overview of Research

Dependent Measure	Participants	School Year(s)	Instrument	Analysis
Teacher Competency	139 K-12 Teachers 69 Coached, 70 Non-coached	2016-2017	TCT Instructional Survey: 22 Questions on Instructional Practice	First Differencing
Teacher Job Satisfaction	139 K-12 Teachers 69 Coached, 70 Non-coached	2016-2017	TCT Instructional Survey: Job Satisfaction Data	First Differencing
Student Growth 2-year Study	Averaged student growth spring-fall MAP™ RIT data from 30 teachers, 15 coached, 15 not coached over two school years comparing differences in student growth between year 1 and year 2	School Years: 2008-2013	NWEA Measures of Academic Progress (MAP™)	First Differencing

For the two studies included in this paper, the researcher chose first differencing

analyses, which when administered with two time periods is considered identical to a

difference-in-difference fixed-effects analysis (Wooldridge, 2001). These analyses

control for time-invariant variables such as race, gender, legal or political systems,

international conflicts, institutional and governance indicators, years of schooling, and

regional location (Chatelain & Ralf, 2010; Oaxaca & Geisler, 2003). "In a fixed effects

model, these variables are 'swept away' by the within estimator of the coefficients on the

time varying covariates" (Oaxaca & Geisler, 2003, p. 373). Typical within district school-

year patterns, district testing schedules, stable mobility rates within geographical areas,

trends in changes to the make-up of classes—or documented patterns such as new teacher disillusionment—could also be considered regular occurrences (Moir, 2011) and as such possibly controlled for within the model.

I chose first differences analyses for the studies to address as many variables as possible found within individual teachers, between the experimental and control groups, and within a school district and state, within one year for study one and over the course of two years for study two.

CHAPTER II

LITERATURE REVIEW

Chapter Overview

Research and information on a variety of topics related to instructional coaching are included in this literature review. The chapter begins with a table including vocabulary, definitions, and abbreviations to support understanding of chapter content, then the following chapter sections focused on research will be addressed in this order: (a) education environment that created the need for coaching (b) the sometimes confusing names and roles for coaches, (c) foundational coaching research, (d) current coaching research, (e) research surrounding teacher competency and efficacy, (f) research related to teacher job satisfaction, and (g) coaching research about student growth and achievement. To end the chapter, a listing of applicable research connected to each of the instructional survey sections used in study one is shared.

Vocabulary, Definitions, and Abbreviations

Table 2

Vocabulary, Definitions, and Abbreviations

Abbreviation	Name	Definition
IC's	Instructional Coaches	"…onsite professional developers who work collaboratively with teachers, empowering them to incorporate research-based instructional methods into their classrooms" (Knight, 2007).
NCLB	No Child Left Behind	A reauthorization of the Elementary and Secondary Act (ESEA) signed by George W. Bush in 2001. Characterized by standardized testing, high standards, and federal accountability for poor student performance.
ESSA	Every Student Succeeds Act	A reauthorization of the Elementary and Secondary Education Act (ESEA) signed by Barack Obama in 2015. Includes continued annual testing and high standards, states determine systems and support based on evidence and determine accountability measures.
CCSS	Common Core State Standards	"A set of high quality academic standards in mathematics and English language arts/literacy (ELA). These learning goals outline what a student should know and be able to do at the end of each grade." (Common Core State Standards, n.d., para. 2).
TCT	Teachers Coaching Teachers	A coaching program in a large urban school district in the western United States. Full and part-time coaches provide non-evaluative and confidential coaching services when requested by teachers and at times in response to principal suggestions

Education History and Environment that Created a Need for Effective Coaching

For the past 40 years, developing standards that could guide effective teacher practice

has been a central focus of public education. Instructional coaching appeared on the

educational scene to meet the urgent need to train teachers in the specifics of how to

effectively address new and changing standards and increase lagging student

achievement. Traditional professional development for teachers had typically been

delivered through workshops without substantial follow-up support. This practice did not

consistently lead to desired changes in teacher practice or student achievement (Knight,

2007; Rhodes & Houghton-Hill, 2000; Showers, Joyce, & Bennett, 1987; Swafford,

1998; Walker & Stott, 2000).

As shared in the introduction, coaching support began to be offered more frequently during the years of NCLB and was often supported with Title II funding through the Eisenhower Project. In 2015, the U.S. Department of Education summarized the need for a policy change, because "[NCLB's] prescriptive requirements became increasingly unworkable for schools and educators" (2015, para. 4).

On December 10, 2015, President Barack Obama signed into law the Every Student Succeeds Act (ESSA). This bill reauthorized, for the seventh time, the 50-year-old Elementary and Secondary Education Act (ESEA) that became law in 1965 under the Johnson administration (Standerfer, 2006). The intent of ESEA is to provide better educational opportunities and outcomes for children of lower-income families. ESSA received bipartisan support; in President Obama's words, "With this bill, we reaffirm that fundamentally American ideal—that every child, regardless of race, income, background, [or] the zip code where they live deserves the chance to make of their lives what they will" (U.S. Department of Education, 2015, para. 1).

The Executive Summary on ESSA provided by the Office of the President (2015) specified that ESSA will:

1. Ensure that states set high standards so that children graduate high school ready for college and career.
2. Maintain accountability by guaranteeing that when students fall behind, states target resources towards what works to help them and their schools improve, with a particular focus on the lowest-performing 5% of schools, high schools with high dropout rates, and schools where subgroups of students are struggling.
3. Empower state and local decision-makers to develop their own strong systems for school improvement based upon evidence, rather than imposing cookie-cutter federal solutions like No Child Left Behind (NCLB) did.
4. Preserve annual assessments and reduce the often onerous burden of unnecessary and ineffective testing on students and teachers, making sure that standardized tests do not crowd out teaching and learning, without sacrificing the clear, annual information that parents and educators need to make sure children are learning.
5. Provide more children access to high-quality preschool, giving them a chance to get a strong start to their education.
6. Establish new resources to test promising practices and replicate proven strategies that will drive opportunity and better outcomes for America's students. (Executive Summary, para. 2)

During the years leading up to the passage of ESSA, new national standards were being developed, and full implementation of them in most states began during school year 2013-2014. These standards were deemed necessary partially in response to low international test scores by U.S. students and the economic necessity of having a well-educated, globally-competitive workforce. Forty-six states approved a set of national standards in English/Language and Mathematics known as Common Core State Standards (CCSS; Killion, Harrison, Bryan, & Clifton, 2012). The implementation of CCSS required different ways of thinking and teaching and brought with them new assessments and revised teacher evaluations, without time to prepare well-developed training or support for teachers, instructional coaches, or education leaders. CCSS required shifts in teaching priorities and instructional delivery methods to increase rigor and conceptual understanding.

Alberti (2012) explained some of the changes teachers would need to make to

effectively address CCSS. Included in these ideas are some actions teachers could take to

effectively implement CCSS: (a) use more content-rich informational nonfiction; (b)

provide a variety of instructional scaffolding supports appropriate for individual students

to challenge them as they practice reading complex texts; (c) focus on growing students'

abilities to read and synthesize information from multiple sources and content areas, then

write about common themes or information from those sources; (d) increase students'

abilities to make claims and ground them in evidence; (e) increase academic vocabulary;

and (f) create deeper conceptual understandings and a variety of applications, using

mathematical concepts across grade levels with a focus on exploring multiple pathways

to find answers to mathematical questions and problems (Achieve the Core, n.d.; Alberti,

2012).

Desmond-Hellman (2016), the CEO of the Bill and Melinda Gates Foundation (which

was a major player in the creation and financing of the CCSS) recently admitted:

> Unfortunately, our foundation underestimated the level of resources and support
> required for our public education systems to be well-equipped to implement the
> [Common Core] standards…The mission of improving education in America is both
> vast and complicated, and the Gates Foundation doesn't have all the answers. (para.
> 10-11)

Missing in the roll-out of CCSS, as mentioned above, was meaningful training for

education leaders and coaches who could then support teachers to implement these new

standards. The hope that CCSS would improve instructional rigor and support higher

levels of thinking and understanding for students has not been realized. To prepare

teachers with the skills needed to address these new, more rigorous standards, thought

and intentional planning into how coaches are trained, how coaching is delivered, and

how it is defined are critical pieces to be considered by education leaders at all levels. One of the complications in determining the effectiveness of coaching is that the word "coach" is not easily defined. Instructional coaches can take on numerous roles, and the daily work they engage in is varied depending on district or school needs and funding sources.

Coaching Names and Roles

The title "Instructional Coach" is often confused with or used interchangeably with terms such as mentor, teaching and learning consultant, learning resource teacher, teacher leader, literacy coach, advisor, leadership coach, math coach, specialist, teacher supervisor, data coach, learning facilitator, school growth teacher, peer coach, curriculum specialist, and classroom supporter, to name a few (Denton & Hasbrouck, 2009). "Sadly, many of the terms and titles have become muddled with a wide variety of uses and purposes…there is only one role that can enhance all roles—that of the coach" (Kee, Anderson, Dearing, Harris, & Shuster, 2010, p. 9). Important administrative decisions include the title of the instructional coach, how the coach will use time with teachers, and how the coach will be paid.

Knight (2009) described coaches' job roles as dependent on "clear job descriptions and role expectations" (p. 14). Though instructional coaches may support a variety of initiatives and activities, their effectiveness is determined, in part, by how clearly district and building goals are defined as well as how their job is designed to fit within district-wide systems, specific building areas of focus, and the individual needs of teachers and students. Knight (2009) wrote, "Sadly, too many coaching programs have been launched

with an insufficient program framework designed to maximize the impact of coaching on teaching and learning" (p. 14).

In the words of Denton and Hasbrouck (2009):

There appears to be a general assumption that "everyone knows" what coaching consists of, with vague notions of observing teachers in classrooms and providing them with feedback about their teaching. Unfortunately, the rush to implement coaching before strong theoretical models, or even well-defined job descriptions, were in place has caused a good deal of confusion related to the role and focus of coaching. (p. 154-155)

Foundational Coaching Research

In general, researchers have indicated that coaching is an effective professional development strategy. Early coaching researchers focused on how coaching affects teacher practice—specifically, how it increased the implementation of new professional learning and instructional strategies.

In a five-year longitudinal study in California involving approximately 80 schools from 1979 to 1983, Bush (1984) explored the question of whether coaching would boost the implementation of new skills. Bush and his research team discovered that if teachers used the components of workshop, modeling, practice, and feedback to gain new skills, there was an approximate 20% chance that the teachers would implement the skills in classroom practice; with the addition of peer coaching, that number grew to roughly 95%.

Similarly, Showers (1982) conducted an experiment where 17 teachers were taught three models of teaching in a workshop setting. Nine teachers worked with a coach for six weeks, and the other eight teachers did not receive coaching. Through teacher observations, Showers found the teachers that had been coached were more likely to use the new teaching models taught to them in the workshop, and the teachers who were not coached used the new ideas much less frequently. Showers then measured how the 256

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students under these 17 teachers performed on essay and recall tests. Students in the classes of the teachers that had implemented the new instructional practices scored better on recall tests than the students of teachers who had not implemented the new strategies. Joyce and Showers (1995) indicated that when coaching was added to low-risk practice, demonstration, and explanation of theory, an 80% increase in the transference of professional development took place.

Truesdale (2003) found that teachers who had been coached transferred new learning into classroom practice, while teachers who had not been coached stopped using new training after 15 weeks. In 2007, Knight found that when coaches were involved with teachers and modeled instructional practices, the teachers replicated these practices into classroom practice 70% more often than when coaching was not used as a support for teachers. These researchers demonstrated that it is significantly more likely that with coaching, teachers will implement professional learning into classroom practice.

An early coaching program, *Cognitive Coaching* (Costa & Garmston, 2002), showed an increase in teacher job satisfaction (Edwards, Green, Lyon, Rogers, & Swords, 1998), and teacher efficacy (Dutton, 1990). This program also showed higher levels of student achievement for students in teachers' classes that were coached compared to teachers not coached "including significant improvement on the Iowa Test of Basic Skills, reading scores, and math scores" (Auerbach, 2006, p. 110).

A partnership that began in 1999 between Jim Knight, the University of Kansas, and the Topeka, Kansas Public School District, resulted in many coaching resources and best practices being developed and shared with coaches around the world (Marzano & Sims, 2013). Two of the earliest foundational coaching resources that provided ideas about how

instructional coaching programs could be developed were written by Knight (2007; 2009).

Current Coaching Research

As mentioned in the introduction of this paper, coaching models and information currently found in educational literature provide useful tools for instructional coaches. Some contemporary books designed to help instructional coaches and coaching programs are summarized in Table 3.

Table 3

Current Coaching Resources

Author(s) and Year of Publication	Name of Book	Summary
Kise, 2006, 2017	*Differentiated Coaching*	Provides guidance about how to differentiate coaching interactions through the common framework of MBTI® personality type.
Kee, Anderson, Dearing, Harris, & Shuster, 2010	*Results Coaching*	Uses International Coach Federation standards for coaching and provides a color-coded navigation system to guide coaching interactions, focuses on leadership coaching.
Knight, 2011	*Unmistakable Impact*	Designed to help school districts organize and align professional learning and offer support for principals, education leaders, and coaches in their varied roles.
Sweeney, 2011	*Student-Centered Coaching*	Student learning is central as coach partners with teacher to reach specific student learning goals.
Killion, Harrison, Bryan, & Clifton, 2012	*Coaching Matters*	Straightforward summary of coaching research, types of coaching, and coaching roles.
Marzano & Simms, 2013	*Coaching Classroom Instruction*	Explains coaching history and includes hundreds of research-based strategies organized under elements of quality teacher practice with a scale to measure teacher progress.
Aguilar, 2013	*The Art of Coaching*	Focused on effective strategies to be used when coaching for school and individual transformation by making the sometimes elusive and at times non-linear art of effective coaches visible.
Knight, 2014	*Focus on Teaching*	Demonstrates how to powerfully use video to understand current reality and refine classroom practice.
Knight, 2016	*Better Conversations*	A return to the core of true partnership through conversation. Knight provides encouragement and specific ideas demonstrating how to authentically connect and care through dialogue.
Knight et al., 2017	*The Impact Cycle*	Provides a clear 3-step instructional coaching model that includes setting a goal, selecting a strategy to address the goal, then working on the strategy and refining it until the goal is met.

Many valuable processes and supports are included in these resources, and research about the effectiveness of the ideas and programs are often cited. Yet, quantitative analyses on the impact of coaching were less available than other types of analyses, creating a need for more quantitative coaching research to be conducted and shared.

Teacher Competency and Efficacy

It is possible that instructional coaching can facilitate a change in teachers' beliefs about their levels of instructional competency. As mentioned previously, *Cognitive Coaching,* a type of coaching focused on "planning teaching, reflecting on teaching, or problem solving" (Marzano & Simms, 2013, p. 12), showed increases in teacher efficacy and job satisfaction (Dutton, 1990; Edwards, Green, Lyons, Rogers, & Swords, 1998). Initial research on teacher efficacy included Rotter's (1966) locus of control theory, Bandura's (1997) social cognitive theory, and Goddard, Hoy, and Hoy's (2000) findings on collective teacher efficacy. These researchers emphasized that a teacher's belief in what she or he can create is powerful, and that high levels of both individual and collective efficacy (within a school environment) lead to better student outcomes (Allinder, 1994; Gibson & Dembo, 1984).

Teachers and education leaders nationwide are engaging in discussion about how to create environments that support and improve teacher efficacy levels. Tschannen-Moran, Hoy, and Hoy (1998) wrote, "The question about how self-efficacy can be changed may be a question about how motivations and beliefs about teaching competence can be changed...Also, what is the role of social support in developing and modifying teacher efficacy" (p. 240).

Ross (1992) found that all teachers, no matter what their levels of efficacy, were more effective when they had more contact with coaches. This was evidenced through higher student achievement. Berman, McLaughlin, Bass, Pauly, & Zellman (1977) define teacher efficacy to be, "the extent to which the teacher believes he or she has the capacity to affect student performance" (p. 137). The hiring and retention of teachers with bright minds is not enough to ensure student learning; teachers must deeply believe they can successfully meet the challenges that exist in the current educational environment (Goddard, Hoy, & Hoy, 2000).

Teacher Job Satisfaction

Many teachers are unhappy in their work. From the 2011 Metlife Survey of 1,001 American Teachers, more teachers reported they are very or fairly likely to leave teaching (from 17%-29%), an increase of 12% since 2009. Implementation of CCSS has been a challenge for 59%, of teachers, and fear surrounding job security has increased from 8%-30%. According to the 2012 MetLife Survey of American Teachers, which included 1,000 teachers and 500 principals, teacher job satisfaction has dropped 23 points since 2008. The number of teachers who are very satisfied has gone from 62% to 39%; this is the lowest level of teacher job satisfaction in 25 years.

Some of it is a function of compensation. The National Center for Education Information (2011) reported that many teachers are not satisfied with their salaries (45%). Since 1979, teacher wages relative to those of other similar workers have dropped 18.5% among women, 9.3% among men, and 13.1% among both combined (Economic Policy Institute, 2011). Other reasons for low satisfaction include low perceived status of teachers in their communities or the growth of the testing culture in schools (National

Center for Education Information, 2011). Consequently, one third of current public

school teachers do not expect to be teaching in K-12 schools in five years (National

Center for Education Information, 2011, p. 56), which could contribute to teacher

shortages.

These shortages in urban schools and in many states across the United States (Aragon,

2016; U.S. Department of Education, 2015) are indications that something needs to be

done both to encourage young people to enter the teaching profession and to find ways to

support them when they do so, which will compel teachers to stay long enough to see

positive results for students. Many young and inexperienced instructors teach in difficult

environments (Lankford, Loeb, & Wyckoff, 2002), which can make it challenging for

them to persevere. As reported earlier, *Cognitive Coaching* was shown to increase job

satisfaction (Marzano & Simms, 2013). With all that has changed in education since

Cognitive Coaching was developed in 1984, can coaching still positively impact such

serious issues of teacher dissatisfaction?

Student Growth and Achievement

Researchers have begun to explore the effects of coaching on student growth and

achievement. Given the primary goal of increasing student learning, coaches and

education leaders want to know if coaching makes a difference in students' academic

growth. One finding from a Florida study initially showed no significant gains in student

achievement, but when teachers experienced longer amounts of time with a coach,

student achievement improved (Marsh et al., 2008).

Positive student achievement results for The System for Teacher and Student

Advancement (STSA) program—formerly called TAP—have been found. STSA uses

instructional coaching organized with *master* and *mentor* teachers as an integral part of their teacher development. An independent study (Hudson, 2010) of all STSA schools in the United States found that in Math, STSA schools outperformed similar schools each year by 0.15 standard deviations. Similarly, in Louisiana during the 2008-2009 school year, STSA schools outperformed state student achievement results, even with significantly greater numbers of minority and lower socioeconomic students.

A 2008 study of math and science coaching in South Carolina revealed significant gains in student achievement on state assessments (South Carolina's Coalition for Math & Science, 2008). Also, Dempsey (2007) found a 27% increase in the number of students scoring proficient and advanced when teachers received coaching in one elementary school in South Carolina. Biancarosa, Bryk, and Dexter (2010) found that after three years of coaching, student learning gains increased by 32%. The Learning Network (2006) reported steady growth in fourth-grade student reading scores over a five-year period when the school added literacy coaches to support reading instruction. Student scores increased from 29% proficiency in 1999 to 86% proficient on state standardized exams in 2004.

Literature Review of Instructional Survey Components

The instructional survey used in study one (see Appendix A) includes many components determined through research to be best instructional practices. Teachers were typically expected to incorporate survey topics as part of preparing and delivering their daily instruction. Table 4 lists the survey's 22 topics organized within the five sections or constructs designed to measure Teacher Competency.

Table 4

Instructional Survey Sections, Topics within Categories and Research

Instructional Category	Survey Topics Teachers rate themselves on a Likert scale 0-10, with 0 indicating NO EVIDENCE of implementation and 10 indicating STRONG EVIDENCE of implementation	Research Resources
Planning	1. Long-range planning with sequencing 2. Alignment with standards 3. Learning targets	Hattie (2009) Marzano, Norford, Paynter, Pickering, & Gaddy (2001) Knight (2013) Chapman & King (2008) Lemov (2010)
Instruction	1. Context of the lesson (how it fits within a unit of study) 2. Content knowledge and presentation 3. Appropriateness of lesson (ability levels/pacing/child development) 4. Use of technology 5. Effectiveness of instructional strategies 6. Strategies for differentiation of instruction 7. Questioning Techniques	NBPTS 5 Core Propositions (n.d.) (http://www.nbpts.org/standards-five-core-propositions/) Piaget (1977) Kelly, McCain, & Jukes (2009) Dack & Tomlinson (2015) Gardner (1983) Allinder (1994) Gibson & Dembo (1984) Fusco (2012) Gardner (1983) Anderson & Krathwohl (2001) Costa (2001)
Assessment	1. Development of appropriate assessment (formative/interim/summative) 2. Meaningful student work assignments 3. Quality of feedback to students 4. Analysis of assessment results 5. Readjustment of instruction based on feedback	Hattie (2009) Knight (2013) Tomlinson (2014) Chapman & Vagle (2011) Stenger (2014) NBPTS 5 Core Propositions (n.d.) (http://www.nbpts.org/standards-five-core-propositions/)
Classroom Environment	1. Behavior expectations and classroom procedures in place/consistently implemented 2. Expectations and belief for student success 3. Student interest and participation 4. Positive classroom climate	Wong & Wong (1998) Payne (2006) Chapman & Vagle (2011) Wood (1998) Henderson and Milstein (2002)
Professional Growth	1. Acquirement and alignment of professional development 2. Implementation of professional development 3. Reflection on teaching practice for improvement	Learning Forward Standards (n.d.) (https://learningforward.org/standards/) Bush (1984) Joyce & Showers (1995) Knight (2007) Kearsley (2010) Danielson (1996)

Table 5 represents Job Satisfaction. Following the tables, a discussion and explanation of each section is presented, including an overview of research that supports the inclusion of survey topics.

Table 5

Job Satisfaction Section of Survey with Applicable Research

Category	Survey Topic	Research Resources
Job Satisfaction	Teachers rate current level of Job Satisfaction from 0 to 10 with 0 being "I want to quit" and 10 being, "I love my job, I wouldn't want to do anything else."	MetLife Survey of American Teachers 2011 & 2012) National Center for Education Information (2011) Hamre & Pianta (2001) Toshalis (2016) Rotter (1966) Bandura (1997) Goddard, Hoy, and Hoy (2000) Allinder (1994) Gibson & Dembo (1984)

Planning. Hattie (2009) notes the importance of developing a meaningful curriculum through implementing strategies that are "planned, deliberate… that teach specific skills and deeper understanding" (p. 35). When looking at Hattie's (2009) top 20 strategies to implement to help students learn 17 require planning to be applied. Best practices identified in educational literature and standards to be addressed can often (but not always) be found within content curricula provided to teachers. Even with these curriculum resources, teachers often find the need to adapt the curriculum to work well for the students they serve. Many education authors include sections on planning in the books they produce (Chapman & King, 2008; Knight, 2013; Lemov, 2010; Marzano, Norford, Paynter, Pickering, & Gaddy, 2001). These authors suggest the importance of a structured process for planning and typically include the following pieces as described by

Lemov (2010):

1. Progressing from unit planning to lesson planning
2. Using a well-framed objective to define the goal of each lesson
3. Determining how you'll [a teacher] assess your effectiveness in reaching your goal
4. Deciding on your activity (p. 59)

Planning how lessons will fit together in a sequence over the length of a quarter, a semester, or a year, and then determining short term targets or goals, or as Hattie (2009) calls them, "learning intentions" with meaningful aligned learning activities and formative assessments to determine levels of student progress is one way to ensure that best practices and student needs are incorporated into daily plans.

   Instruction. For the purposes of the survey, the topic "context of the lesson" was included to ascertain whether deliberate choices were made for the context of individual lessons within a unit of study, or why a specific lesson was chosen to be delivered at a particular time. The research noted in the planning section above supports the importance of teachers knowing how their lessons fit into long-term units or sequences. A core piece of teacher competence identified by the National Board for Professional Teaching Standards (NBPTS) is that teachers know their content. Proposition three of five core propositions reads, "Teachers know the subjects they teach and how to teach those subjects to students" (NBPTS, 5 core propositions, n.d.). Teaching competence also requires the lesson is appropriate for students receiving the instruction. For instance, lessons are created to be appropriate for ability levels, the pacing of instruction is workable for the students in the room and students are being asked to complete assignments they are developmentally able to complete (Piaget, 1977).

Technology has become important because, in the words of Kelly, McCain, and Jukes (2009),

> "…it is vitally important that education respond to the dramatic changes taking place around the globe. You can't look at the modern world without recognizing that something really big is happening in the way life is lived—the way we work, the way we play, the way we communicate, the way we view our fellow citizens, and the way we learn…These sweeping changes are occurring so rapidly and are of such magnitude that education must quickly adapt or face the very real prospect of becoming irrelevant. (p. 1)

When coaches know teachers are not confident using technology, coaching support can then be offered in that area. Similarly, having teachers rate the effectiveness of instructional strategies they have been using provides some insight into how successful they believe themselves to be when providing instruction. If coaches can support growth in this area by providing quality instructional strategies and build teachers' confidence or efficacy in the process, student outcomes will improve (Allinder, 1994; Gibson & Dembo, 1984). Differentiation, or finding ways to effectively meet students' varying "aptitudes, skills, and preferences" (Fusco, 2012, p. 52), is an integral part of effective teaching (Gardner, 1983). Dack and Tomlinson (2015) also include an emphasis on culture:

> A teacher who looks at students as individuals—no matter what their cultural experiences are—will attend to their varied points of readiness, their interests, their exceptionalities, their status among peers, and so on when planning curriculum and instruction. This differentiation is essential to the academic growth and motivation of students from all cultural backgrounds. (p.11)

Finally, the last survey topic in the instruction section of the survey is listed as questioning techniques. Do teachers know how to ask questions that encourage students to think at a variety of cognitive levels? When the topic of questioning techniques is addressed, discussions about rigor typically follow. Teachers benefit from learning to

organize their questions to encourage students to not only address literal questions, but inferential and metacognitive ones as well (Fusco, 2012). Two widely used cognitive models that help teachers identify levels of questions are the revised Bloom's Taxonomy (Anderson & Krathwohl, 2001) and Costa's Levels of Thinking (Costa, 2001).

Assessment. Teachers are tasked with creating and administering appropriate assessments to be used at different times during instruction. These include pre and post assessments being administered prior to a chunk or unit of instruction and after instruction to show student growth, summative assessments to indicate final levels of student achievement at a certain point in time, and more frequent formative assessments. Formative assessments are designed to provide information both to students and teacher regarding how well students are progressing toward mastery of content standards. They also serve to "bridge today's lesson with tomorrow's" (Tomlinson, 2014, p. 11). Through formative assessment, instruction can be adjusted quickly as needed based on student data and feedback. Hattie (2009) ranks formative assessment as the third most effective strategy related to student achievement. Knight (2013) writes:

> One major reason for using formative assessment is that it provides a way for teachers to dramatically increase engagement. That is, formative assessment is a way by which teachers can clarify learning goals, provide students with frequent, clear feedback on their progress toward the goal, and adjust learning so it is more frequently at the optimal level of challenge for students. (p. 57)

Meaningful student work assignments (Chapman, & Vagle, 2011, p. 79) and specific academic feedback (Stenger, 2014) providing students information about their progress toward mastery of instructional goals, along with a plan for how assessment results will be analyzed (Chapman & Vagle, 2011, p. 85), are key components to making assessment an integral part of effective instruction. Teachers who reflect on the results of

assessments and adjust their instruction accordingly to meet student needs can be assured

their practice meets one of the highest teaching standards in the nation, the National

Board for Professional Teaching Standards (NBPTS) proposition number one: Teachers

are committed to students and their learning (NBPTS, 5 core propositions, (n.d.)

    <u>Classroom Environment.</u> Wong and Wong (1998) suggest that to change students'

lives, or in other words, be an effective teacher, the following three pieces need to be in

place:

1. Have positive expectations for student success.
2. Be an extremely good classroom manager.
3. Know how to design lessons for student mastery. (p. 9)

Payne (2006) suggests that classrooms function as systems and as such should include:

"procedures, rules, motivation through consequences and rewards, organization planning,

schedules…" (p. 2). When teachers being coached rate themselves on evidence of student

interest and participation and a positive classroom climate, this information provides

coaches with insights regarding what teachers expect from themselves and from students.

Whether the perception is accurate can be confirmed or not through observation. This

allows coaches to understand whether teachers' perceptions of student engagement and

classroom climate are accurate or skewed. Chapman and Vagel (2011) share a framework

for motivation to increase student engagement that includes: "Building a Classroom

Learning Community, Describing and Planning Learning, Finding Adventure, Promoting

Choice and Control, and Ensuring Learning" (p. 2). When teachers have behavior

expectations and classroom procedures in place and implement them consistently, plan

relevant and interesting lessons that honor the learner by incorporating choice and

adventurous learning opportunities, and present instruction with enthusiasm (Wood,

1998) and caring (Henderson & Milstein, 2002), a positive classroom climate can be created.

   Professional Growth. Professional learning that meets teacher needs is critical. "For most educators working in schools, professional learning is the singular most accessible means they have to develop the new knowledge, skills, and practices necessary to better meet students' learning needs" (Learning Forward Standards for Professional Learning, standards, n.d.). Implementation of professional learning is a Learning Forward standard and is explained as follows: "Implementation: Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long-term change" (Learning Forward Standards for Professional Learning, standards, n.d.).

   Coaching allows for both personalization of professional development and ongoing support with implementation. As noted previously, coaching can increase levels of teaching strategy implementation by 70-80% (Bush, 1984, Joyce & Showers, 1995; Knight, 2007). Teachers who experience coaching support that allows them to address relevant problems through meaningful goal setting, determine how progress toward goal completion will be measured, and experience job-embedded implementation with ongoing support can find satisfaction and success through their professional learning. Coaching organized this way is designed to be flexible enough to address teacher, building, and district priorities and incorporates Knowles' Principles of Adult Learning Theory (1984), which when explained by Kearsley (2010), include:

1. Adults need to be involved in the planning and evaluation of their instruction
2. Experience provides the basis for the learning activities
3. Adults are most interested in learning subjects that have immediate relevance and impact to their job or personal life
4. Adult learning is problem centered, rather than content oriented.

Engaging in meaningful reflection about teaching practice is a critical part of effective teaching and coaching (Robbins, 2015). Teachers increase opportunities for future teaching success as they reflect on their teaching. Being willing to ask self-generated introspective questions after instruction about what teaching pieces went well, what parts could be improved upon, when students were most engaged, what evidence was used to determine levels of student learning, and other questions related to the effectiveness of the teaching provide information that can move teachers forward to higher levels of expertise. Danielson (2007) explains the importance of reflection in this way:

> Reflection is a natural and highly productive human activity. All of us tend to engage in reflection as we mull over the results of our activities and how we could have been more effective. In other words, as pointed out by John Dewey in the early days of the 20th century, we learn not from our experience but from our thinking about that experience. It is the thinking that matters. (p. 169)

Job Satisfaction. The job satisfaction section of the survey asked teachers to reflect upon and rate their personal perception about a different, more holistic piece of their teaching experience. Teachers were asked to, " …rate their current level of Job Satisfaction 0 to 10 with 0 being 'I want to quit' and 10 being, 'I love my job, I wouldn't want to do anything else." This topic was not related to teacher competency on specific elements of instructional practice but was designed to indicate how satisfied teachers were feeling about the job of teaching.

Knowing, as noted previously, that many teachers are struggling to find happiness in the teaching role as evidenced through survey responses and teacher shortages (MetLife

Survey of American Teachers, 2011 and 2012; National Center for Education, 2011), this

section of the survey can provide information to help coaches determine if attention

needs to be given to non-instructional conditions or concerns that impact the ability of the

teacher to be effective. These could include difficult situations such as: (a) teacher burn-

out, (b) problems with physical and emotional health, (c) difficulties bouncing back or

being resilient when things do not go well, (d) negative collegial and leadership

relationships, (e) extreme classroom behaviors that need intervention support, and (f) a

perceived inability to like students or feel and demonstrate love and caring.

Relationships between students and teachers are of great importance and can make a

life-changing difference in the lives of students (Hamre & Pianta, 2001). It takes effort to

build students' trust, remain positive in difficult situations, find meaningful ways to

connect with students, and to demonstrate true caring (Toshalis, 2016). Supporting

teachers in ways that build their emotional and physical reserves so they have strength,

energy, and determination to make the efforts needed to build meaningful relationships

with students is a worthwhile coaching effort and is included as an integral part of TCT

coaching processes.

CHAPTER III

TEACHERS COACHING TEACHERS PROGRAM

TCT History, Statistics

Teachers Coaching Teachers (TCT) is a 21-year-old coaching program located in a large urban school district in the western United States. TCT is part of the district's professional development department and provides three types of coaching support—instructional, peer, and candidate support for teachers pursuing National Board certification. The instructional coaching component of TCT, which has been the core of the program since it began in 1997, was the source of data for the two studies. Teacher competency, teacher job satisfaction, and the growth of students in teachers' classes who were involved with the TCT program were compared to control groups and statistical analyses using a first differencing approach were performed.

The school district and local teachers' union organized TCT as a collaborative effort in 1997 to introduce coaching as a form of professional development and support for struggling teachers. As the program became more established, TCT began providing coaching services for teachers at all levels of experience and expertise.

For the past six years TCT has enjoyed a 99% overall customer satisfaction rating from 429 teachers (averaged results for all coaches' individual customer satisfaction survey scores in five areas of competency each year). The program has also received 97-99% ratings for customer satisfaction during the past six years from principals on a similar anonymous survey. Percentage gains on the Instructional Survey (see Appendix A) for the past six years have ranged from 14-19%, with an average difference of 1.6 on the 10 point Likert scale in teacher job satisfaction.

As part of a continuing effort and commitment to deliver effective coaching through the TCT program, the studies included in this dissertation compared 2016-2017 survey results with control groups to check the assumption that both teacher instructional capability and job satisfaction improve substantially through coaching. Exploring the effect of coaching on student growth directly addresses the vision of TCT, which is "to promote quality teaching and learning to increase student learning and achievement."

Teachers across the district at all levels of experience and expertise requested coaching services from TCT to address goals of their choice in a non-evaluative and confidential setting. Principals could suggest teachers request coaching services, and after discussion with a teacher, coaching could have become part of a plan for improvement. This dynamic often gave teachers a reason to pause before enlisting a coach; in some schools, it introduced a negative sentiment as to how the coaching program could be used.

In recent years, there were fewer teachers on formal remediation plans who received coaching. Teachers who used coaching services to address components of a remediation plan decreased from 12% in 2010 to three percent in 2016. However, both probationary and non-probationary teachers who principals considered to be struggling may have been encouraged to request coaching services. This situation was difficult to document with accuracy since the choice to be coached was almost always in the end a teacher choice (unless documented in a remediation plan), but that choice may have been influenced by a suggestion from the principal to access coaching.

Coaches

The TCT staff for study 1 consisted of three full-time coaches and five classroom teachers designated as "intermittent" or as needed part-time coaches during school year 2016-2017. Descriptive statistics for 2016-2017 TCT coaches are found in Table 6.

Table 6

TCT Coaches' Descriptive Statistics

Job Title	Years of Experience	Gender	Education Level	Age
Full-time Instructional Coach	15	F	MA2	55
Full-time Instructional Coach	24	F	BS	48
Full-time Instructional Coach	13	F	MA1	54
High School Math Teacher & Intermittent Coach	24	F	MA1	46
Middle School GT Science Teacher & Intermittent Coach	10	M	MA1	31
1st Grade Teacher & Intermittent Coach	19	F	MA1	45
4th Grade Teacher & Intermittent Coach	32	F	MA1	55
Grade 6 Special Education-English Language Arts, Math	28	F	MA2	49

Detailed descriptive statistics for TCT coaches during the five years included in Study 2 (2008-2009 to 2012-2013) were not available, but five full-time coaches and 20 intermittent coaches were employed at various times during those years. Five of the coaches were male and 15 were female. Two coaches from those years currently work in full-time TCT coaching positions.

Most coaching services requested by teachers using TCT were related to general topics applicable to all grade levels such as: (a) classroom management, (b) differentiated instruction, (c) student engagement, (d) curriculum mapping, (e) lesson planning, (f) small group instruction techniques, (g) parent and colleague communications, (h) assessment strategies, and so forth. Full-time coaches provided services for K-12 teachers, and part-time coaches were matched appropriately with teachers at or near their grade level or in the content area in which the teacher had requested support.

Foundational Philosophies

Jim Knight's Partnership Principles. All coaches were trained in the coaching philosophy of Knight (2007), specifically the concept of Partnership Principles listed as follows:

1. Equality: Instructional Coaches and Teachers Are Equal Partners
2. Choice: Teachers Should Have Choice Regarding What and How They Learn
3. Voice: Professional Learning Should Empower and Respect the Voices of Teachers
4. Dialogue: Professional Learning Should Enable Authentic Dialogue
5. Reflection: Reflection Is an Integral Part of Professional Learning
6. Praxis: Teachers Should Apply Their Learning to Their Real-Life Practice as They Are Learning
7. Reciprocity: Instructional Coaches Should Expect to Get as Much as They Give. (pp. 40-51)

Rebecca Frazier's Characteristics of Effective Instructional Coaches. Beginning in school year 2015-2016, coaches were also trained during meetings and through weekly

emails to incorporate into their coaching work characteristics of effective instructional

coaches identified in my initial doctoral study conducted during school years 2012-2013

and 2013-2014. Working to embody the characteristics identified through the doctoral

research study became a focus of coach trainings. The ten characteristics of effective

instructional coaches were identified through a mixed methods study involving a

synthesis of coaching author's listed characteristics, 15 qualitative interviews with

coaches, and the quantitative results of evaluations of 43 coaches (279 evaluations in all)

by fellow coaches, teachers they coached, and administrators (Frazier, in press). The

characteristics identified are as follows:

An effective instructional coach is:

1. Caring
2. Competent
3. Collaborative
4. Authentic
5. A Quality Communicator
6. Trusted
7. Flexible
8. Planned
9. Able to Provide Models
10. Inspirational

TCT Consistent Coaching Processes

Frequency of assistance, coaching cycles completed, fidelity to processes. TCT

coaches supported teachers at the level of frequency they requested if it could be

accommodated. Typically, coaching was provided for most teachers once a week or once

every other week. The average number of completed coaching cycles per year (goals set

and action steps completed) was three to five. Coaches adhered to the TCT goal setting

processes with high levels of fidelity.

Teacher information, coach organization, goal setting, and action plan processes. TCT coaches in 2016-2017 organized their instructional coaching work with teachers using a four-page planner developed by me. This planner included an informational page with basic teacher information, a list of assistance options provided by TCT, a place for noting what area(s) of coaching assistance were requested, a checklist for coaches to help with planning and organization, and a list of resources coaches could access to support the teacher with their chosen area of assistance.

The second page of the planner included coaching protocols to address human connection. Through a unique process, each teacher determined in one word what he/she wanted students to take away from their interactions with the teacher, and then the teacher was asked to pinpoint what she/he needed in that moment. Support and ideas were provided to the teacher through this process. Other human connection pieces included: (a) teachers taking a learning style assessment so coaching could be tailored to each teacher's needs, (b) recording available personality information such as Myers-Briggs, Emergenetics results, etc., (c) the identification of self-care practices that would be helpful, (d) the sharing of dreams and goals, and (e) personal or family information the teacher wanted to share such as number of children, hobbies, interests, likes, or dislikes. To conclude this section, one last question was asked: "Is there anything else you think I ought to know as your coach?" The answer to this question often provided insight into what roadblocks or challenges a teacher was facing.

The third section of the planner was the Goal Setting and Action Plan page. On this page, a form designed to include all components of a S.M.A.R.T. goal (specific, measurable, achievable, results-focused, and time bound) (Doran, 1981) was organized.

Instructional goals were identified through a process that included: (a) teacher

preferences and needs, (b) guided questions to identify what had already been tried in the

goal area and identify student and teacher needs, (c) observation feedback and data

collected by the coach, (d) coach support (if needed) with wording of the goal so progress

could be measured, (e) measurement of progress method determined and noted, (f) a

place for specific action steps to be listed with timelines for completion, (g) a section for

evidence of action step completion documentation, (h) a data review with results noted in

the goal attainment/measurement results section of the plan, and (i) a section where next

steps could be determined.

Goals could have been categorized as both student and/or teacher centered. For

example, if designing a classroom management system (a process that includes many

action steps) was set as the goal, and the measure was to increase student engagement by

10%, this goal could be considered both teacher and student centered. Being careful to

address what the teacher wanted to accomplish was a priority, so some goals were broad

with many action steps, and some were more short cycle goals with fewer action steps.

Of course, the bigger goals took longer to complete. For instance, if a goal was to plan a

unit including the design of pre and post assessments with interim formative assessments

to determine student mastery of specific content, the goal could have been considered

teacher-centered because it was to plan a unit, but by design, student measures were

included in the process. An example of a goal that could be considered student centered

would be one based on an analysis of student assessment data to identify common

misconceptions of students. For such a goal, the coaching might include planning one or

two lessons on the topic with an embedded formative assessment to see if the misconception was cleared up as a result of a day or two of teaching.

The final page of the planner was organized to track coach and teacher progress and interactions. The following information was tracked: (a) specific actions, gifts, notes, or ways a coach lifted teachers' spirits (this tracking was included in part to remind coaches to do this type of caring work, and to keep the coaching team from giving the same gift or supportive action more than once to the same person), (b) when coaches met with and/or observed the teacher, (c) what goal(s) and associated action steps were being worked on, (c) whether the action steps were in process or met on each meeting date, and (d) regularly collected observation data including percentage of time spent on instruction, and student engagement percentages.

Coaching protocols, data collection, and tools. TCT coaches consistently used a form that facilitated the tracking of what type of instructional delivery was being used, how many minutes were spent with each type, how many minutes of non-instructional time was found, and student engagement percentages with notes recorded every five minutes. Other data collection tools included a type of questioning analysis, classroom management and next generation learning self-assessments and checklists, procedures for preparing for collegial observations, a color coded standards-based lesson planning process, video analysis forms, analyzing student work processes, classroom management system exemplars, cultural understanding and identifying bias processes, a variety of lesson planning templates, and other tools and resources created and developed by coaches to address individual needs.

Human connection focus. As noted above, coaches took time to identify teacher

purpose, goals and dreams, future career plans, personality styles, and levels of emotional

health. These additions to coaching protocols came after reflection on the results of the

mixed methods study mentioned previously that indicated teachers, coaches, and

administrators felt coaches who were effective with the softer skills of coaching, such as

mentoring and guiding, were ranked higher in more technical aspects of coaching, such

as instructional supervision and staff development. This knowledge changed TCT

coaching practice. The useful data collection and analysis tools, and other analytical

components that had been foundational pieces of TCT coaching processes, were kept in

place and new protocols were introduced. These new protocols addressed the identified

need to incorporate both analytical and emotional characteristics into coaching practice,

in other words to engage both the heart and mind in the work of coaching to be most

effective.

TCT coach training processes. TCT part-time or "intermittent" coaches still teaching

in the classroom in 2015-2016 were taught how to be effective coaches through a hands-

on, year-long process with a full-time coach as their trainer. This process included four

sections of training: Inform-Shadow-Transition-Coach. The part-time coaches came to

coach trainings and received a TCT coaches' handbook that was reviewed and explained

during the training meetings. Experienced full-time coaches were matched with new part-

time coaches. The full-time coaches then took the part-time coaches with them to

coaching appointments so they could become comfortable with how to manage

interpersonal interactions and the details of coaching. The experienced coaches

demonstrated to the new coaches how to be an effective coach through modeling, side by

side observations, tracking data, filling out forms, and providing a lifeline of support when needed.

TCT is a well-established coaching program with remarkable longevity (21 years). Taking next steps to analyze coaching effectiveness through scholarly research will provide useful information for coaches and for district leadership.

CHAPTER IV

METHODS

Study 1: Teacher Competency and Job Satisfaction

Study 1 was designed to generate useful information about how teachers feel the TCT program is impacting their competency and job satisfaction when compared to teachers not coached. The research questions were:

1. Is there a significant relationship between instructional coaching and teacher competency?

2. Is there a significant relationship between instructional coaching and teacher job satisfaction?

Participants. One hundred thirty-nine teachers in an urban school district in the western United States voluntarily participated in this experiment during school year 2016-2017. The school district serves approximately 28,000 students in 60 schools with 3,700 employees, about 2,000 of them being teachers. The district is experiencing declining enrollment and in 2014-2015 was an accredited district with an improvement plan for student achievement (Public Consulting Group, 2016). Sixty-nine teachers in the sample received coaching and 70 did not. To generate the comparison group, I asked administrators from four schools in the school district whose teachers often accessed coaching services—two elementary, one middle, and one high school—for permission to present information about the study and ask for volunteers. Both urban and suburban schools in communities with a variety of economic situations were represented in both the control and experimental groups. Volunteers from the four schools took the instructional survey during the fall and spring of school year 2016-2017. Teachers in the

experimental group filled out surveys when they voluntarily began coaching and at the end of school year 2016-2017. Efforts were made to acquire surveys from teachers in the control group at similar times as the experimental group throughout the school year so that the amount of time teachers were coached would be similar to the amount of time between the pre and post surveys for the control group.

Table 7

Descriptive Statistics of Participants in Coached and Non-Coached Groups

Group	Grade Level	Years of Experience	Gender	Age	Education Level
Coached *n* = 69	PS-5=42 6-8=18 9-12=9	0-5=28 6-15=24 16-25=11 26+=6	Female=61 Male=8	20-29=9 30-44=25 45-59=26 60+=9	BS= 31 MA1=35 MA2-PhD=3
Not Coached *n* = 70	PS-5=36 6-8=28 9-12=6	0-5=10 6-15=30 16-25=15 26+=15	Female=54 Male=16	20-29=10 30-44=28 45-59=28 60+=4	BS=24 MA=39 MA2-PhD=7

n = 139

In Table 7, descriptive statistics of participants are noted. The participants included elementary, middle, and high school teachers. More elementary and high school teachers were in the coached group, and more middle school teachers were represented in the control group. Teachers' years of experience showed 18 more teachers with less experience (0-5) were coached than in the control group in the same age category, and there were very few male teachers in either group, but only half as many in the coached group. Age distributions were very similar except for the 60+ category, where more than twice the number of teachers were found in the coached group. For education level, the control group generally had more education with greater numbers attaining graduate degrees.

Instrument—Instructional Survey with Job Satisfaction. The instructional survey was adapted from Danielson (1996). Based on the Praxis III educator assessment criteria Danielson helped create, a framework was developed that "identifies those aspects of a teacher's responsibilities that have been documented through empirical studies and theoretical research as promoting improved student learning" (p. 1).

A former TCT coordinator used many of the components Danielson listed to create a teacher-friendly survey for TCT coaches to use when working with teachers. This survey has been used in the TCT program since school year 2005-2006 to measure the confidence level of teachers surrounding their ability to provide evidence of effectively implementing instructional topics shown to positively affect student learning. The survey has been one of the instruments used by TCT coaches for the past 10 years to gather useful information from teachers to facilitate the setting of meaningful goals. Throughout the years, other authors and educational research were considered, and some changes were made to the survey to address district goals and areas of emphasis. For instance, recently Learning Targets (Moss & Brookhart, 2012) were included as a topic under the construct of Planning since this was an area of instructional focus within the school district. Meaningful refinements of the survey by current TCT leadership are ongoing.

When the survey was given during school year 2016-2017, teachers in both groups self-recorded their levels of perceived teacher competency related to a variety of instructional practices (Appendix A). The survey measures the following constructs: (a) Planning, (b) Instruction, (c) Assessment, (d) Classroom Environment, and (e) Professional Growth.

The survey was organized with a 0-10 Likert scale for each practice where 0 is defined as the teacher having no evidence of implementing that practice, 5 representing limited evidence and 10 meaning the teacher had consistent, strong evidence of implementing the instructional practice. Percentage scores for each teacher on the entire instructional survey for two time periods, pre and post, were calculated by adding the scores (0-10) teachers selected for each of the 22 questions and dividing that total by 220 for an overall percentage score for each teacher. Differences for each teacher in both the coached and non-coached groups were determined by subtracting the pre-survey results from the post-survey results on the entire survey and within each construct or section of the survey.

The job satisfaction section of the survey was scored similarly. Teachers rated their level of Job Satisfaction 0 to 10 with 0 being "I want to quit" and 10 being, "I love my job, I wouldn't want to do anything else." The pre-survey score was subtracted from the post-survey score and multiplied by 10 to provide a difference score for Job Satisfaction for each teacher. The results were multiplied by 10 to present the results in a similar way to the other sections of the survey.

The TCT instructional survey was designed to provide useful feedback to meet the needs of students, teachers, and coaches within a school district. It has not been tested for validity and reliability, and was not here due to a small sample size, but each component included was grounded in credible research as noted in Chapter II. Nevertheless, this is a limitation in the study.

Procedure. The paper/pencil survey was administered as a pre-assessment during the initial stages of coaching to determine areas of strength and areas where instructional support could be provided. At the conclusion of coaching, the survey was given again to

review progress. The informed consent form was explained to teachers, and a written statement detailing how to fill out the survey was read to and provided for both experimental and control group participants. Informed consent was obtained from all participants, and a $5.00 incentive was provided each time teachers took the survey, for a total of $10.00 for both a pre and post survey.

Analysis. Seven first differences analyses were conducted to determine differences in survey results between the experimental and control groups in the areas of overall teacher competency, five survey subsections from the instructional portion of the survey, and job satisfaction. The analysis also included the covariates of grade level, years of experience, age, and education level of teachers.

The formal model was as follows:

$$Y = \beta_0 + \beta_{1(\Delta GROUP)} + \beta_{2(\Delta GDLVL)} + \beta_{3(\Delta YRSEXP)} + \beta_{4(\Delta AGE)} + \beta_{5(\Delta EDLVL)} + e.$$

Explanations of the variables included in the model:

1. Y = Differences between Teacher Competency/Job Satisfaction Survey Results (recorded on TCT Instructional Survey pre/post, two time periods)

2. β_0 = A constant term describing the contribution of first differences on Teacher Competency/Job Satisfaction

3. β_1 = A coefficient describing the effect of the difference in *group* on Teacher Competency/Job Satisfaction

4. β_2 = A coefficient describing the effect of the difference in *grade level* on Teacher Competency/Job Satisfaction

5. β_3 = A coefficient describing the effect of the difference in *years of experience* on Teacher Competency/Job Satisfaction

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6. β_4 = A coefficient describing the effect of the difference in *age* on Teacher Competency/Job Satisfaction

7. β_5 = A coefficient describing the effect of the difference in *education level* on Teacher Competency/Job Satisfaction

8. e = the error term

Through this analysis, growth differences in instructional competency and job satisfaction were determined between teachers coached and those not coached during school year 2016-2017. In these analyses, time invariant factors were controlled within the model allowing for a design that could meaningfully isolate the impact of instructional coaching. For the analyses, variables were coded as indicated in Table 8.

Table 8

Abbreviations and Descriptions of Independent Variables for Study 1

Abbreviation	Description of Independent Variable
GROUP	Experimental and Control Groups (Experimental coded 1; Control Coded 0)
GDLVL	Grade Level (K-5th Grade coded 1; 6th-8th coded 2; 9th-12th coded 3)
YRSEXP	Teacher's Years of Experience (0-5 years coded 1; 6-15 years coded 2; 16-25 years coded 3; 26 years and beyond coded 4)
AGE	Age of Teacher (20-29 coded 1; 30-44 coded 2: 45-59 coded 3; 60 and beyond coded 4)
EDLVL	Education Level of Teacher (Bachelor's Degree coded 1; 1 Master's Degree coded 2; 2 or more Master's Degrees or PhD coded 3)

Limitations. Because teacher enrollment in the TCT coaching program was typically voluntary, random assignment could not be used. This is a limitation because random assignment would account for any bias in teachers' histories in both the experimental and

control groups. Without random assignment, unknown variables might affect results in a way that could not be explained.

Another limitation is the use of a district-level survey that could not be tested for validity and reliability. If an instrument used in a study does not measure exactly what it is designed to measure (construct validity), it may not represent fairly all parts of a category or construct—in this case quality instruction and job satisfaction (content validity)—or it is not statistically clear that the measure used can be related to a specific outcome (criterion validity). Thus, it is difficult to know with certainty if relationships found are accurate or causal. A factor analysis to measure validity was not possible because a sample size that would allow a minimum of 10 cases in the sample per question on the survey was not available. Though adapted from research-based resources, and a document that allows levels of growth of teachers coached to be compared over a number of years providing meaningful data for the TCT program, the inability to prove the validity and reliability of the survey limits generalizability of results.

Throughout school year 2016-2017, teachers involved in study one in the experimental group voluntarily requested coaching services from TCT. Most teachers requested coaching early in the first semester of each year, but some accessed coaching later in the school year. This dynamic complicated the data in that teachers coached were coached for different amounts of time. Control group schools were chosen in part because teachers from those schools often participated in coaching. However, coached teachers from 35 schools requested coaching services during school year 2016-2017, so most were not from the same schools as the control group. Efforts were made to access control groups at similar times as teachers who requested coaching, but the initial pre-survey

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administration timing between groups, the amount of time teachers were coached, or the frequency of coaching visits were not exact.

The matching of teachers to coaches is another variable that could have introduced bias. Special education teachers were automatically assigned to the full-time special education coach and the SPED coach she was training. Regular education teachers were assigned coaches based on the coaches' caseloads and areas of expertise. Teachers were not assigned coaches in any systematic way, and coaches' skills and abilities differed. Also, the design of the TCT program to collaboratively address goals chosen by teachers with individualized coaching support that included consistent protocols but was not entirely scripted added another unstandardized element that could have inadvertently affected results in an unanticipated way. Since I am the coordinator of the TCT program and the TCT team coached the teachers involved in the study, there is a chance that social desirability bias, a desire to please the person administering the survey, could have been created. However, this is unlikely because cumulative differences collected from teachers by a variety of coaches on similar TCT instructional surveys (CUMDIFIS) over the past seven years have shown similar results.

It is difficult to pinpoint with accuracy the influence of coaching on student growth and teacher practice because of variables associated with how coaching is delivered and the host of variables teachers experience daily with changes in students, curriculum, schedules, testing, and so forth. Though this study has its limitations, the information gleaned from this attempt to analyze the relationship between coaching and how teachers and students grow will provide useful information for the TCT program and add to the growing body of coaching research.

Study 2: Student Growth

Participants. Participants in the study included 30 teachers, 15 teachers who had experienced coaching during years 2008-2013 and 15 who had not. There were 10 fifth grade teachers, one fourth and fifth grade combination teacher, three fourth grade teachers, and one third grade teacher in the coached group matched with teachers in the control groups for the appropriate years. The experimental and control groups were similar in gender; 11 females and four males in the coached group, and 12 females and three males represented in the control group.

Instrument—Measures of Academic Progress (MAP). In this study, I used the Measures of Academic Progress or MAP, a nationally normed assessment. This assessment provided scaled student scores, which I used as the dependent measure. Students in the classes of both the experimental and control groups took the MAP assessment at the beginning and the end of each school year, making student growth measurable pre and post during one school year rather than just one achievement score per student per year.

> MAP® assessments are grade independent and adapt to each student's instructional level. Every item on a MAP assessment is anchored to a vertically aligned equal interval scale, called the RIT scale for Rasch UnIT—a stable measurement, like inches on a ruler, that covers all grades. And because the measurement is reliable and accurate, RIT scores serve as an essential data point in a student's learning plan...Educators need to know if their students' growth is above the national norm or below, and NWEA provides that context with growth norms that place your students and schools within a representative national sample…NWEA norming studies also produce status norms that show percentile ranking on a national scale. (NWEA, n.d., para. 2-3, 6-7)

Student results were organized by teacher, and an average of student results per class for each time period, spring and fall, were calculated. The fall results were then subtracted from the spring results providing a difference score for both Year 1 and Year 2

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of the study. Year 1 differences were then subtracted from Year 2, and the resulting

number became the dependent variable for the first differences analysis.

With the MAP assessment, individual student scores are scaled using the RIT scale as

explained above, so students in teachers' classes would have been at a variety of places

on the RIT scale each of the four times the assessment was taken. A growth projection

score for each grade level, identified as a cut score, was used during the years the MAP

test was given in this study. This score is derived from the "50th percentile of the RIT

mean" for each grade level in the fall and spring (Colorado Department of Education,

2013, p. 6). The grade level most represented in the study was fifth grade, which had an

average projected growth score of five RIT points per year for fifth grade students. The

analytical implication is that average student outcomes are likely going to be around five

points before differencing and some number less than that after differencing.

Propensity Score Matching. Propensity score matching (PSM) was conducted to

address the non-random selection of participants and possible bias between the

experimental and control groups. The decision to use PSM strengthened the study by

identifying a pool of teachers that could possibly be used to form a control group and

matching to the experimental group like-teachers on a variety of common covariates.

Covariates in the PSM process for Year 1 included: (a) percentage of students qualifying

for free and reduced lunch (b) percentage of female students, (c) percentage of minority

students, and (d) fall RIT scores. The strategy of nearest neighbor matching was used.

This process added credibility to the study by creating, to the extent possible, equivalent

groups. Random assignment to groups is preferable, of course, but since that was not

possible, PSM enabled me approximate random assignment, which then resulted in findings that act as causal estimates.

The Stata 15 platform was used to calculate the propensity scores. According to Becker & Ichino (2002), it is appropriate for matching, estimating, and assessing the matching quality of the relevant covariates. Like the Dehejia and Wahba (2002) test for dividing observations into strata on the estimated propensity score, the Stata platform embeds this blocking stratification as part of routine estimating for nearest neighbor matching. After the estimation of the propensity score was determined, the Stata routine identified the optimal number of blocks suggesting that the propensity score was not different for treated and controls within each of the blocks. Next, a test of the balancing property of the propensity score was conducted. Once the algorithm to estimate the correct propensity score specification was satisfied (satisfying the balancing property), the average treatment effect on the treated using nearest neighbor matching was performed. These routines were conducted for every group across the years, and in every case, the balancing property was satisfied.

To summarize, PSM was used to draw propensity scores, nearest neighbor, for all teachers within each teacher group, assuring that balanced properties were achieved when finding the nearest match. Then, a manual process of sorting the propensity scores was taken within each group to gain the matching nearest neighbor as the match for each coached teacher. Note, there were no same-matching propensity scores used more than once, by design. Once complete, the appropriate numeric data for each of the 30 teachers were organized to be run in SPSS, then fitted into the linear regression for the analysis.

The first year of five different 2-year groups, including school years 2007-2008 and 2008-2009, which had two coached teachers, 2008-2009 and 2009-2010 with one coached teacher, 2009-2010 and 2010-2011 having five coached teachers, 2010-2011 and 2011-2012 five coached teachers, and 2011-2012 and 2012-2013 with two coached teachers were represented in PSM analysis.

Analysis. As in study one, I conducted a first differencing analysis. The formal model took the form:

$$Y = \beta_0 + \beta_1(\Delta\text{GROUP}) + \beta_2(\Delta\text{FRIT}) + \beta_3(\Delta\text{FEM}) + \beta_4(\Delta\text{MIN}) + \beta_5(\Delta\text{FRL}) + \beta_6(\Delta\text{PROPS}) + \beta_7(\Delta\text{YEARS}) + e.$$

Explanations of the variables included in the model:

1. Y = Differences in student growth between Year 1 and Year 2 (Year 2 spring-fall RIT – Year 1 spring-fall RIT)

2. β_0 = A constant term describing the contribution of first differences on student growth

3. β_1 = A coefficient describing the effect of *group* on student growth, where the experimental group is coded 1 and the control group coded 0

4. β_2 = A coefficient describing the effect of the difference in students' *fall RIT Scores* on student growth

5. β_3 = A coefficient describing the effect of the difference in *percentage of female students* on student growth

6. β_4 = A coefficient describing the effect of the difference in *percentage of minority students* on student growth

7. β_5 = A coefficient describing the effect of the difference in *percentage of students qualifying for free and reduced lunch* on student growth

8. β_6= A coefficient describing the effect of the *propensity score*

9. β_7=A coefficient describing the effect of the *five different years* included in the study

10. e = the error term

Limitations. Similar to study one, voluntary enrollment in the TCT program is the typical way teachers access coaching, so random assignment was not utilized. This limits the ability to account for bias in teachers' histories in both the experimental and control groups, although this was minimized with PSM. The timing of teacher requests also complicated the study because teachers were coached for different amounts of time during a two-year period. The matching of teachers to coaches could have introduced bias, and coaches' skills and abilities differed. The design of the TCT program to collaboratively address goals chosen by teachers included consistent processes but also allowed enough flexibility for coaches to address individual needs. This added another unstandardized element that could have inadvertently affected results.

CHAPTER V

RESULTS

Teacher Competency Overall and Survey Section Results

Cumulative differences for all parts of the survey combined were recorded as CUMDIFIS, and differences found on the five individual sections of the survey—planning, instruction, assessment, classroom environment, and professional growth—were also analyzed. Table 9 contains abbreviations and descriptions of dependent variables; independent variables and their abbreviations were explained previously in Table 8.

Table 9

Abbreviations and Descriptions of Dependent Variables for Study 1

Abbreviation	Description of Dependent Variables
CUMDIFIS	Cumulative Difference on all sections of Instructional Survey
DIFPLAN	Differences in Planning Section of Survey
DIFINSTR	Differences in Instruction Section of Survey
DIFASSESS	Differences in Assessment Section of Survey
DIFENV	Differences in Classroom Environment Section of Survey
DIFPG	Differences in Professional Growth Section of Survey
DIFJOBSAT	Differences in Job Satisfaction

Table 10 provides the descriptive statistics for the dependent and independent variables for this analysis, disaggregated by group. The means for survey dependent variables CUMDIFIS, DIFPLAN, DIFINSTR, DIFASSESS, DIFENV, DIFPG, and DIFJOBSAT for coached teachers were substantially higher than the means for the non-

coached teachers. This indicates the coached teachers appeared to realize much greater

growth on these variables than did non-coached teachers. The standard deviations for

non-coached teachers were smaller indicating the data were organized closer to the mean

than the coached group, which had a wider range of values. As for the independent

variables of GDLVL, YRSEXP, AGE, and EDLVL, mean difference scores indicate the

groups were quite similar in all measured respects.

Table 10

Descriptive Statistics for Dependent and Independent Variables Disaggregated   by

Group

Variables	Not Coached		Coached	
	Mean	Standard Deviation	Mean	Standard Deviation
CUMDIFIS	4.842	8.569	18.594	14.791
DIFPLAN	3.700	10.459	20.000	18.520
DIFINSTR	4.671	8.581	17.565	17.430
DIFASSESS	5.342	11.063	18.202	18.189
DIFENV	3.728	8.084	16.449	13.959
DIFPG	5.671	13.215	22.565	19.683
DIFJOBSAT	0.285	11.417	16.666	19.377
GDLVL	1.570	.650	1.520	.720
YRSEXP	2.500	.989	1.930	.960
AGE	2.370	.802	2.510	.885
EDLVL	1.760	.624	1.590	.577

n=139

Beginning with the overall, cumulative dependent measure, Table 11 includes the

regression results. GROUP was the strongest predictor of cumulative differences and

indicated statistically significant results, $p = .000$. These results indicate coached teachers

grew more in overall teacher competency than teachers not coached. There were no

statistically significant results found for the covariates of grade level, years of teaching

experience, age, or education level. With all predictors included, 23.5% of the variance in

cumulative differences was explained. There were no missing data and residuals were

normally distributed.

Table 11

Coefficients for CUMDIFIS

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	11.568	4.626		2.501	.014	
GROUP	13.229	2.277	.479	5.809	.000	1.226
GDLVL	-.879	1.525	-.043	-.576	.566	1.021
YRSEXP	-.878	1.481	-.064	-.593	.554	2.114
AGE	-.887	1.654	-.054	-.537	.592	1.830
EDLVL	-.594	1.956	-.026	-.304	.762	1.314

$R^2_{adj} = .235$

   Table 12 includes regression results for the individual survey sections. GROUP was a

significant predictor for each of the survey sections. Covariate results for each of the

survey sections can be found in Appendix B. The variances explained in the models

ranged from 13% for assessment to 28% for environment. There were no missing data, no

issues with collinearity, and residuals were normally distributed within each of the

models.

Table 12

GROUP Results for Individual Survey Sections

Model	Unstandardized B	Standard Error	Standardized B	t	p	R^2_{Adj}
Planning	15.085	2.793	.444	5.401	.000	.239
Instruction	12.779	2.609	.424	4.898	.000	.156
Assessment	12.018	2.851	.370	4.215	.000	.134
Environment	12.714	2.075	.490	6.126	.000	.280
Prof. Growth	16.579	3.045	.445	5.444	.000	.249

n= 139

Job Satisfaction Results

As a reminder, the coached group saw substantively greater means on job satisfaction as compared to the control group (see Table 10). Results in Table 13 indicate the covariate GROUP was found to be a significant predictor of Job Satisfaction at $p = .000$. Teachers coached grew more in their job satisfaction than the control group. The adjusted R^2 result was .236, indicating 23.6% of the variance was explained. Collinearity was within acceptable limits, there were no missing data, and residuals were evenly distributed.

Table 13

Coefficients for DIFJOBSAT

Model	Unstandardized B	Standard Error	Standardized B	t	Sig.	VIF
(Constant)	-4.539	6.057		-.749	.455	
GROUP	17.256	2.981	.486	5.788	.000	1.226
GDLVL	-.689	1.997	-.026	-.345	.731	1.021
YRSEXP	2.264	1.940	.129	1.167	.245	2.114
AGE	1.151	2.166	.054	.532	.596	1.830
EDLVL	-1.414	2.562	-.048	-.552	.582	1.314

$R^2_{adj} = .236$

Student Growth Results

Study two information and statistical results are recorded below beginning with the abbreviations and descriptions of the variables in Table 14 followed by the descriptive statistics and coefficients tables.

Table 14

Abbreviations and Descriptions of Variables for Study 2: SGROWTH

Abbreviation	Description of Independent Variable
GROUP	Experimental and Control Groups
FRIT	Student Fall RIT Scores Averaged For Each Teacher's Class
FEM	Percentage of Female Students in Each Teacher's Class
MIN	Percentage of Minority Students in Each Teacher's Class
FRL	Percentage of students in Each Teacher's Class Who Qualified for Free and Reduced Lunch
PROPS	Propensity Score used for Year 1 Match
YEARS	Time Variable to Account for Differences in Years
SGROWTH	Dependent Variable-Differences in Student Growth

Descriptive statistics including means and standard deviations disaggregated by group are included in Table 15. For the dependent variable SGROWTH, the mean of teachers not coached was .3504 while the mean of teachers coached was substantially higher at 2.690. This indicates student growth appeared to be greater for coached teachers compared to those not coached. The standard deviation for the coached teachers was about one point higher than the control group indicating a wider range of values. FRIT showed negative results for both groups, with the coached group showing a larger negative mean and a wider variance in scores. As a reminder, these are all difference scores, so a negative number indicates the respective number in year two was smaller than in year one. Percentage of female students were similar in both groups with similar

standard deviations; a greater difference in minority students were found in the coached group, and the standard deviation was slightly higher; FRL was negative for both groups, but more so for the non-coached group; and PROPS showed a slightly higher mean and a larger standard deviation for the coached group.

Table 15

Descriptive Statistics for Study 2: SGROWTH

Variables	Not Coached		Coached	
	Mean	Standard Deviation	Mean	Standard Deviation
SGROWTH	.350	3.312	2.690	4.367
FRIT	-2.397	5.329	-3.029	8.322
FEM	-.027	.106	-.033	.104
MIN	.013	.120	.025	.145
FRL	-.022	.312	-.015	.374
PROPS	.045	.043	.079	.111

n=30

      The regression results in Table 16 indicated group was a significant predictor of student growth at the $p \leq .05$ level recorded as $p = .036$. This suggests students in teachers' classes who were coached grew more than students in non-coached teachers' classes. The other significant predictor was Fall RIT at $p = .001$. The R^2 value of .423 indicates the model accounted for 42% of the variance. There were no missing data, no collinearity issues, and residuals were evenly distributed.

Table 16

Coefficients Table for Study 2: SGROWTH

Model	Unstandardized B	Standard Error	Standardized B	t	Sig.	VIF
(Constant)	-2.198	1.912		-1.150	.263	
GROUP	2.558	1.147	.326	2.229	.036	1.075
FRIT	-.348	.088	-.600	-3.970	.001	1.150
FEM	-10.478	5.757	-.272	-1.820	.082	1.122
MIN	-6.707	4.490	-.221	-1.494	.149	1.096
FRL	-2.948	1.846	-.250	-1.596	.125	1.237
PROPS	-12.068	8.936	-.257	-1.351	.191	1.819
YEARS	.611	.582	.184	1.050	.305	1.545

$R^2_{adj} = .423$

CHAPTER VI

DISCUSSION AND CONCLUSION

This chapter reviews and addresses each of the research questions posed and includes relevant research and TCT coaching information related to the findings for the three main areas of interest: Teacher Competency, Job Satisfaction, and Student Growth. The chapter concludes with practical interpretations and implications for practice and policy.

Coaching Positively Impacts Teacher Competency

Study 1 addressed the first two research questions:

1. Is there a significant relationship between instructional coaching and teacher competency?

2. Is there a significant relationship between instructional coaching and job satisfaction?

Beginning with question one, the first differencing analyses indicated the difference between groups was significant on all measures of teacher competency when controlling for the covariates of grade level, years of teaching experience, age, and education level. Moreover, all of the coefficients were positive, suggesting there is a positive relationship between coaching and teacher competency. This study of whether coaching could build teacher confidence in the daily "tasks of teaching" noted as a next step for further research by Ross (1992, p. 61) indicated coaching made a significant positive impact in how teachers felt about their growth in specific research-based components of their teaching practice.

"Efficacy is … a resource that gives us a sense of motivation, hope, and a belief in our own ability to influence and change our world" (Corwin, 2008, p. 197). Coaching can

help teachers believe in their ability to make a positive difference for students. Similar to *Cognitive Coaching* results showing coaching made a positive difference in teacher efficacy (Dutton, 1990; Edwards, Green, Lyons, Rogers, & Swords, 1998), results from Study 1 showed strong evidence that coached teachers believed they grew at higher rates in many aspects of their teaching practice when compared to non-coached teachers. This result makes a powerful statement about the positive impact of coaching.

The survey used in the study separated research-based best teaching practices into 22 factors , under the constructs of: (a) planning, (b) instruction, (c) assessment, (d) classroom environment, and (e) professional growth. The survey was administered before coaching began, which helped teachers and coaches to identify specific strengths and growth opportunities, saving time and helping to focus the goal setting process. Alignment to district areas of focus was incorporated into the survey, so its use could have helped teachers streamline their goal choices to support district areas of focus that had been determined to positively influence student growth.

Teachers coached were generally less experienced than the control group, so results could have been affected because less experienced teachers might have felt they had more areas to grow in than more experienced teachers. Results from the individual survey sections (Appendix B) indicated GROUP was significant at the $p = .01$ level for the overall differences (CUMDIFIS) and all five subsections of the survey. There were two other significant findings: EDLVL was significant at $p = .037$ for the dependent measure DIFPLAN, and AGE was significant at $p = .044$ for DIFENV. The coefficients for each were negative, indicating less educated teachers did not feel they grew as much in their planning as control group teachers, and younger teachers did not feel they grew as much

in classroom environment. These are interesting findings and could indicate younger teachers struggled more with classroom environment, so coaching protocols may need to be modified or the amount of support increased for them. Also, less educated teachers could benefit from an increased focus on doable lesson planning by coaching programs, induction programs, and teacher education preparation programs. Younger, less educated teachers may need more time and targeted support in these two areas to more quickly grow in their competency to plan lessons and manage a classroom effectively.

The fact that this study found significant differences between coached and noncoached teachers is particularly noteworthy given that noncoached teachers had available to them, and likely completed, various professional development opportunities that could have improved their teaching. Teachers in the control group did feel they grew in Teacher Competency. The mean growth for CUMDIFIS for the control group was 4.84 percentage points from the beginning to the end of school year 2016-2017. This growth would make sense because of the variety of professional development options provided. Specifically, teachers could have taken advantage of specific curriculum support provided through courses offered by content facilitators and/or curriculum specialists provided by vendors. Other courses readily accessible to teachers included a variety of technology support options, PLC support, a collaborative Peer Coaching option where teachers could choose a peer and a common goal, Stephen Covey courses, First Aid/CPR, Differentiation Support for GT and SPED, Developing Capable Students, Emotional Intelligence Information, Coping with Difficult People, Varied Assessment Support, and Document-based Question Project information, to name a few of the options available.

In addition to making the significant findings that much more noteworthy, the opportunity to choose from a wide array of professional development options, and/or be required to attend certain trainings, can be thought of as "business as usual" for the school district, as it would be for many districts. For the purpose of generalization, this means it would be reasonable to see similar effects in other districts in which regular professional development is offered.

If teachers were regularly offered a variety of useful professional development experiences, why did those coached in the TCT Instructional Coaching Program grow so much more than the control group in overall competency and in five specific subsets of competency? The answer is very likely focus, relevance, and competent, trusted support. The organization of TCT processes and protocols helped teachers cut through their often overwhelming to do lists, and identify S.M.A.R.T. bite-sized personalized goals and action steps that were achievable and meaningful. Basic goal setting is incorporated into ASCD coaching trainings and identified as a critical piece to effective coaching by coaching authors (ASCD, 2015; Denton & Hasbrouck, 2009; Knight, et al., 2015). The clear action plan developed collaboratively with teachers and TCT coaches was critical to focusing time and effort and likely contributed greatly to the coaching success of the TCT program.

The simple, yet crucial component of choice inherent in TCT non-evaluative, teacher-centered philosophies and processes also likely created an environment where growth could occur. Schein (2006) shared that in an ideal situation, teachers would volunteer to participate, and Knight, (2011) relates that choice is "essential for a fully realized life because it is through choices that we make decisions about what we do and who we are"

(p. 31). Teachers chose goals they believed would make a difference in their teaching

practice and with their students. Because of this, those goals were relevant and

meaningful to them, which is a key component of effective adult learning (Kearsley,

2010). Organizing systems and processes that allow teachers to make professional

choices shows respect and trust that is likely to be reciprocated. TCT coaching was

delivered in a way that allowed teachers to choose which goals to work on and to

specifically determine steps that needed to be taken to ensure goals were achieved. Data

were kept on the percent of action steps met to achieve teacher goals for school year

2016-2017, the year of the study, showing 75 teachers completed 97% of action steps

collaboratively determined as necessary to reach their goals.

TCT coaching also included non-evaluative feedback determined to be important by

Ackland (1991) and created a safe working environment, one where trying new things

and sometimes failing was accepted as normal and necessary. Extensive evaluations can

be worrisome for teachers when they feel every not-so-perfect move they make could

hurt their career. Because of this, non-evaluative coaching that includes time to develop a

trusting, supportive relationship is a difficult scenario for principals with time limits and

deadlines. Heinecke and Polnick (2013) share their support and list others' support for

this type of relational, non-evaluative coaching:

> Teachers and coaches stress that gaining and maintaining trusting relationships with
> teachers is a necessary foundation for instructional coaching (Heineke, 2010). For
> coaching to be successful, coaching relationships must be safe, confidential, and
> nonevaluative (Burkins, 2007; Dozier, 2006). Teachers say that it is important that
> coaches be seen as being in the trenches with them, not evaluating their performance.
> (p. 50)

TCT coaches were respected, experienced teachers with track records of academic

success with students when they were employed in teaching roles. They were chosen to

fulfill coaching roles after classroom observations by TCT leadership, and typically

glowing recommendations from leaders and other teachers preceded the observations.

Also, their interpersonal skills and caring commitment to the "nurturing structure"

(Aguilar, 2013, p. 15) of coaching, were considered prior to their hiring. The quality of

the coaches themselves cannot be underestimated. Two of the three TCT full-time

coaches were National Board Certified Teachers. Very few teachers were resistant to

TCT coaching because they typically volunteered for it; the coaches had good

reputations, were knowledgeable, had excellent interpersonal skills; and the program was

delivered using solid processes and protocols. Teachers are more willing to be coached if

they trust and respect the person doing the coaching (Killion, et al., 2012, Marsh et al.,

2008).

Other consistent processes such as targeted data collection, collaborative

determination of how goals would be measured, questions designed to elicit meaningful

information, and a focus on human connection were also pieces that could explain the

significant results of the coached group over the control group for teacher competency.

Coaching Positively Impacts Teacher Job Satisfaction

Turning to the second question, the results of the first differencing analysis indicated

coaching made a significant positive impact on teacher job satisfaction. Teachers not

coached showed almost no growth at .028 (see Table 10), while teachers coached showed

a 1.66 point growth on the original 10 point Likert scale. If teachers like their jobs more

because of coaching, that is an important finding because it could be used as an effective

intervention to reduce teacher turnover. These results are similar to findings by the

California County Superintendent's Educational Services Association (2016), which

found induction programs that included mentoring significantly increased the chance that

teachers will remain in the teaching profession. As mentioned previously, many teachers

are dissatisfied and are leaving the profession, and fewer college students are considering

it as a career option (MetLife Survey of American Teachers, 2012; National Center for

Education Information, 2011). Dallman (2018) states

> Yes, [name of state] needs to improve the pipeline for new educators, but a focus on recruiting totally ignores the fact that most teachers leave the profession within the first five years. The vast majority of school jobs open when staff leave for better professional opportunities. This is pre-retirement turnover, mostly driven by dissatisfaction. We could create the glitziest marketing campaign ever, *Come Teach in Beautiful [Name of State]*, but where does that get us if the teacher comes here and doesn't feel supported? (p. i)

In the words of Aguilar (2013), coaches provide a supportive environment for teachers

when they

> …provide confirmation, offer encouragement, and help the client [teacher] maintain focus and motivation…notice and experience their moments of success, and encourage risk-taking to promote further learning…It's not just about making another person feel good…(which is valid in its own right) but also about helping the client [teacher] see all the micromovements toward meeting the goals. (pp.171-172)

The investigations included in Study 1 were structured to analyze the influence of

social support (Tschannen-Moran, Hoy, and Hoy, 1998) delivered through coaching

processes designed to help teachers believe in themselves, increase their teaching

capabilities, and raise their job satisfaction. Teachers thrive with support, not criticism.

Coaching can sometimes be administered in a way that offends teachers and undermines

their efficacy. This would include approaches designed to forego human connection and

trust-building to speed up the coaching process by focusing almost entirely on deficits

with the hope that student scores could be improved as fast as possible. "Telling teachers

they have to do something a certain way whether they want to or not treats teachers more

like laborers than professionals, and it often leads to resistance more than change"

(Knight, 2017, para. 11). If teachers know coaches are there to help and not hurt them,

they can work without fear and be willing to takes risks to improve their practice.

According to Medina (2014), "Emotional stress has huge impacts across society, on

children's ability to learn in school and on employees' productivity at work" (p. 81).

Finding ways to organize coaching that are supportive and reduce rather than increase

negative stress on teachers is an important implication from this dissertation. It could be

reasonably inferred that the training of coaches in the two aforementioned philosophies

(Partnership Principles, Knight, 2007; Characteristics of Effective Instructional Coaches,

Frazier, in press) and the consistent processes and protocols used by all coaches for goal

setting with measures, specific action plan processes with timelines, human connection

processes, tracking of progress, and a supportive training process for new coaches

contributed to the positive results recorded for job satisfaction.

Coaching Positively Impacts Student Growth

Finally, the last research question examined the bottom line, student growth.

3. Is there a significant relationship between instructional coaching and student
   growth?

A statistically significant difference in student MAP scores was found at $p = .036$ for

GROUP, indicating students in coached teachers' classes outperformed students in non-

coached teachers' classes. Killion (2012) noted that the impact of coaching may be

enhanced by increasing the amount of time teachers have with a coach. In this study, two

years were included and the difference in scores between the two years were analyzed.

Little to no coaching happened in the first year and more coaching was experienced by

teachers during the second year. These positive findings were similar to results found by

Biancarosa, et al. (2010), when after three years of coaching, student learning gains

increased by 32%. Because teachers usually had a full year with the TCT coach the

second year, there was a reasonable amount of time for goals to be reached and teachers'

growth to be transferred to student achievement results. Another reason for the positive

results may be that TCT is a relatively small program that can adapt to individual teacher

needs (eight coaches typically serving about 70 teachers per year), and teachers

voluntarily enroll and often reenroll for two to three years at a time.

Recent research by Kraft, Blazar, and Hogan (in press) in a meta-analysis of causal

evidence for 60 coaching programs indicated that small scale coaching programs

implemented in situations where teachers were enrolled and involved in a way they felt

comfortable with were more effective than large coaching programs. Large scale

coaching programs can strain coaching resources resulting in less time with teachers

and/or less qualified coaches and may also contribute to strained relationships by possibly

mandating coaching for large groups of teachers. Pink (2009) wrote that motivation

involves purpose, autonomy, and mastery. Because teachers involved in the TCT

program typically enrolled because they decided to, set their own goals through

collaboration with a coach, and determined how they would achieve mastery of the goal

they wanted to work on, motivation and its likely companion, concerted effort, were

enhanced. When teachers are provided the opportunity to sign up for coaching of their

own accord, they are acknowledging they may need help to make a change and likely

believe coaching is going to be worthwhile, which is critical to success (Reeves, 2007).

Built into TCT coaching protocols is a confidentiality agreement. Adler (2006) shares that it is easier for teachers to admit to not knowing things when confidentiality is a norm for coaching. Teachers can relax and be assured that admitted weaknesses or concerns will not be shared in a busy hallway or displayed on the school's data wall by a TCT coach. Teachers involved in the study knew up front that coaching conversations would be kept confidential between the coach and the teacher. A signed confidentiality agreement helped teachers relax and focus more on their goals rather than on a fear that their words might be misinterpreted or shared with administrators or other colleagues.

Past studies indicate positive results for student achievement as previously explained (Biancarosa, et al., 2010, Dempsey, 2007; Hudson, 2010; Learning Network, 2006; South Carolina's Coalition for Math & Science, 2008). This study adds another positive addition to the body of quantitative coaching research linked to student growth.

Practical Interpretations

Throughout this dissertation, three important aspects of coaching practice were analyzed. Results indicate detectable effects in increased perceived competency, job satisfaction, and student growth in classes where teachers are coached. Of course, just because effects are detectable, or statistically significant, does not mean they are practically significant. To address practical interpretations of the effects of the coaching intervention, the differences between the mean scores between groups for Teacher Competency, Job Satisfaction, and Student growth were compared. When subtracting the mean difference scores (Table 10) of the non-coached group from the coached group, coached teachers had an overall gain over the control group differences in teacher competency for CUMDIFIS of 13.752 percentage points (18.594-4.842 = 13.752). This

70

number indicates coached teachers recorded they had grown in instructional competency 13.752 percentage points over the control group in 22 areas of instructional practice. If this were compared to standard grading procedures where an increase of 10 percentage points could move a letter grade to the next level, it would indicate teachers coached scored more than one grade higher than those not coached, which is a meaningful result. Similarly, JOBSAT differences between means when the non-coached group mean was subtracted from the coached group mean (Table 10), an overall gain for coached teachers of 1.632 points (1.66 -.028 = 1.632) on the original 10 point scale was found. This result indicated coached teachers grew more in job satisfaction than non-coached teachers by 58 times (.028 x 58 = 1.624). Given the dissatisfaction of many teachers within the teaching profession (MetLife Survey of the American Teacher, 2012), for coached teachers to outperform the control to that degree indicates coaching was a successful intervention to increase teacher job satisfaction.

The dependent variable for SGROWTH was created by subtracting the growth score of year one from the growth score of year two. The average RIT growth for fifth grade students (the grade most heavily represented in the study) in both the control and experimental groups for year one was likely about five (Colorado Department of Education, 2013). Growth for year two for the control group was likely the expected score of 5.0 with the additional mean score of .350 points for a sum of 5.350 (Table 15). Results for students in the classes of teachers coached were likely the expected growth of 5.0 with the added mean growth of 2.69 (Table 15) points for a total of 7.69. Students of coached teachers outperformed students of non-coached teachers by 2.34 points (7.69 - 5.35 = 2.34). This result suggests students in coached teachers' classes experienced

almost a year and a half of growth while the non-coached teachers' students grew about as much as expected. This coaching intervention is a good investment for the school district because it positively impacts approximately 70 teachers per year in the three areas mentioned for the cost of three full-time teachers on special assignment (TOSA's), compensation for five classroom teachers who coach one to two teachers each, and a small office budget.

Implications for Practice and Policy

Results imply that teacher competency, job satisfaction, and student growth can be positively impacted through instructional coaching support that is delivered:

1. by a knowledgeable and relational coach who is a competent teacher,

2. with enough time for teachers to reach collaboratively determined goals,

3. in a non-evaluative and confidential manner with voluntary enrollment,

4. with coaches consistently using well-designed coaching protocols and processes, and

5. through a reasonably small and adaptive program flexible enough to meet the needs of individual teachers.

Findings also suggest (Appendix B) special consideration in the delivery of coaching for young and less educated teachers to possibly increase the amount of time they spend with coaches in order to help them experience more rapid growth in lesson planning and classroom management. Targeted collaboration between induction programs and coaching programs focused on these two topics would likely be beneficial to teachers.

As mentioned previously, the TCT coaching program is based on two teacher-friendly philosophies, the Partnership Principles (Knight, 2007) and Characteristics of Effective

Instructional Coaches (Frazier, in press). These core understandings (see pp. 44-45) when applied in daily practice through aligned processes, set the stage for successful coaching interactions. To apply many of these principles, coaches would approach teachers with: (a) humility, (b) interest in teacher purpose and personality, (c) a commitment to ongoing study to build and maintain coaching and teaching expertise, (d) caring, (e) a willingness to listen, (f) a tenacious dedication to teachers' and students' long-term success, (g) the consistent use of well-designed coaching tools, and (g) trust in the teacher and in themselves. School districts determined to retain teachers and create positive environments that strengthen them in their daily work should adopt coaching programs that subscribe to philosophies and processes that honor and respect the professionalism and dedication of teachers.

This dissertation has directly addressed many of the suggestions made by Kraft, Blazar, and Hogan (in press) in a recent call for detailed coaching research. They advised that in order for research to be designed effectively and successful coaching models implemented as a result of the research, it would be helpful for researchers to include the following (this list does not contain every suggestion): (a) information about the underlying theories or philosophies the coaching program was based upon, (b) what teachers were involved and details about them, (c) what coaching model was used and with what level of fidelity was it implemented, (d) information about professional development available to teachers involved, especially in the control group, (e) the target population of teachers and information about how experimental and control groups were formed, (f) details about the coaches and their training, and (f) information about the instruments used, such as surveys or achievement tests.

The design and content included in this dissertation aligned with almost all of these elements, which means the results should provide useful information about how to collect and analyze data to determine coaching effectiveness and how to implement an effective coaching program.

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APPENDIX A

TCT 2016-2017 Instructional Survey with Job Satisfaction

Teachers Coaching Teachers | 2016-2017 | _Instructional Survey_ | Date: _____ Pre: _____ Post: _____

Teacher Name: _____ D-11 ID#: _____ School: _____ Content Area(s): _____ Grade Level(s): _____ Age: _____ Gender: _____

Years of Teaching Experience in D-11: _____ Total Years of Teaching Experience: _____ Education Level: (circle levels completed) BS MA1 MA2 PhD

Categories — For each numbered topic, place an X in the appropriate column 0-10. 0 indicates **No Evidence** of implementation and 10 indicates **Strong Evidence** of implementation.	0 No Evidence	1	2	3	4	5 Limited Evidence	6	7	8	9	10 Consistent Strong Evidence	Goal Areas to Target
Planning												
1. Long-range planning with sequencing												
2. Alignment with standards and district curriculum												
3. Learning targets clearly defined and supported with learning activities												
Instruction												
4. Context of the lesson (where individual lessons fit within a unit of study)												
5. Content knowledge and presentation												
6. Appropriateness of the lesson (ability levels/pacing/child development)												
7. Use of technology												
8. Effectiveness of instructional strategies												
9. Strategies for differentiation of instruction												
10. Questioning techniques												
Assessment												
11. Development of appropriate assessment (Formative/Interim/Summative)												
12. Meaningful student work assignments												
13. Quality of feedback to students												
14. Analysis of assessment results												
15. Readjusts instruction based on feedback												

Categories For each numbered topic, place an **X** in the appropriate column 0-10. 0 indicates **No Evidence** of implementation and 10 indicates **Strong Evidence** of implementation.	0 No Evidence	1	2	3	4	5 Limited Evidence	6	7	8	9	10 Consistent Strong Evidence	Goal Areas to Target
Student Motivation and Management												
16. Expectations/procedures												
17. Expectations for student success												
18. Student interest and participation												
19. Positive Classroom climate												
Professional Growth and Contributions												
20. Acquirement and alignment of professional development												
21. Implementation of professional development												
22. Reflection on teaching practice for improvement												
TOTALS												

Instructional Survey Results: (Total number of points divided by 220 = %)   Pre-Support: _____%   Post-Support: _____%

Job Satisfaction Rate	0 I want to quit.	1	2	3	4	5	6	7	8	9	10 I love my job, I wouldn't want to do anything else.
Please place an **X** in this row underneath the number that most accurately reflects your current level of overall job satisfaction.											

Job Satisfaction Results: Pre-Support: _____   Post-Support: _____

APPENDIX B

COEFFICIENT TABLES FOR INDIVIDUAL SURVEY SECTIONS

Coefficients for DIFPLAN

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	14.641	5.675		2.580	.011	
GROUP	15.085	2.793	.444	5.401	.000	1.226
GDLVL	-1.541	1.871	-.062	-.824	.412	1.021
YRSEXP	-.413	1.817	-.025	-.227	.821	2.114
AGE	.583	2.029	.029	.287	.774	1.830
EDLVL	-5.048	2.400	-.179	-2.104	.037	1.314

$R^2_{adj} = .239$

Coefficients for DIFINST

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	7.126	5.300		1.345	.181	
GROUP	12.779	2.609	.424	4.898	.000	1.226
GDLVL	-.197	1.747	-.009	-.113	.910	1.021
YRSEXP	.227	1.697	.015	.134	.894	2.114
AGE	-.046	1.895	-.003	-.024	.981	1.830
EDLVL	-1.482	2.241	-.059	-.661	.510	1.314

$R^2_{adj} = .156$

Coefficients for DIFASSESS

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	10.536	5.793		1.819	.071	
GROUP	12.018	2.851	.370	4.215	.000	1.226
GDLVL	-1.038	1.910	-.044	-.544	.588	1.021
YRSEXP	-.736	1.855	-.046	-.397	.692	2.114
AGE	.589	2.071	.030	.284	.777	1.830
EDLVL	-1.774	2.449	-.066	-.724	.470	1.314

$R^2_{adj} = .134$

Coefficients for DIFENVIR

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	12.354	4.217		2.930	.004	
GROUP	12.714	2.075	.490	6.126	.000	1.226
GDLVL	-1.861	1.390	-.098	-1.339	.183	1.021
YRSEXP	-1.396	1.350	-.109	-1.034	.303	2.114
AGE	-3.064	1.508	-.199	-2.032	.044	1.830
EDLVL	2.878	1.783	-.134	1.614	.109	1.314

$R^2_{adj} = .280$

Coefficients for DIFPG

Model	Unstandardized B	Standard Error	Standardized B	t	p	VIF
(Constant)	17.194	6.187		2.779	.006	
GROUP	16.579	3.045	.445	5.444	.000	1.226
GDLVL	-.978	2.040	-.036	-.479	.632	1.021
YRSEXP	-2.593	1.981	-.140	-1.309	.193	2.114
AGE	-4.337	2.212	-.196	-1.961	.052	1.830
EDLVL	3.860	2.616	.125	1.475	.143	1.314

$R^2_{adj} = .249$

APPENDIX C

UCCS IRB APPROVAL

UCCS University of Colorado Colorado Springs

Institutional Review Board (IRB) for the Protection of Human Subjects

Date: 9/1/2016

IRB Review

APPROVED

IRB PROTOCOL NO.: 17-019
Protocol Title: The Impact of Instructional Coaching on Teacher Compentency, Job Satisfaction, and Student Growth
Principal Investigator: Rebecca Frazier
Faculty Advisor if Applicable: Al Ramirez
Application: New Application
Type of Review: Expedited Category 7
Risk Level: No more than Minimal Risk
Renewal Review Level (If changed from original approval) if Applicable: N/A No Change
This Protocol involves a Vulnerable Population: N/A (No Vulnerable Population)
Expires: 31 August 2017
*Note, if exempt: If there are no major changes in the research, protocol does not require review on a continuing basis by the IRB. In addition, the protocol may match more than one review category not listed.
Externally funded: ☒ No ☐ Yes
      OSP #:   Sponsor:

Thank you for submitting your Request for IRB Review. The protocol identified above has been reviewed according to the policies of this institution and the provisions of applicable federal regulations. The review category is noted above, along with the expiration date, if applicable.

Once human participant research has been approved, it is the Principal Investigator's (PI) responsibility to report any changes in research activity related to the project:

- The PI must submit all protocol, recruitment, advertising, and consent form amendments/revisions to the IRB for approval.
- The IRB must approve these changes prior to implementation.
- If you are a student, please note that it is required to include the IRB approval letter to the library when you submit the dissertation/thesis.
- The PI must promptly inform the IRB of all unanticipated serious adverse (within 24 hours). All unanticipated adverse events must be reported to the IRB within 1 week (see 45CFR46.103(b)(5). Failure to comply with these federally mandated responsibilities may result in suspension or termination of the project.
- Renew study with the IRB at least *10 business days prior to expiration*.
- Notify the IRB when the study is complete

If you have any questions, please contact Research Integrity Specialist in the Office of Sponsored Programs and Research Integrity at 719-255-3903 or irb@uccs.edu

Thank you for your concern about human subject protection issues, and good luck with your research.

Sincerely yours,

Zek Valkyrie
Zek Valkyrie, PhD
IRB Reviewer

www.uccs.edu/~osp/
Version 7/15/16

1420 Austin Bluffs Parkway Colorado Springs, CO 80918   719-255-3321 phone 719-255-3706 fax

University of Colorado Colorado Springs
Institutional Review Board (IRB)

REQUEST FOR CONTINUING REVIEW (RENEWAL) FORM

FOR IRB USE ONLY			
IRB# 17-019	Date Received RNWL(1) V1 - 8/31/17	Date Approved 9/7/17	
CITI Verified SH - 8/31/17	Reviewer & date sent to reviewer ZV - 8/31/17		

PLEASE NOTE: IRB Training is required for all PIs, Faculty Advisors and Personnel involved with human subject research and must be completed PRIOR TO CONTINUING REVIEW. If you do not provide the Completion Report Number (located at the bottom of the Completion Report) and the date of your most recent training, YOUR PROTOCOL WILL BE RETURNED TO YOU WITHOUT IRB REVIEW. Go to www.citiprogram.org and follow the instructions to complete the training.