# The Effects of Instructional Coaching on Student Performance in Reading and Math of Elementary Students at a Selected School District

By

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Abstract

The purpose of this quantitative study was to determine the effects of instructional coaching on student performance in reading and math. The sample consisted of 400 elementary students from a select school district in upper east Tennessee who were randomly selected for the study. One hundred males and 100 females who were taught by a teacher who received instructional coaching, and 100 males and 100 females who were taught by a teacher who did not receive instructional coaching were randomly assigned to each group. Data were collected from AIMSweb universal screeners for first through fifth grade students at three elementary schools. Data were analyzed using independent samples t-tests to assess the difference in student performance in different subject areas and among student subgroups. Data were also analyzed using a two-way analysis of variance to determine interactions between gender and instructional coaching on student performance. The results indicated a significant difference in overall student achievement, a significant difference in math performance, and a significant difference in special education when students were taught by coached teachers rather than non-coached teachers. Also, significant main effects were found for gender and teacher coaching status. Female students performed better than male students regardless of teacher status although, both genders tended to do better with coached teachers. No significant difference was found in reading achievement and minority status, regardless of teacher status.

*Key Words: AIMSweb, Coached Teacher, Coaching Cycle, Instructional Coach, M-COMP, Non-coached Teacher, R-CBM*

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# Dedication

*"Whatever you do in word or deed, do all in the name of the Lord Jesus, giving thanks through Him to God the Father."*

*-Colossians 3:17*

I would like to dedicate this dissertation to my village who have provided an unending stream of support and encouragement during this long process. I could not accomplish this goal without each of your unique support.

Thank you to my family, my cheerleaders from day one. Mom, Dad, Emily, and Nana, your encouraging texts and comments were a light when I needed it the most. Just when I thought I couldn't keep going, one of you would say "I am proud of you" and it propelled me forward. I love each and every one of you and I could not have done this without you. To my nephew, Titus Turner, thank you for keeping me humble, and reminding me that preschool graduation is just as important as my big paper. I sincerely hope I make you proud, because you have no idea how proud I am of you. To my in-laws, Bobby, Lawanda, and Nathan, I so appreciate your support. I am incredibly blessed to have you in my life.

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# CHAPTER 1

## Introduction

Atul Gawande, a Harvard researcher has written, “Coaching done well may be the most effective intervention designed for human performance” (Gawande, 2011, p. 53). Many people want to improve their job performance. Most people attempt to do it the best way they know how. In education, many teachers are seeking out instructional coaches to help them improve teaching strategies and student performance (Knight, 2018).

Prior to 1998, the role of instructional leader was thought to be the sole responsibility of the principal. With ever-evolving standards, higher expectations, and new teaching strategies, the need for other instructional leaders became abundantly clear (Anderson & Wallin, 2018). Beginning in 1998 with the Reading Excellence Act and continuing in 2001 with the Reading First and Early Reading First section of the No Child Left Behind Act, the role of instructional coach was created due to thousands of federal dollars that were allocated to schools to support the professional development of teachers (Walpole & McKenna, 2013). The state of Tennessee continued funding instructional coaching from 2016-2019 with their Read to be Ready grant. The grant provided districts with a stipend for at least one instructional coach to support and extend teacher learning through professional development (Tennessee Department of Education, 2019). Instructional coaches work closely with administrators to bring research-based practices to teachers in hopes that student performance will improve as a result of their work (Kowal & Steiner, 2007).

The goal of instructional coaching, as with any professional development, is to support students in their journey to become lifelong learners (Littky & Grabelle, 2004). Instructional coaches wear many hats. An instructional coach may be a learner, grant writer, school-level

planner, curriculum expert, researcher, and teacher on any given day (Walpole & McKenna, 2013). Regardless of the roles they play in a school each day, research shows that schools and districts must allow instructional coaches to remain focused on specific areas if they want to see improvement. Instructuonal coaching must extend beyond the teachers themselves and connect with student needs (Anderson & Wallin, 2018). The purpose of instructional coaches is to support teachers in boosting student achievement and closing learning gaps between students (Anderson & Wallin, 2018). Instructional coaches should always be content focused, involved in active learning, and support teachers in meaningful ways (Desimone, 2009).

The National Assessment of Educational Progress shows a great need for meaningful professional learning that addresses reading achievement. According to NAEP (2019), students in fourth grade struggled to meet or exceed expectations for reading, with only 35% of students meeting the proficiency benchmark for reading achievement nationwide (National Assessment of Educational Progress, 2019). According to the Tennessee Department of Education, Tennessee students are performing near the national average, with 34.9% of students meeting or exceeding proficiency benchmarks for reading achievement (Tennessee Department of Education, 2019). While this is an increase of 2.1% from 2018, it is still woefully behind the goal set by the Tennessee Department of Education for 75% of third graders to meet or exceed proficiency benchmarks by 2025 (Manning, 2018). Most educators would agree that reading is one of the most important skills a student can acquire (Dogan, 2015). If we truly desire for students to become lifelong learners, they must learn to read. As they leave our schools and enter postsecondary institutions or the workforce, they learn new things by reading. If a student cannot read a book, they cannot learn from it (Allington, 2002). In order to minimize the problem of the

reading achievement gap, teachers need effective, ongoing professional learning that addresses the needs of their students (Kowal & Steiner, 2007).

Similarly, the National Assessment of Educational Progress shows a great need for meaningful professional learning that addresses math achievement. According to NAEP (2019), students in fourth grade struggled to meet or exceed expectations for reading, with only 41% of students meeting the proficiency benchmark for mathematics achievement nationwide (National Assessment of Educational Progress, 2019). According to the Tennessee Department of Education, Tennessee students are performing slightly below the national average, with 37% of students meeting or exceeding proficiency benchmarks for mathematical achievement (Tennessee Department of Education, 2019). While this is an increase of 4.0% from 2018, it means that our students are not adequately prepared to meet the needs of an ever-evolving workforce when they graduate (Meyer, 2014). Mathematical proficiency is vital to success in today's world; however, teachers must be willing to make shifts in both content and pedagogy to adequately prepare students for the mathematical reasoning skills that the 21st century requires (Gravemeijer, Stephan, Julie, Lin, & Ohtani, 2017).

**Statement of the Problem**

While many teachers receive professional development on a regular basis, many researchers have found that their learning never impacts instructional practice. Without significant impact on pedagogy and student achievement, teachers are dissatisfied with their new learning (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). Specifically, teachers felt that they were unable to implement their new learning because it was weak, did not address the needs of students with special needs or minority students, or did not align with student achievement gaps (Guskey & Yoon, 2009). Darling-Hammond et al. found that strong

professional development should be intensive, ongoing, and connected to practice. They also found that it should build on a culture of collaboration, allowing teachers to work with one another (Darling-Hammond et al., 2009). Coaches are in a unique position to ensure that professional development is ongoing, connected to practice, and done in a collaborative manner.

The impact of coaching can be seen through teacher's own learning. However, the true measure of success in any educational endeavor is student achievement. Student needs should be at the core of all professional learning, including instructional coaching (Darling-Hammond et al, 2009). Instructional coaches offer support, feedback, and intensive individualized professional learning (Knight, 2006). To determine if instructional coaching positively impacts teachers' instructional practice, we must determine if student achievement and growth are impacted through a coaching cycle.

**Purpose of the Study**

The purpose of this experimental quantitative study is to determine the effects an instructional coach has on student achievement in reading and math of elementary students in select school district as measured by universal screening data.

**Justification of the Study**

Children, especially those who are at-risk academically, suffer to meet high achievement expectations when they are taught by teachers who implement low-quality instructional methods (Ballard & Bates, 2008). Strong teacher instructional practice, knowledge, and pedagogy all positively impact student achievement (Clotfelter, Ladd, & Vigdor, 2008). Instructional coaching aims to support teachers in these areas (Wadpole & McKenna, 2012).

Sending teachers to professional learning seminars may not be enough to improve teacher practices and the overall academic quality of a school. Teachers who receive ongoing support

through an instructional coach report an overall improvement in their classroom practices and student achievement (Darling-Hammond et al, 2009). All successful student improvement endeavors succeed because of thoughtful, well-planned professional learning. The goal of all professional learning is to improve teacher practice in order to improve student achievement and growth (Guskey & Yoon, 2009). Historically, professional development seminars have been insufficient to impact student learning (Darling-Hammond et al, 2009). Teachers need specific, focused, ongoing support in professional learning in order to positively impact student achievement and growth (Wadpole & McKenna, 2012).

Historically, teacher effectiveness is the biggest factor influencing student achievement (Wright, Horn, & Sanders. 1997). Recently, the bridge between professional learning seminars and teacher effectiveness in the classroom has been instructional coaching (Kraft & Blazar, 2018). Districts and schools that continue to experience low achievement in reading and math may choose to spend their money on programs that promise to increase scores or on professional learning that increases teacher effectiveness. Instructional coaching that increases teacher effectiveness often proportionally increases student academic achievement (Kraft & Blazar, 2018).

**Research Questions and Hypotheses**

Six important research questions arise to address the purpose of this study:

1. Is there a significant difference between student performance in math when they are taught by coached and non-coached teachers?
2. Is there a significant difference between student performance in reading when they are taught by coached and non-coached teachers?

3. Is there a significant difference in overall student achievement when they are taught by coached and non-coached teachers?
4. Is there a significant difference in academic achievement between minority students who were taught by coached teachers and minority students who were taught by non-coached teachers?
5. Are there significant mean differences on academic achievement between genders when they are taught by coached and noncoached teachers?
6. Is there a significant difference in academic achievement between special education students who were taught by coached teachers and special education students who were taught by non-coached teachers?

**Definition of the Terms**

The following definition of terms ensures understanding and uniformity throughout the study. Definitions without a citation were developed by the researcher.

AIMSweb universal screener: a benchmark testing procedure in which students are tested three times per school year using a standardized assessment by Pearson. These scores are compared to recognized cut scores and national norms. The results of this assessment help teachers, interventionists, and other educational personnel identify at-risk students, gauge the process of all students, project annual group, and serve as a tool for school improvement (Pearson, 2018).

Coached teacher: a teacher who engages in a coaching cycle with an instructional coach.

Coaching cycle: a cycle in which a teacher identifies a student-focused goal based on data with an instructional coach, the teacher learns a new strategy through modeling by the coach, the

teacher implements the practice, and the coach and teacher gather data to monitor progress toward meeting the goal (Knight, 2018).

Instructional coach: a professional in education that engages teachers in one-to-one conversation that focuses on the enhancement of learning for all students. Instructional coaches are able to do this by facilitating conversations that increase self-awareness and reflection. Coaches also support teachers as they work to implement new, research-based strategies (van Nieuwerburgh, 2012).

Mathematics Computation (M-COMP): a mathematical computation test completed by students. Students have eight minutes to complete a variety of addition, subtraction, multiplication, and division problems based on the grade level of the students. Students are scored based on the number of correct equations completed and the number of errors (Pearson, 2018).

Non-coached teacher: a teacher who has not engaged in a coaching cycle with an instructional coach.

Reading Curriculum-Based Measurement (R-CBM): a fluency test read aloud by students. Students have one minute to read a grade level passage. The passage is a mix of sight words and decodable words. Students are scored based on the number of correct words read and the number of errors (Pearson, 2018).

**Limitations of the Study**

This study is limited because the results may only be generalized to the population within one school district in Upper East Tennessee. Due to this, the results from this study may not be generalized to all school districts.

**Organization of the Study**

Chapter 1 contains the introduction, statement of the problem, the purpose of the study, the research questions, significance of the study, definition of terms, and the study limitations and delimitations. Chapter 2 presents the review of related literature that focuses on student reading and math achievement, effective professional learning strategies, how professional learning influences student achievement, and how effective instructional coaching impacts teacher strategies and student achievement. Chapter 3 consists of the methodology and procedures used to collect data. The analysis of the data and study findings are communicated in chapter 4. Chapter 5 contains a summary of the study and its findings, the resulting conclusions, a discussion, and future study recommendations.

# CHAPTER 2

## Review of Literature

Student achievement is the paramount goal of all professional learning endeavors. However, international tests have shown that our achievement levels are falling, with about two-thirds of students consistently falling below the proficient level (Wexler, 2019). Since 1983's A Nation at Risk and the adoption of No Child Left Behind (NCLB) in 2001, United States educators and legislators have sought reformation in schools (Seed, 2008). This spirit of innovation and reform left many teachers with increased demands and unyielding pressure to increase student performance on standardized tests (Levitt, 2017). As a result of this elevated pressure and, in many cases, increased funding through No Child Left Behind, schools and districts invested heavily in professional learning for teachers (Dee, Jacob, Hoxby, & Ladd, 2010). A considerable amount of funding for professional development was job-embedded professional learning, more commonly known as instructional coaching (Vogt & Shearer, 2011). As a result, professional development became a significant area of focus for many school systems, which aligns with the assertion that teacher performance cannot drastically improve without meaningful professional learning (Guskey & Yoon, 2009). Instructional coaching addresses the transfer of new knowledge. The goal of instructional coaching is to help teachers implement professional learning effectively in the classroom (Borman, Feger, & Kawakami, 2006). Variations of the instructional coaching model date back to the early twentieth century (Parker, Hall, & Kram, 2008). Educational experts reintroduced the practice after researchers found evidence that traditional workshops and training seminars to be ineffective at increasing student achievement and teacher performance (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Guskey & Yoon, 2009).

Small-scale studies in instructional coaching have generally been positive. These studies have shown that instructional coaching is an effective way to change classroom practices (Campbell & Malkus, 2009; Foster, 2018; Morgan, 2010), but there is little research in how instructional coaching programs impact student achievement and growth. Some early studies do show positive gains in student scores when taught by teachers who engage in a coaching cycle (Foster, 2018; Kraft & Blazar, 2018). Other studies have shown student achievement and growth can only be achieved when teachers receive specific, ongoing professional learning (Wadpole & McKenna, 2012).

## Making Changes in Education

In response to the No Child Left Behind Act, many school systems were required to make changes. This new chapter of educational reform was defined by a renewed focus on professional development and teacher growth (Darling-Hammond, 2000). For true educational reform to take place, it must take place at the building level (Bradley, 2015). More specifically, educational reform must happen by changing teacher reform with student learning as the goal (Hall & Hord, 2011). Regardless of the outcome, any significant change initiative is met with a sense of loss and anxiety (Bridges, 2017). A radical reformation must include major cultural shifts that are uncomfortable for teachers, administrators, and students (Kotter, 2012). Not only must leaders find ways to implement the changes successfully, but they must also do so without impeding student success (Spillane, Parise, & Sherer, 2011). This type of rapid, overwhelming change wrenches educators from their comfort zone and results in resistance to the necessary, mandated changes (Curtis & White, 2002). To minimize adverse reactions to change, educational researchers carefully examined professional learning strategies to determine which methods were most effective in creating long-lasting change (Darling-Hammond et al., 2009). Job embedded

professional development, or instructional coaching, was found to be a highly effective method for igniting and sustaining change (Steele, 2009). As a result, instructional coaching positions were created to help guide teachers, schools, and districts through major educational reform (Knight, 2018).

Human resources are the most substantial and most valuable resources that any district has (Mello, 2015). To make a transformational change, districts and schools need their human resources to understand their role in the change and the purpose of making the change (Kotter, 2012). Teacher training is vital to creating a transformational change and helping teachers feel supported (Walston & Chou, 2006). Often, districts fail to provide their employees with training around a new initiative (Steele, 2009).

Research shows a lack of training can be attributed to two significant misconceptions (Kotter, 2012; Spillane, Parise, & Sherer, 2011; Walston & Chou, 2006). First, leaders do not think through what new behaviors, skills, and attitudes are necessary for a change to be transformational (Kotter, 2012). If leaders expect teachers to go through the motions of making a change, they have not changed the core of their position and will revert to old practices as soon as the change effort has lost some momentum (Walston & Chou, 2006). If schools do not provide ongoing training for new skills, behaviors, and attitudes, they cannot realistically expect teachers to genuinely take part in the change (Kotter, 2012). The second reason that districts avoid meaningful training is that leaders translate training into time and money (Kotter, 2012). Great training leads to great results (Foster, 2018; Spillane, Parise, & Sherer, 2011). Excellent training also requires a tremendous financial commitment from leaders to cover the time spent in training, required materials, and salaries for experts to conduct the training (Mello, 2015). If the change is valuable and training is necessary, leaders should find a way to deliver training in

thoughtful, engaging ways (Bradley, 2015). In the book *Leading Change*, John Kotter shares his experience with practical and effective employee training. He highlights the delivery method and tone that are most effective with employees. He states:

> In many cases, clever design of educational experiences can deliver greater impact at one-half or less the cost of conventional approaches. I also think that training can quickly become a disempowering experience if the implicit message is "shut up and do it this way" instead of "we will be delegating more, so we are providing this course to help you with your new responsibilities" …it [training] needs to be the right kind of experience. Throwing money at the problem is never a good idea, nor is talking down to people. (Kotter, 2012, p. 113)

Not only does staff training overcome resistance and alleviate anxiety, but continued training also helps align visions between teachers, schools, districts, and other stakeholders (Walston & Chou, 2006). Creating a sustainable change is a difficult task (Kotter, 2012). Cyclical, supportive training helps employees feel confident in making changes and leads to impactful adjustments (Walston & Chou, 2006).

## Professional Development

### Traditional Professional Development

"In the history of education, no improvement effort has ever succeeded in the absence of thoughtfully planned and well-implemented professional development" (Guskey & Yoon, 2009, p. 497). The heart of any professional development must be student learning. Teachers must be able to connect how their improved practices will positively influence student learning and achievement (Darling-Hammond et al., 2009; Knight, 2018). In response to major, 21st-century changes in the rigor of standards, legislation regarding teacher training and evaluation, and

increased emphasis on test scores, professional development became a big business in the United States (Hill, Rowan, & Ball 2005). With millions of taxpayer dollars going to professional development every year, educational researchers and school districts are actively seeking evidence to determine if the professional development they are providing is positively influencing teacher practice and student learning (McCrary, 2011). Darling-Hammond et al. (2009) and Guskey and Yoon (2009) researched professional development in American school districts. They found that traditional professional development does not seem to have a direct link with student achievement (Darling-Hammond et al., 2009; Guskey & Yoon, 2009).

Professional development has an undeniable impact on teacher effectiveness and student learning (Steele, 2009). Professional development provides educators with opportunities to improve their teaching practices (Lawless & Pellegrino, 2007). When interviewed, 90% of American teachers confirmed that they had received professional development. However, the vast majority indicated dissatisfaction with the professional development they received (Darling-Hammond et al., 2009; Guskey & Yoon 2009). Most educators felt they had received weak professional development that would not impact student growth (Darling-Hammond et al., 2009). Others felt that training lacked collaboration with other experts in the subject area or that it did not satisfy the needs of the students and teachers it sought to support (Guskey & Yoon 2009). Teachers felt that their limited influence in making critical decisions about professional development interfered with the district's ability to determine what professional development should be made available to them (Steele, 2009). Researchers consistently found a significant disconnect between what teachers felt they needed in professional development and what they were provided (Darling-Hammond et al., 2009; Guskey & Yoon, 2009).

Traditionally, professional development has been lecture-focused. Educators are expected to sit, listen, absorb, and apply (Bradley, 2015; Steele, 2009). These one-time workshops require teachers to implement new learning in their classrooms independently (McLeskey & Waldron, 2002; Nishimura, 2014). Training conducted in this manner has high rates of failure because teachers cannot sustain new learning independently (Burkins & Ritchie, 2007). Effective professional learning does not happen in workshops and lectures but within a school-wide culture of ongoing education and support (Burkins & Ritchie, 2007; Knight, 2018).

**Effective Professional Development**

Researchers have found that intensive, ongoing professional development directly connected to practice is the cornerstone of effective professional learning (Darling-Hammond et al., 2009). Professional development presented in occasional workshops and addresses general topics is rarely effective (Knight, 2018). Active professional development is ongoing, specific, and directly connected with classroom practice (Steele, 2009). Instructional coaches are often used to extend the learning after workshops. They can help teachers see connections within their classrooms and support teachers in their new learning (Knight, 2018). If professional development is to be considered successful, it must have a follow-up component that supports teachers as they implement the new strategy with their students (Guskey & Yoon, 2009).

Effective professional development focuses on student learning and addresses specific needs and gaps within the curriculum (Darling-Hammond et al., 2009). When teachers receive professional development, practical application is vital to impacting student growth (Routman, 2014). Effective professional development does not happen when the instructors are abstract. Professional development must be specific and concrete for teachers to utilize in their own classrooms (Reed-Wright, 2009). Jim Knight, an expert in professional development, found that

teachers are more likely to implement classroom practices that have been modeled for them (Knight, 2007).

The overall goals and priorities of the school should be aligned with professional development (Darling-Hammond, 2009). Professional development and training tend to be more effective when aligned with a broader goal or vision (Kotter, 2012). In a case study, the researcher found that a successful literacy program was created because of the balance between different levels of educators in the system. Everyone worked together to create a harmonious program that focused on specific student needs (Reed-Knight, 2009). Often, instructional coaches play the role of change agent. They help administrators and teachers understand the vision and create a plan for achieving the vision (Knight, 2017).

Finally, effective professional development builds strong working relationships between teachers (Darling-Hammond et al., 2009). Generally, educators operate as individual contractors within their classrooms (Williams, Prestage, & Bedward, 2010). Schools are typically structured so that teachers teach alone, with little time, opportunity, or space to collaborate with colleagues (Darling-Hamond, 2009). Coaching can assist in fostering relationships between educators. They can lead to small-group professional development that is specific to the needs of the colleagues attending (Lujan & Day, 2010). Reputable educational organizations, such as the International Literacy Association, support the idea of building trusting relationships among colleagues (International Literacy Association, 2010).

Effective professional development positively links teacher practices with student achievement. In 2000, Wenglinsky analyzed the National Assessment of Educational Progress data. After analyzing data gathered from more than fifteen thousand eighth-grade students, he found that professional development was vital in predicting student achievement. Students who

were taught by teachers who received effective professional development outperformed their peers by 107% on the NAEP. Wenglinsky concluded that the most direct way to improve student achievement was through changing the practices of the teachers who taught them (Wenglinsky, 2000). Guskey and Yoon found that districts which provided a follow-up to professional development workshops saw greater success than those who did not (Guskey & Yoon, 2009). Teachers feel that effective professional development improves student achievement (Knight, 2018; Morgan, 2010; Reed-Wright, 2009).

## Roles of Instructional Coaches

As a result of this increased pressure and, in many cases, increased funding through No Child Left Behind, schools and districts invested heavily in professional learning for teachers (Dee, Jacob, Hoxby, & Ladd, 2010). A considerable amount of funding for professional learning was job-embedded professional learning, more commonly known as instructional coaching (Vogt & Shearer, 2011). Instructional coaching became the great hope of districts that desperately wanted to increase student achievement (Russo, 2004). Coaching became a national trend, with urban and rural districts alike opting to spend professional development funds on instructional coaches (Russo, 2004; Florida Department of Education, 2020). Federally funded programs, such as Reading First, were created based on the premise that instructional coaching is the most effective type of professional development in which educators can engage (Deussen, Coskie, Robinson, & Autio, 2007). Due to the drastic increase in instructional coaching positions, The National Council of Teachers of English (2006) and the International Literacy Association (2010) felt the need to establish standards to help give coaches a sense of accountability and responsibility.

Due to the extreme increase in student and teacher demands, an influx of funding for professional development, and the willingness to try new approaches, instructional coaching expanded quickly across the United States (Knight, 2018). However, due to the lack of research on the impact of instructional coaching, many school districts began to practice instructional coaching with little data about the impact instructional coaching has on student achievement and growth (Deussen et al., 2007). Before researchers could determine if instructional coaching influenced student achievement, they first had to develop a clear picture of the roles of instructional coaches (Deussen et al., 2007). Instructional coaches that do not have clearly defined roles tend to feel confused and feel negative about their impact on student achievement (Borman et al., 2006; Morgan, 2010). Instructional coaches that do not have clearly defined roles also experience resistance in engaging in a coaching cycle from teachers (Morgan, 2010).

The most common model of instructional coaching used in the United States is the cognitive coaching model (Knight, 2007). The cognitive coaching model directs school leaders that instructional leaders should focus on the thought and decision-making processes of teachers within the classroom setting. In short, changes in practice are most likely to occur when coaches work with teachers within the context of their day-to-day classroom (Costa & Garmston, 2006). The main role of a coach is as that of an expert and analyst who is trained to use cognitive inquiry-based techniques to help teachers learn from their thought processes (Cheliotes & Reilly, 2018; Knight, 2018; Steele, 2009). At the center of cognitive coaching is questioning (Costa & Garmston, 2006). Instructional coaches must develop their questioning skills (Cheliotes & Reilly, 2018). As research was conducted on the impact of instructional coaching, researchers learned that teachers learned best through questioning. They found that teachers learned through questioning because it made them aware of what they were learning and why it was needed

(Reed-Wright, 2009). The cognitive coaching model thrives when teachers and coaches have a pre-established relationship of mutual trust and respect (Knight, 2018; Steele, 2009). In a qualitative study completed by Morgan (2010) about how job-embedded professional development influences teacher success, most coaches felt that developing relationships is critical to fulfilling the duties of a coach. Successful coaches are the coaches that know how to build strong relationships with their colleagues (Knight, 2018). Critical questioning is key to helping teachers change. However, questioning is only useful when a relationship has been established. Reed-Wright (2009) found that a relationship had to be in place before a teacher engaging in a coaching cycle and making major changes to their teaching practices. Successful coaches have created a culture of trust and respect (Knight, 2018; Reed-Wright, 2009; Steele, 2009).

Much of the research on instructional coaching shows that most instructional coaches assume many roles within their schools and districts (Borman et al, 2006). Jim Knight (2018), a leading researcher in the field of instructional coaching, believes the role of a coach should include several responsibilities. These responsibilities involve enrolling teachers in coaching cycles, identify best practices for teacher learning, model best practices for teachers, gather formal and informal data in classrooms, and engage teachers in meaningful conversations about student learning (Knight, 2018; Cheliotes & Reilly, 2018). Most coaching roles involve more responsibilities than those outlined in Knight's (2018) research. In addition to their primary role as a peer coach, most coaches are tasked with the responsibility of designing school-wide improvement initiatives and system-wide professional development workshops (Vogt & Shearer, 2007).

Many districts use content-specific coaches. These coaches fulfill similar roles to those listed in Knight's (2018) research, but these coaches focus specifically on a single discipline such as science, mathematics, or literacy. Neufeld and Roper (2003) learned that content-specific coaches work heavily with teachers to plan and implement lessons, refine specific instructional strategies, gather and create standards-aligned materials to enhance curriculum, and lead professional learning communities. Deussen et al. (2007) found similar results in their study of instructional coaching. They discovered that instructional coaches lead teachers through coaching cycles, supporting teachers in implementing new initiatives and programs, collecting and analyzing data, writing grants, and conducting professional learning communities (Deussen et al., 2007). Despite many recommendations from researchers, most instructional coaches fail or succeed based on their definition of their role within the school or district (Coggins, Stoddard, & Cutler, 2003).

The role of instructional coaches within a school tends to change as teachers build relationships with the coach (Vogt & Shearer, 2007). Initially, most coaches spend the majority of their time finding and creating resources to enhance instruction (Morgan, 2010). Many coaches feel that this is a way to cultivate relationships with colleagues and make themselves valuable to individual teachers (Morgan, 2010; Reed-Wright, 2009). Another task many coaches spend time doing at the beginning of their placement is helping teachers understand data from various assessments (Reed-Wright, 2009). Many coaches will meet with teachers weekly to help maximize contact with the teacher (Knight, 2018). These meetings help cultivate relationships and build trust (Steele, 2009).

## Traits of Effective Instructional Coaches

Effective instructional coaches have many different dispositions, backgrounds, and skills (Coggins et al., 2003; Deussen et al., 2007). Despite differences, there are some common traits in effective instructional coaches. In addition to their knowledge of best practices and effective pedagogy, strong coaches are effective communicators (Killion & Harrison, 2005). In addition to strong communicators, effective instructional coaches are relationship builders. They are able to empathize with educators, listen to their concerns and thoughts, and build relationships of mutual respect and trust (Knight, 2009). Coaches must also be flexible. They should be able to identify teachers' needs and adjust their responses accordingly (West & Staub, 2003).

The cognitive coaching model emphasized the need for coaches to have strong communication and relationship-building skills (Costa & Garmston, 1994). When effective coaches communicate with teachers, it is not as expert dispensing advice. Instead, successful coaches can communicate with teachers in a way that helps them determine solutions to instructional problems (Knight, 2007). Instructional coaches also need to have extensive knowledge of their content area (McCrary, 2011). In McCrary's (2011) study of mathematics coaching, she found that teachers were more satisfied, and coaches were more impactful when they held a degree in mathematics and had more extensive knowledge in best practices within their content area. Principals and teaches tend to feel more positive about instructional coaching when the instructional coach has extensive experience, knowledge, and success within their content area or grade band (Hull, Balka, & Miles, 2009). Instructional coaches are effective when they have successfully taught their content area before becoming an instructional coach (Dole, 2004). In addition to content knowledge, instructional coaches must be current in their own professional learning by keeping up with current literature and research about how student

learn, new teaching tools, and practical strategies for working with students (Feger, Woleck, & Hickman, 2004).

While most instructional coaching takes place in a one-on-one setting with teachers, instructional coaches tend to be tasked with the responsibilities of whole group presentations, workshops and training development, and district-wide initiatives (Knight, 2004). Due to the variety of roles coaches fill, they must have additional knowledge to help them navigate the different areas of professionalism they must fulfill. While effective coaches must build relationships with teachers, they must also serve as a liaison between teachers and administrators (Richard, 2003). Administrators must be cognizant of the coach's role and not pull them away from their work with teachers to complete tasks that need to be completed with immediacy (Morgan, 2010). Dole (2004) shared that coaches with a sense of humor were most effective in helping teachers navigate major change initiatives and not overburdening them.

Most of the literature reported relationship-building and communication skills as key traits of an effective instructional coach (Coggins et al., 2003; Deussen et al., 2009; Knight, 2009). When coaches can make professional learning personal for teachers in one-on-one settings, they are more likely to enhance teacher practices and impact student achievement (Kraft & Blazar, 2018). To be effective, instructional coaches must take the time to build relationships with the teachers they are working with (Steele, 2009). An impactful coaching cycle can only take place when trust and respect are in place (Knight, 2018).

## Types of Coaching

### Facilitative Coaching

"The relationship between the coach and coachee must be one of partnership in the endeavor, of trust, of safety and of minimal pressure" (Whitmore, 2017, p. 20). Facilitative

coaches see coachees as collaborators. They are equals who should make the majority of decisions in the coaching cycle (Knight, 2018). Facilitative coaches encourage their teachers to share ideas openly by actively listening, providing an empathetic setting, paraphrasing, and asking questions (Cheliotes & Reilly, 2018; Knight, 2018). Coaches do not share their advice because they are present to support coachees as they unpack what they already know and help them as they solve their problems (Knight, 2018). The coach is not a problem solver; the coach is a sounding board, facilitator, and awareness raiser (Whitmore, 2002). The coach can be a problem solver because the coachee understands what they need to improve and why they need to improve (Knight, 2018).

Facilitative coaching is very flexible and can address a variety of situations (Whitmore, 2002). It easily translates to supporting coachees in improving culture, pedagogy, and content knowledge (Knight, 2018). Facilitative coaching focuses on what the teacher needs to improve (Knight, 2018). Teachers must be willing to set aside their egos and preconceived notions about what makes a great teacher to grow; that is, teachers must be willing to let go of control to grow (Lui, 2004). Facilitative coaching allows coachees to work through the complexities of teaching in a way that is adaptable to their natural tendencies and backgrounds (Heifetz, Grashow, & Linsky, 2009).

**Directive Coaching**

Directive coaching takes place when a coach wants to help coachees master a particular skill (Knight, 2018). In this type of coaching, the coach and coachee do not necessarily have a partnership. Instead, this type of coaching relationship looks more like a master-apprentice relationship (Steele, 2009). The relationship is respectful, but it is not equal. The coach has specific knowledge, and it must be transferred to the coachee (Knight, 2018). The heart of

directive coaching is the coach's expertise (Knight, 2018). Since they want the coachee to learn specific practices, coaches engaged in a directive coaching cycle will often give coachees specific directions in what to do, model practices, observe teachers, and provide constructive feedback (Vogt & Shearer, 2011).

Directive coaching cycles work from the assumption that the coachees they are working with do not understand how to use the practices they are learning (Knight, 2018). The teaching strategies they are helping teachers implement should be done so with fidelity, with all classrooms implementing the same practice the same way (Hammond & Moore, 2018). Coaches tend to use this model when teachers should be adhering to a proven instructional model with fidelity, not adapting to the instructional model to meet the unique needs of students or their strengths (Knight, 2018).

Effective directive coaches are strong communicators that listen to coachees, use effective questions to confirm understanding, and read coachee's knowledge gaps with sensitivity (Hammond & Moore, 2018; Knight, 2018). Additionally, effective directive coaches should explain concepts clearly, model effectively, and provide constructive feedback to teachers (Hammond & Moore, 2018; Vogt & Shearer, 2007). This type of coaching works best with new teachers who are willing to learn and need support in implementing effective pedagogy regularly (Steele, 2009). Directive coaching can lead to more resistance than change with experienced teachers because it minimizes teacher expertise, knowledge, and autonomy (Knight, 2018). Directive coaching can lead to a change in established teachers when the coach's overall tone is positive, their feedback is detailed, and suggestions are limited, specific, and direct (Hammond & Moore, 2018).

**Dialogical Coaching**

Dialogical coaching is a balance of both facilitative and directive coaching (Knight, 2018). Dialogical coaching embraces inquiry, with coaches asking powerful questions that help collaborating coachees identify goals that are most likely to support student achievement (Whitmore, 2002). They ask questions that help the coachees identify how they should invest their time and energy to get the highest gains (McKeown, 2014). Dialogical coaches understand how to help coachees turn their attention to goals that have the highest potential for improving student achievement (Killion, Harrison, Bryan, & Clifton, 2012). Dialogical coaches do not withhold their expertise (Knight, 2018). Instructional coaches engaged in dialogical coaching must be up to date with current research, have a deep understanding of the content area, and remain aware of high-quality pedagogical practices (Knight, 2015).

Ultimately, teachers are the decision maker when the coach and coachee are determining how to a plan of action for reaching the goal they created (Bradley, 2015). Dialogical coaches present teachers with possible strategies for achieving their goal, and the teachers use their own expertise and judgement to decide which strategy they would like to try (Knight, 2018). Coaches help implement the strategy, gather data about how the strategy is impacting students, and help teachers modify the strategy to better align with student needs and teacher strengths (Deussen et al., 2007). Effective dialogical coaches believe that student-centered goals that matter to the teacher are essential to successful coaching interactions (Knight, 2018).

Dialogical coaching moves beyond casual conversations (Knight, 2015). Dialogical coaching involves dialogue, or the act of two or more people sharing ideas (Knight, 2018). Dialogue is not a competition. All parties involved in a conversation are working towards the

same goal and are working together to achieve a deeper understanding of their goals (Bohm, 1996).

## Instructional Coaching and Teacher Quality

Some studies have reported that the transference of knowledge from traditional professional development workshops to the classroom can drastically increase with the extended support of an instructional coach (Bruce & Ross, 2008; Guskey & Yoon, 2009; Kraft & Blazar, 2018; Kretlow, Wood, & Cook, 2011; Neuman & Cunningham, 2009; Teeman, Wink, & Tyra, 2011; Wenglinsky, 2000). The results of these studies supported the conjecture that teacher innovation and reformation are more likely to take place when there is specific, explicit follow-up to traditional professional development workshops (Bradley, 2015; Darling-Hammond et al., 2009; Guskey & Yoon, 2009, Morgan 2010).

Bruce and Ross (2008) conducted a qualitative study to determine whether peer coaching had an impact on mathematics teaching practices. Additionally, the study was conducted to determine if teacher beliefs about their ability had an effect on student achievement. The study focused on four pairs of third-grade teachers and two pairs of sixth-grade teachers. Bruce and Ross (2008) designed a four workshop series to teach best practices in mathematics instruction. The workshop series also trained teachers in dialogical coaching. Bruce and Ross (2008) wanted to support teachers as they moved toward implementing radical changes in mathematics and help master teachers learn how to mentor other teachers in this change. Five observers observed all twelve teachers before and after the workshops. During the observations, the researchers focused on three things that were part of the workshop series: student tasks, student math knowledge, and support for student interactions. During workshop series, each teacher worked with a coach three times. Coaches and teachers compared their perceptions of the teachers' instruction. After the

study concluded, all of the pairs were interviewed. The interviews focused on perceptions of reformation, evidence of reformed learning behaviors, and evidence of what parts of professional learning led to change. Researchers found that the pairing of workshops and peer coaching helped teachers move toward standards-focused goals and instruction (Bruce & Ross, 2008). When traditional professional development workshops are paired with effective coaching, teachers are far more likely to attempt new teaching strategies and pedagogy (Knight, 2018).

Teemant, Wink, and Tyra (2011) conducted a quantitative study in directive coaching (Knight, 2018). Specifically, they wanted to determine how valuable instructional coaching was when teachers were implementing specific instructional and classroom management practices. These practices were referred to as The Five Standards Instructional Model. Twenty-one teachers were selected from a larger pool of elementary candidates. These teachers had thirty hours of professional development in the Five Standards and had participated in seven coaching cycles with an instructional coach. Teachers were evaluated with an observation rubric called the Standards Performance Continuum. This rubric measured how teachers used the Five Standards in their classrooms. The study showed that teachers implemented the Five Standards more frequently as they completed more coaching cycles. The researchers determined that instructional coaching made a significant difference in the amount of new instructional skills transferred from professional development workshops to teacher classrooms (Teemant, Wink, & Tyra, 2011).

Kretlow, Wood, and Cook (2011) conducted a study on the impact of combining traditional professional development seminars and instructional coaching on kindergarten teachers' delivery of whole-group math units. Three kindergarten teachers participated in the study, along with their classes. To measure teacher effectiveness, an instructional unit was scored

based on its implementation during the whole group math lesson. Before coaching and professional development workshops, researchers collected data on the number of correctly implemented whole-group math lessons for all teachers. This collection established a baseline for the researchers. Data were collected at two other points in the study: following the whole group professional development workshop and following the individual instructional coaching. Following the workshop, the teacher whose lesson implementation was determined to be the least successful received coaching. Once their implementation improved, the second-lowest teacher was coached, followed by the third-lowest teacher. The means of the successful instructional times were compared, and those who received coaching had more successful instructional times than those who did not. The researchers felt that this study highlighted the inadequacies of professional development workshops alone in creating an environment for sustained teacher change (Kretlow et al., 2011).

## Instructional Coaching and Student Achievement

Some studies have reported that student achievement can drastically increase when the teacher receives the extended support of an instructional coach (Foster, 2018; Kraft & Blazar, 2018; L'Allier, Elish-Piper, & Bean, 2010). The results of these studies supported the conjecture that student achievement is far more likely to flourish in an environment where teachers are receiving the support to extend the professional development they received and implement best practices in their classroom (Bradley, 2015; Knight, 2019; Steele, 2009).

Instructional coaches must prioritize interactions that allow them to focus on increasing student achievement (L'Allier et al., 2010). Instructional coaches who positively impact student achievement administer and discuss student assessments with crucial stakeholders, observe teachers and offer supportive, specific feedback, create a dialogue with teachers about their

instruction, and model instructional strategies (Elish-Piper & L'Allier, 2007). Instructional coaches who influence student achievement positively can communicate clearly with teachers about what is happening in the classroom in a way that is positive, supportive, and specific (Knight, 2018). Successful instructional coaches work with teachers in their actual classrooms. They get to know the students and give the teacher a strong foundation of what best practices look like in their class (L'Allier et al., 2010). Successful instructional coaches can provide support for teachers that is uniquely designed to fit the needs and goals of the teacher's students (Kise, 2006).

Instructional coaching intends to address immediate problems of practice, target instructional practices, and improve day-to-day teaching practice with the intent that student achievement improves (Croft, Coggshall, Dolan, Powers, & Killion, 2010). Kraft and Blazar (2018) conducted a study based on sixty studies of instructional coaching to determine if it has a meaningful impact on achievement. Kraft and Blazar (2018) theorized that coaching impacts teacher knowledge and behavior, which naturally impacts student outcomes (Learning Forward, 2011). The researchers reviewed the available studies with meta-analytic methods in order to provide an extensive understanding of the impact of instructional coaching and highlight patterns that may arise (Foster, 2018). The meta-analysis found large positive effects of instructional coaching on teachers' daily instructional routines. Across forty-three studies that included a measurable outcome of instructional practice, Kraft and Blazar (2018) found a pooled effect size of .49 standard deviations.

In comparison, this effect is greater than the difference researchers have found between the instructional quality of inexperienced and experienced teachers (Foster, 2018). According to standardized tests, teachers who participated in a coaching cycle had an independent, positive

effect on student achievement (Kraft & Blazar, 2018). The researchers found that substantial changes must be made in teaching practice to impact student achievement positively. Kraft and Blazar (2018) found that instructional coaching that led to small improvements in teachers did not necessarily translate to student achievement and growth (Foster, 2018).

## Conclusion

Increased demands on teachers to produce high levels of student achievement have led many schools and districts to provide ways for teachers to improve their practices (Seed, 2008). As a result of increased demands and increased funding, many school systems have focused mainly on professional development to improve teacher practices (Dee, Jacob, Hoxby, & Ladd, 2010). Research shows that student success is tied heavily to teacher quality (Sanders & Rivers, 1996; Wenglisky, 2000). Traditional professional development workshops are most effective when there is a job-embedded follow-up (Darling-Hammond et al., 2009). Teachers are more likely to transfer the knowledge they have received into everyday practice when they receive follow-up support from an instructional coach (Guskey & Yoon, 2009). Instructional coaches can serve in many different roles (Vogt & Shearer, 2011). Different types of instructional coaching may be used to help achieve specific goals related to student achievement, teacher pedagogy, and other areas that typically influence teachers' daily practice (Knight, 2018). Research on the impact of instructional coaching has been limited (Deussen et al., 2007); however, results from small-scale studies suggest that instructional coaching positively impacts teacher quality (Bruce & Ross, 2008; Kretlow, Wood, & Cook, 2011; Teeman, Wink, & Tyra, 2011). Recent studies on the impact of instructional coaching on student achievement indicate teachers who have worked with an instructional coach are more likely to positively influence student achievement on standardized tests and in daily classroom learning (Kraft & Blazar, 2018).

# CHAPTER 3

## RESEARCH DESIGN AND METHODS

The purpose of this study was to determine the effects of instructional coaching, where teachers participated in coaching cycles with a site-based instructional coach, on student performance in reading and math in elementary students. This study was a quantitative design using randomization, a comparison group, and manipulation of a variable when examining the difference between variables. These characteristics provide increased confidence of cause-and-effect relationships.

This chapter is designed to address the methods that were used to complete this study. The methodology includes the research questions and null hypotheses, population and sample, instrumentation, data collection, and data analysis.

### Research Questions and Null Hypotheses

This methodology for this study was selected to focus on the following research questions:

1. Is there a significant difference between student performance in math when they are taught by coached and non-coached teachers?

   $H_0$1: There is no significant difference between student performance in math when they are taught by coached and non-coached teachers.

2. Is there a significant difference between student performance in reading when they are taught by coached and non-coached teachers?

   $H_0$1: There is no significant difference between student performance in reading when they are taught by coached and non-coached teachers.

3. Is there a significant difference in overall student achievement when they are taught by coached and non-coached teachers?

$H_0$1: There is no significant difference in overall student achievement when they are taught by coached and non-coached teachers.

4. Is there a significant difference in academic achievement between minority students who were taught by coached teachers and minority students who were taught by non-coached teachers?

   $H_0$1: There is no significant difference in academic achievement between minority students who were taught by coached teachers and minority students who were taught by non-coached teachers.

5. Are there significant mean differences on academic achievement between genders when they are taught by coached and non-coached teachers?

   $H_0$1: There are no significant mean differences on academic achievement between genders when they are taught by coached and non-coached teachers

6. Is there a significant difference in academic achievement between special education students who were taught by coached teachers and special education students who were taught by non-coached teachers?

   $H_0$1: There is no significant difference in academic achievement between special education students who were taught by coached teachers and special education students who were taught by non-coached teachers.

## Population and Sample

The population for this study came from the three elementary schools in the selected district where this study was conducted. The demographics of the selected school district are displayed in Figures 1 and 2.

Figure 1.

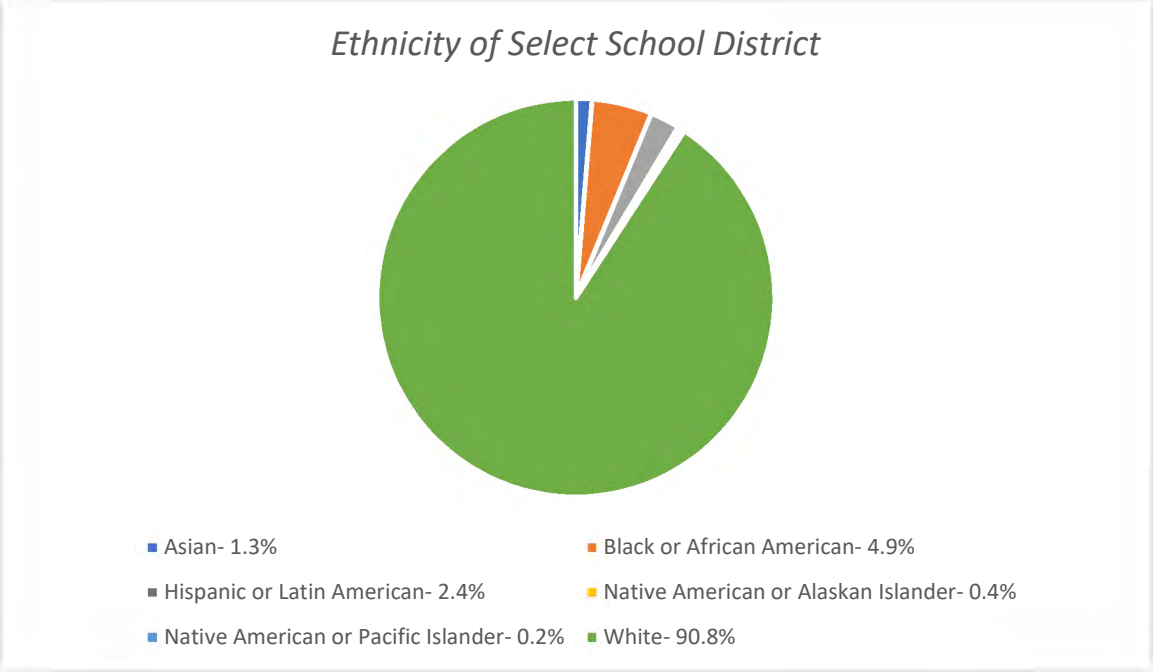
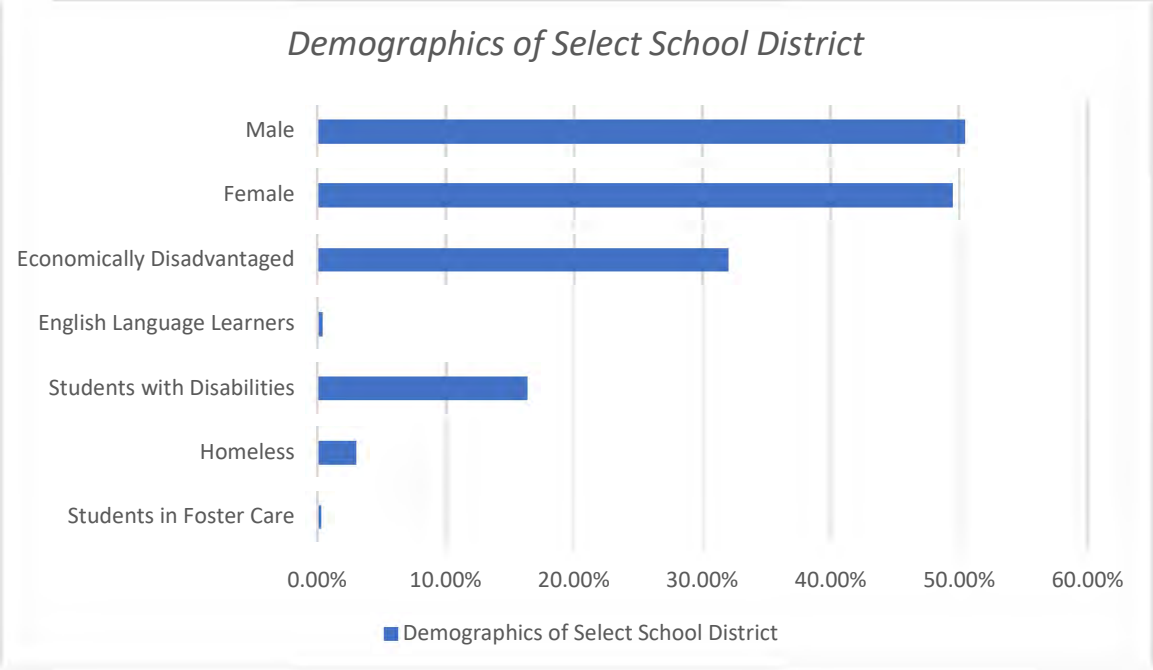



Figure 2.



In the 2016-17 school year, the Tennessee Department of Education created the Read to be Ready initiative. The purpose of this initiative was to increase the number of proficient elementary readers in the state of Tennessee through intensive teacher development and training (Tennessee Department of Education, 2019). Teachers received training in workshops and then received additional support from an instructional coach. Instructional coaches received additional training and coached teachers in addition to their other duties. Participating schools received a small stipend for the instructional coaches. When the initiative ended in spring 2018, some administrators within the selected district choose to use the discretionary funds to fund the position of a full-time instructional coach to support teachers.

This study focuses on achievement at the elementary level, so all students who were enrolled at one of the elementary schools for the duration of the 2018-19 school year were eligible to participate in this study. The names of students from the three elementary schools who were enrolled for the duration of the 2018-19 school year were gathered. These students were separated into two groups—those who were enrolled in a school with an instructional coach and those who were not. The students who were enrolled in a school without an instructional coach made up the comparison group. The students who were enrolled in a school with an instructional coach made up the experimental group. Kindergarten students were excluded from this study because reading fluency and math fact fluency data are not collected by the school district.

The students who were enrolled in a school without an instructional coach were grouped in female or male categories and assigned a number. In order to keep the number of female and male participants equal, females and males were be assigned corresponding numbers. Then, an electronic random number selector was used to determine the comparison group. The control

group consisted of the exact number of female and male participants as the experimental group. There were 100 female and 100 male participants.

The students who were enrolled in a school with an instructional coach were grouped in female and male categories and assigned a number. In order to keep the number of female and male participants equal, females and males were assigned corresponding numbers. Then, an electronic random number selector was used to determine the experimental group. The experimental group consisted of the exact number of female and male participants as the comparison group. There were 100 female and 100 male participants.

## Instrumentation

### AIMSweb

Achievement Improvement Monitoring System (AIMSweb) is a research-based screening and progress monitoring system that is used to efficiently assess the reading and math skills of students (Pearson, 2018). The assessment packages consistent of various reading and math assessments. This study used the AIMSweb universal screeners for reading fluency and math fact fluency, Reading Curriculum-Based Measurement (R-CBM) and Mathematical Computation (M-COMP) (Pearson, 2018).

The passages used in the R-CBM screener were narrative passages written and field tested to guarantee that all passages are comparable in difficulty at every grade level. AIMSweb used narrative passage to minimize prior knowledge that students may have with an informational passage. By minimizing the prior knowledge, educators gain a clearer perception of student reading abilities. These passages are designed to help teachers make informed instructional decisions about reading instruction, regardless of school or teacher (Pearson, 2018).

The math facts used in the M-COMP screener are a combination of basic addition, subtraction, multiplication, and division problems based on the student's grade level. The screener is field tested to guarantee that all assessments are of comparable difficulty at each grade level. The screener is designed to help teachers make informed instructional decisions about mathematics instruction, regardless of school or teacher (Pearson, 2018).

**R-CBM**

**Description.** The R-CBM was used to measure the student's reading fluency. This is a timed fluency test to determine the number of words a student can read in one minute (Pearson, 2018).

**Administration.** Students were giving a narrative passage specific to their grade level and written to represent end of the year expectations for their current grade level. The passage was a mix of sight words and decodable text. The students read the passage aloud individually to a test administrator. Students read from a printed copy while the test administrator followed along with a digital copy. The students were asked to read as many words in one minute as they could. While students read, the test administrator followed along and marked any words the student read incorrectly or skipped.

**Scoring.** At the end of one minute, the number of correct words and the number of errors were recorded by the test administrator. A word was considered correct if it is was pronounced correctly in context or if the student self-corrected an error within three second. Mispronunciations, substitutions, omissions, and three-second pauses were marked as errors. Repetitions, insertions, and differences in dialect were not identified as correct or incorrect. The number of words correctly minus the number of errors determined the number of words read

correctly. Table 1 shows the percentiles for benchmark status. Table 2 shows the national norms for the 25th percentile for each grade level in this study.

Table 1.

*AIMSweb Percentiles for R-CBM and M-COMP*

| *Benchmark Status* | *Composite Score* |
|---|---|
| Well Above Average | >90th%ile |
| Above Average | >=75th%ile |
| Average | >=25th%ile |
| Below Average | >=10th%ile |
| Well Below Average | >=0.0%ile |

Table 2.

*AIMSweb National Norms Table for 25th Percentile on R-CBM*

| *Grade* | *Words Read Correct (Fall)* | *Words Read Correct (Spring)* |
|---|---|---|
| 1st | 8 | 40 |
| 2nd | 35 | 82 |
| 3rd | 59 | 98 |
| 4th | 84 | 112 |
| 5th | 94 | 123 |

## M-COMP

**Description.** The M-COMP was used to measure the student's math fact fluency. This is a timed fluency test to determine the number of math facts a student can solve in eight minutes (Pearson, 2018).

**Administration.** The M-COMP was administered in a whole group classroom setting. A M-COMP was given to each student. They were given eight minutes to complete a combination of various problems as was appropriate for their grade level (Pearson, 2018). In grades 1-3, students complete column addition problems, basic facts, and complex computation. In grade 4, students complete problems that include basic facts, complex computation, decimals, and fractions. In grade 5, students complete problems that include basic facts, complex computation, decimals, fractions, conversions, and percentages (Pearson, 2012).

**Scoring.** The completed screeners were collected and scored by test administrators. A problem was considered correct if it is was solved correctly. Incorrectly solved problems were marked as errors. The number of correctly solved problems minus the number of errors determined the number of correctly solved problems. Table 3 shows the national norms for the $25^{th}$ percentile for each grade level in this study.

Table 3.

*AIMSweb National Norms Table for 25th Percentile on M-COMP*

| *Grade* | *Problems Correct (Fall)* | *Problems Correct (Spring)* |
|---|---|---|
| 1st | 4 | 30 |
| 2nd | 10 | 32 |
| 3rd | 15 | 40 |
| 4th | 17 | 43 |
| 5th | 8 | 21 |

**Reliability and Validity**

The relationship between R-CBM data and student performance on standardized achievement measures has been proven in numerous studies (Fuchs, Deno, & Mirkin, 1984; Hintze & Silberglitt, 2005; Silberglitt, Burns, Madyun, & Lail, 2006). These conclusions imply that R-CBM results serve as a predictor on high-stakes tests. These studies show that R-CBM provides educators with the best chance for early identification and intervention for at-risk students.

In 2004, Ardoin and Martens studied the correlation between a group administered achievement assessment, Multiple-Choice Cloze Task (MAZE), R-CBM, and reading subtests of the Woodcock-Johnson Tests of Achievement, Third Edition (WJ-III). Seventy-eight third grade students took all four assessments. The results indicated that the correlations between MAZE, R-CBM, and the WJ-III subtests were statistically significant ($r$=.972). The R-CBM was closely related to the WJ-III ($r$=.740). The predictive abilities of the R-CBM did not increase

significantly with the addition of the MAZE ($R$=.746). Ardoin and Martens concluded that the strongest predictor of reading comprehension and reading achievement was the R-CBM (Ardoin & Martens, 2004).

Wiley and Deno also evaluated the predictive value of MAZE and R-CBM assessments by giving both assessments to a group of third and fifth grade students. Their scores were subsequently correlated with the state's standardized achievement test. The R-CBM and the standardized achievement test showed moderate correlations ($R^2$=.52). The predictive abilities of the assessments were increased when the R-CBM and MAZE were combined ($R^2$=.67). The results of this study support the use of R-CBM for progress monitoring, benchmarking, and screening in reading (Wiley & Deno, 2005).

In 2017, Garner evaluated the predictive value of M-COMP assessments with an established diagnostic test, Group Mathematics Assessment and Diagnostic Evaluation (G-MADE). Both assessments were given to a group of students in grades 1-8. A strong correlation was found between the M-COMP and the G-MADE. Reliability varied throughout grade levels, with reliability ranging from .74 to .82 (Pearson, 2012). The results support the use of M-COMP for screening and progress monitoring in mathematics (Garner, 2017).

A strong research base provides evidence that both the R-CBM (Ardoin & Christ, 2008; Hintze & Silberglitt, 2005) and M-COMP (Shapiro, Dennis, & Fu, 2015; Rinard, 2012) are appropriate to monitor student growth over time. The conclusion of these studies advocate that R-CBM and M-COMP be given on a regular basis to monitor student growth. When used as a monitoring tool to measure the student's rate of growth, the R-CBM is capable of predicting performance on standardized reading assessments (Keller-Margulis, Shapiro, & Hintze, 2008). When used as a monitor tool to measure the student's rate of growth, the M-COMP is a strong

indicator of student achievement on standardized mathematics assessments (Chafin, Green, Raiford, Hsiao, Nobles, & Truby, 2015).

## Data Collection and Procedures

Permission to conduct this study was obtained from the Institutional Review Board (IRB) at Milligan College. Prior to data collection, permission to conduct the study was obtained from the selected school district and the principals at each of the three elementary schools. August 2018 and May 2019 AIMSweb data were obtained from the three elementary schools for all first through fifth grade students who were enrolled in the school for the entirety of the 2018-19 school year. Students were separated into two groups, those who had been taught by a coached teacher and those who had been coached by a non-coached teacher. All AIMSweb testing data were collected and stored electronically.

## Data Analysis

All data were analyzed using the Statistical Package for the Social Sciences (SPSS). The analysis for each research question was as follows:

1. An independent samples t-test was used to assess the difference in student performance in math when taught by coached and non-coached teachers in spring 2019.
2. An independent samples t-test was used to assess the difference in student performance in reading when taught by coached and non-coached teachers in spring 2019.
3. An independent samples t-test was used to assess the difference in overall student achievement when taught by coached and non-coached teachers in spring 2019.

4. An independent samples t-test was used to assess the difference in the overall achievement of minority students when taught by coached and non-coached teachers in spring 2019.
5. In response to question five, a two-way analysis of variance was used to determine interactions between gender on overall achievement when taught by coached and non-coached teachers in spring 2019.
6. An independent samples t-test was used to assess the difference in the overall achievement of special education students when taught by coached and non-coached teachers in spring 2019.

All data were analyzed at the .05 level of significance. Chapter 4 includes the analysis results for each research question.

## Summary

This chapter contained the methodology used in this quantitative research study. Following a brief introduction, the research questions, including null hypotheses, and the population and sample were stated. This chapter also included the instrumentations used in this research study along with the processes for data collection and data analysis.

# CHAPTER 4

## Data Analysis and Findings

The purpose of this study was to determine the effects of instructional coaching, where teachers participated in coaching cycles with a site-based instructional coach, on student performance in reading and math in elementary students. In this chapter, data were presented and analyzed to answer six research questions. The data were retrieved from three elementary schools in a select school district. The study consisted of two groups of students, those who were taught by a coached teacher and those who were taught by a non-coached teacher. The comparison group consisted of 100 male and 100 female students enrolled in a school without an instructional coach during the 2018-19 school year. The experimental group consisted of 100 male and 100 female students enrolled in a school with an instructional coach during the 2018-19 school year. This chapter provides the results of data analyses and findings of this study.

### Demographic Data

The population for this study consisted of three elementary schools in the selected school district. In the select school district, whites made up 90.8% of the student population; 4.9% of students were Black or African American; 2.4% are Hispanic or Latin American. The remaining 0.6% of students were Native American, Alaskan Islander, Native Hawaiian, or Pacific Islander. The male (50.8%) and female (49.2%) genders were nearly evenly divided. Economically disadvantaged students made up 32% of the population. English Language Learners made up 0.4% of the population. Students with disabilities accounted for 16.3% of the student population. Three percent of the students in the select school district qualified as homeless. A small number of students (0.3%) were identified as living in foster care.

The sample was comprised of 200 students (100 male and 100 female) who were taught by a teacher who received instructional coaching (experimental group). These students were enrolled in the school for the duration of the 2018-19 school year. The sample was also comprised of 200 students (100 male and 100 female) who were taught by a teacher who did not receive instructional coaching (comparison group). These students were enrolled in the school for the duration of the 2018-19 school year.

## Findings

### Research Question 1

Research Question 1: Is there a significant difference between student performance in math when they are taught by coached and non-coached teachers?

$H_0$1: There is no significant difference between student performance in math when they are taught by coached and non-coached teachers.

To determine whether there was a difference in student performance in math (M-COMP scores) between students who were taught by coached teachers (experimental group) and students who were taught by non-coached teachers (comparison group), an independent samples *t*-test was conducted. The results showed there was a significant difference between the means of the two groups ($t$ (398) = 2.717, $p$ =.007). Levene's Test for Equality of Variance indicates it is appropriate to assume equality of variances ($F$ =.101, $p$ =.75). The mean for students who were taught by a coached teacher (experimental group) ($M$ = 3.47, $sd$ =.924) was greater than the mean for students who were taught by a noncoached teacher ($M$ = 3.21, $sd$ =.989). Therefore, the null hypothesis was rejected. Cohen's $d$ (effect size) was calculated to determine the size of the difference. The Cohen's $d$ of .27 shows that there was a small difference in student performance in math (M-COMP scores) between students taught by a coached teacher (experimental group)

and students taught by a non-coached teacher (comparison group). The results are displayed in Table 4.

Table 4.

*t-test for Independent Means for M-COMP Scores*

| *Group* | *M* | *SD* | *df* | *t-value* | *Sig. (2-tailed)* | *ES* |
|---|---|---|---|---|---|---|
| Experimental (coached) | 3.47 | .924 | 398 | 2.717 | .007 | .27 |
| Comparison (non-coached) | 3.21 | .989 | | | | |

Note: $p<0.05$

**Research Question 2**

Research Question 2: Is there a significant difference between student performance in reading when they are taught by coached and non-coached teachers?

$H_0$2: There is no significant difference between student performance in math when they are taught by coached and non-coached teachers.

To determine whether there was a difference in student performance in reading (R-CBM scores) between students who were taught by coached teachers (experimental group) and students who were taught by non-coached teachers (comparison group), an independent samples *t*-test was conducted. The results showed there was no significant difference between the means of the two groups ($t(398)=1.782$, $p=.076$). Levene's Test for Equality of Variance indicates it is appropriate to assume equality of variances ($F=.846$, $p=.358$). The mean for students who were taught by a coached teacher (experimental group) ($M=3.13$, $sd=.999$) was greater than the mean for students who were taught by a noncoached teacher ($M=2.96$, $sd=.907$) however, the results were not significant. Therefore, the null hypothesis was retained. The results are displayed in Table 5.

Table 5.

*t-test for Independent Means for R-CBM Scores*

| *Group* | *M* | *SD* | *df* | *t-value* | *Sig. (2-tailed)* |
|---|---|---|---|---|---|
| Experimental (coached) | 3.13 | .999 | 398 | 1.792 | .076 |
| Comparison (non-coached) | 2.96 | .907 | | | |

Note: $p<0.05$

**Research Question 3**

Research Question 3: Is there a significant difference in overall student achievement when they are taught by coached and noncoached teachers?

$H_0$3: There is no significant difference in overall student achievement when they are taught by coached and non-coached teachers.

To determine whether there was a difference in overall student achievement (average of AIMSweb subtests) between students who were taught by coached teachers (experimental group) and students who were taught by non-coached teachers (comparison group), an independent samples *t*-test was conducted. The results showed there was a significant difference between the means of the two groups ($t(398)=3.158$, $p=.002$). Levene's Test for Equality of Variance indicates it is not appropriate to assume equality of variances ($F=4.326$, $p=.038$). The mean for students who were taught by a coached teacher (experimental group) ($M=3.47$, $sd=.826$) was greater than the mean for students who were taught by a noncoached teacher ($M=3.22$, $sd=.789$). Therefore, the null hypothesis was rejected. Cohen's *d* (effect size) was calculated to determine the size of the difference. The Cohen's *d* of .31 shows that there was a small difference in overall student achievement (average of AIMSweb subtests) between students taught by a coached

teacher (experimental group) and students taught by a non-coached teacher (comparison group). The results are displayed in Table 6.

Table 6.

*t-test for Independent Means for Overall Achievement Scores*

| *Group* | *M* | *SD* | *df* | *t-value* | *Sig. (2-tailed)* | *ES* |
|---|---|---|---|---|---|---|
| Experimental (coached) | 3.47 | .826 | 398 | 3.158 | .002 | .31 |
| Comparison (non-coached) | 3.22 | .789 | | | | |

Note: $p<0.05$

**Research Question 4**

Research Question 4: Is there a significant difference in academic achievement between minority students who were taught by coached teachers and minority students who were taught by non-coached teachers?

$H_0$4: There is no significant difference in academic achievement between minority students who were taught by coached teachers and minority students who were taught by non-coached teachers.

To determine whether there was a difference in student performance in academic achievement (average of AIMSWeb subtests) between minority students who were taught by coached teachers (experimental group) and minority students who were taught by non-coached teachers (comparison group), an independent samples *t*-test was conducted. The results showed there was no significant difference between the means of the two groups ($t(37)=1.397$, $p=.171$). Levene's Test for Equality of Variance indicates it is appropriate to assume equality of variances ($F=.434$, $p=.514$). The mean for minority students who were taught by a coached teacher (experimental group) ($M=3.32$, $sd=.582$) was slightly greater than the mean for minority students

who were taught by a noncoached teacher (*M*=3.05, *sd*=.605) however, these means were not statistically significant. Therefore, the null hypothesis was retained. The results are displayed in Table 7.

Table 7.

*t-test for Independent Means for Overall Achievement Scores for Minority Students*

| *Group* | *M* | *SD* | *df* | *t-value* | *Sig. (2-tailed)* |
|---|---|---|---|---|---|
| Experimental (coached) | 3.32 | .582 | 37 | 1.397 | .171 |
| Comparison (non-coached) | 3.05 | .605 | | | |

Note: $p<0.05$

**Research Question 5**

Research Question 5: Are there significant mean differences on academic achievement between genders when they are taught by coached and non-coached teachers?

$H_0$5: There are no significant mean differences on academic achievement between genders when they are taught by coached and non-coached teachers.

The two-way analysis of variance (ANOVA) was conducted to investigate differences in overall achievement (average of AIMSweb subtests) between female and male students who were taught by a coached teacher (experimental group) and female and male students who were taught by a non-coached teacher (comparison group). The results show there was significant main effects for gender [$F$ (1, 396) = 5.310, $p$ = .022, Eta Squared = .013] and teacher coaching status [$F$ (1, 396) = 10.088, $p$ = .002, Eta Squared = .025]. Female students who were taught by a coached teacher ($M$ = 3.61, $sd$ = .08) scored slightly higher in overall achievement (average of AIMSweb subtests) than male students who were taught by a coached teacher ($M$ = 3.33, $sd$ = .08). Female students who were taught by a non-coached teacher ($M$ = 3.26, $sd$ = .08) scored

slightly higher in overall achievement (average of AIMSweb subtests) than male students who were taught by a non-coached teacher ($M = 3.17$, $sd = .08$). Interaction between the factors was not significant [$F$ (1, 396) = 1.400, $p$ =.237, Eta Squared = .004]. Therefore, the null hypothesis was partially rejected. The results of the main effect of gender, and the calculated effect size, indicates that 1.3% of variance in overall achievement can be explained by gender. The results of the main effect of teacher coaching status, and the calculated effect size, indicates that 2.5% of variance in overall achievement can be explained by teacher coaching status. However, the calculated effect size for the main effects and interactions indicates small proportion of student achievement variance is accounted for by each factor. The results for the ANOVA summary are displayed in Table 8.

Table 8.

*Two-way ANOVA Summary for Gender and Teacher Coaching Status on Overall Achievement*

| *Source* | *SS* | *df* | *MS* | *F* | *p* | *ES* |
|---|---|---|---|---|---|---|
| Gender | 3.423 | 1 | 3.423 | 5.310 | .022 | .013 |
| Coaching | 6.502 | 1 | 6.502 | 10.088 | .002 | .025 |
| Gender x Coaching | .903 | 1 | .903 | 1.400 | .237 | .004 |

Note: $F$ ratios are reported with their degrees of freedom and degrees of freedom for error in parentheses.

**Research Question 6**

Research Question 6: Is there a significant difference in academic achievement between special education students who were taught by coached teachers and minority students who were taught by non-coached teachers?

$H_0$6: There is no significant difference in academic achievement between special education students who were taught by coached teachers and special education students who were taught by non-coached teachers.

To determine whether there was a difference in student performance in academic achievement (average of AIMSWeb subtests) between special education students who were taught by coached teachers (experimental group) and special education students who were taught by non-coached teachers (comparison group), an independent samples *t*-test was conducted. The results showed there was a significant difference between the means of the two groups ($t$ (58) = 32.506, $p$=.015). Levene's Test for Equality of Variance indicates it is appropriate to assume equality of variances ($F$=.091, $p$=.764). The mean for special education students who were taught by a coached teacher (experimental group) ($M$ = 2.71, $sd$ = .867) was greater than the mean for students who were taught by a noncoached teacher ($M$ = 2.14, $sd$=.834). Therefore, the null hypothesis was rejected. Cohen's *d* (effect size) was calculated to determine the size of the difference. The Cohen's *d* of .67 shows that there was a moderate difference in overall student achievement (average of AIMSweb subtests) between special education students taught by a coached teacher (experimental group) and special education students taught by a non-coached teacher (comparison group). The results are displayed in Table 9.

Table 9.

*t-test for Independent Means for Overall Achievement Scores for Special Education Students*

| *Group* | *M* | *SD* | *df* | *t-value* | *Sig. (2-tailed)* | *ES* |
|---|---|---|---|---|---|---|
| Experimental (coached) | 2.71 | .867 | 58 | 2.506 | .015 | .67 |
| Comparison (non-coached) | 2.14 | .605 | | | | |

Note: $p$<0.05

## Summary

Chapter 4 was an analysis of the data related to this research study. In this chapter, data from students in grades one through five at three schools in the select school district were analyzed and presented. The data were collected for 400 students who were taught by teachers who received coaching (200) and teachers who did not receive coaching (200) during the 2018-19 school year. Six research questions and null hypotheses were addressed. Chapter 5 covers conclusions about this research study, implications for the educational community, and recommendations for future study.

# CHAPTER 5

## SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the findings, limitations of the study, and conclusions. This chapter also includes recommendations for others who may use the results for action or further research on the relationship between instructional coaching and student achievement in reading and math. A review of the literature was conducted on the relationship between instructional coaching and student achievement. The review indicated instructional coaching has a positive impact on student achievement. Students who are taught by teachers who have worked with an instructional coach are more likely to positively influence student achievement on standardized tests and in daily classroom learning (Kraft & Blazar, 2018).

Since 1983's A Nation at Risk initiative and the adoption of No Child Left Behind (NCLB) in 2001, legislators and educators across the United States have sought reformation in schools (Seed, 2008). A considerable amount of funding was reserved for professional learning for the nation's teachers (Dee, Jacob, Hoxby, & Ladd, 2010). Many schools and school districts invested professional development funding in the creation of job-embedded professional learning opportunities, more commonly known as instructional coaching (Vogt & Shearer, 2011). To drastically improve student achievement, schools had to drastically improve the quality of professional development opportunities (Guskey & Yoon, 2009).

Teachers received professional development before the introduction of NCLB. However, many researchers found evidence that traditional workshops and training seminars could not effectively increase student achievement or reform teacher practices (Darling-Hammond, Wei, Andree, Richardson & Orphanos, 2009; Guskey & Yoon, 2009). Traditional professional development did not have a direct link with student achievement (Darling-Hammond et al.,

2009; Guskey & Yoon, 2009). Traditional professional development is a one-time workshop where teachers are expected to implement new learning in their classrooms independently (McLeskey & Waldron, 2002). When interviewed, 90% of American teachers indicated dissatisfaction with the professional development they received (Darling-Hammond et al., 2009). Many schools and districts decided the best way to improve professional development was to create instructional coach positions so they could work directly with teachers in meaningful ways (Guskey & Yoon, 2009).

Research suggests the transference of knowledge from traditional professional development workshops to the classroom can increase with the extended support of an instructional coach (Bruce & Ross, 2008; Guskey & Yoon, 2008; Kraft & Blazar, 2018). Researchers have also reported that student achievement can increase when the teacher receives the extended support of an instructional coach (Foster, 2018; Kraft & Blazar, 2018; L'Allier, Elish-Piper, & Bean, 2010). Instructional coaching intends to address immediate problems of practice, target instructional practices, and improve day-to-day teaching practice with the intent that student achievement improves (Croft, Coggshall, Dolan, Powers, & Killion, 2010). Researchers found substantial changes must be made in teaching practice to impact student achievement positively (Guskey & Yoon, 2009; Kraft & Blazar, 2018). Kraft and Blazar (2018) found instructional coaching that led to small improvements in teachers did not necessarily translate to student achievement and growth (Foster, 2018).

This study examined the relationship between instructional coaching and student achievement in reading and math for elementary students. The sample for this study consisted of all first through fifth grade students from the three elementary schools in the selected district.

Kindergarten students were excluded from this study because reading fluency and math fact fluency data were not collected by the district.

Students were placed in a comparison group, those that were taught by a teacher who did not receive instructional coaching during the 2018-19 school year, and an experimental group, those that were taught by a teacher who received instructional coaching during the 2018-2019 school year. Each group consisted of 100 males and 100 females. The study used data from reading fluency and math fact fluency universal screeners conducted by the district.

## Summary of Findings

The current study found there was a significant difference in specific academic areas and among certain subgroups. Students who were taught by a teacher who received instructional coaching performed significantly higher in math and in overall achievement than students who were taught by a teacher who did not receive instructional coaching. Additionally, special education students who were taught by a coached teacher performed significantly higher in overall achievement than special education students who were taught by a non-coached teacher.

There were other academic areas and student subgroups that did not show a significant difference. While students who were taught by a coached teacher performed higher in reading achievement, their achievement was not significantly higher than students who were taught by a non-coached teacher. Similarly, minority students who were taught by a coached teacher performed higher in overall achievement, but it was not significantly higher than minority students who were taught by a non-coached teacher.

In addition to instructional coaching, gender was a factor in the level of student achievement. Females who were taught by coached and non-coached teachers performed at a higher level in overall achievement than males who were taught by coached and non-coached

teachers. While gender and instructional coaching were both factors in student achievement, the interaction between both factors was not significant.

## Discussion of Findings

There was a significant difference in math achievement and overall achievement between students who were taught by a teacher who received instructional coaching and students who were taught by a teacher who did not receive instructional coaching. Students who were taught by a coached teacher revealed higher achievement on M-COMP scores and in the overall average of the AIMSweb subtests than students who were taught by a non-coached teacher. However, there was not a significant difference in reading achievement between students who were taught by a coached teacher and students who were taught by non-coached teachers. Students who were taught by a coached teacher revealed higher achievement on R-CBM scores than students who were taught by non-coached teachers, but there was not a significant difference between the two groups.

This result supports the findings of Kraft and Blazar (2018), that instructional coaching can significantly improve student achievement. According to Kraft and Blazar (2018), individual instructional coaching has a more positive estimated effect than traditional professional development and other school-based instructional interventions. While teacher coaching has large positive effects on instructional practice and teacher quality according to teacher observation data (Kraft & Blazar, 2018). While teacher quality may noticeably improve, significant improvements in student achievement require large improvements in instructional practice. The observed positive impact in instructional practice due to coaching is significantly larger than the resulting impact on student outcomes (Kraft & Blazar, 2018). Kretlow, Wood, and Cook's (2011) study also found that the amount of instructional coaching a teacher receives

directly correlates with student achievement. Teachers who receive more instructional coaching are more likely to see significant improvements in student achievement.

There was a significant difference in overall achievement between special education students who were taught by a teacher who received instructional coaching and special education students who were taught by a teacher who did not receive instructional coaching. However, while there was a slight difference in the overall achievement of minority students, it was not significant. The results suggest that instructional coaching positively influences achievement among key subgroups. Teachers who received instructional coaching are more likely to see significant improvements in student achievement for students who require differentiation. Teachers who receive instructional coaching are more likely to experience higher achievement among students in special education. Instructional coaches provide support for teachers that is uniquely designed to fit the needs and individual goals of the teacher's students (Kise, 2006).

Additionally, there was a significant difference in overall achievement between gender and instruction from a coached teacher. However, there was no significant interaction between these factors. Female students who were taught by coached and non-coached teachers performed at a higher level than male students who were taught by coached and non-coached teachers respectively. The results suggest that instructional coaching had a greater impact on the variance in student achievement than gender. Students who were taught by a teacher who received instructional coaching performed at a higher level of achievement than those who did not, regardless of gender. Again, this supports the findings of Kraft and Blazar (2018). Students who are taught by a teacher who receives instructional coaching are more likely to experience higher levels of achievement than students who are taught by teachers who do not receive instructional coaching (Kraft & Blazar, 2018). Student achievement is more likely to flourish in an

environment where teachers receive extra support to extend professional learning (Bradley, 2015).

## Limitations of the Study

The results of this study provide useful information regarding the value of instructional coaching in improving student achievement. However, several limitations exist from the current research study. One possible limitation involves teacher fidelity after the coaching cycle. Although the instructional coach modeled lessons, observed teachers, and provided detailed feedback, the researcher did not observe how teachers continued to use the recommendations they received from the instructional coach.

Also, the researcher did not observe the fidelity of AIMSweb universal screeners. Although detailed training was provided to school personnel who were responsible for administering the AIMSweb universal screeners, the researcher did not observe the administration of the testing. While students are all assessed by a reading interventionist at their respective schools, there may be some inconsistencies in testing procedures.

## Conclusions

From the findings, the following conclusions were drawn. There was a significant difference in math achievement, overall achievement, and overall achievement for special education students between students who were taught by a coached teacher and those who were not. While there were differences in reading achievement and overall achievement for minority students, the differences were not significant during the 2018-19 school year. The results suggest students who were taught by a teacher who received instructional coaching during the 2018-19 school year were more likely to have higher achievement during the spring 2019 universal screeners for reading and math fluency than students who were taught by a teacher who did not

receive coaching. The results suggest that interactions between the instructional coach and the teacher played a role in increasing student achievement. Teachers who interacted with an instructional coach were more likely to produce higher achievement scores among students, including students who require differentiation.

Female students who were taught by coached and non-coached teachers were more likely to experience higher achievement scores than their male counterparts. However, instructional coaching had a stronger relationship to overall student achievement for all students. The results suggest that being taught by a teacher who received instructional coaching influenced overall student achievement, regardless of gender.

## Recommendations for Practice

The findings and conclusions of this study have identified the following recommendations for the practice of instructional coaching:

1. The study showed a significant difference in achievement in math achievement for all students, overall achievement for all students, and overall achievement for special education students. In these areas, students who were taught by a coached teacher performed at a higher level than students who were taught by a non-coached teacher. If funds are available in subsequent years, school districts may consider retaining or expanding their current instructional coaching programs.
2. The amount of time teachers spend in a coaching cycle in a specific subject is the biggest influence on student achievement (Kraft & Blazar, 2018). Administrators, instructional coaches, and teacher leaders should work together to strategically align coaching responsibilities with the school improvement plan. Instructional coaches should spend more time coaching in the areas of greatest need in the school.

## Recommendations for Further Research

As this study took place during the first year of implementation of the instructional coaching program in one small district in upper east Tennessee, this study should be replicated by other districts with a larger and more diverse population who are beginning instructional coaching programs. By doing so, it will be easier to draw conclusions and generalize the findings to a larger population.

An additional study could be conducted to collect data for students who continue to be taught by coached teachers over multiple years to determine if their overall achievement continues to rise each year of participation. It could be beneficial to see if the overall achievement for these participants continues to rise after a set number of years of being taught by a coached teacher.

A future qualitative study could allow teachers to provide feedback on the coaching experience. This feedback will offer insight into what benefits the teachers feel they receive from a coaching program other than higher student achievement scores.

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# APPENDIX A

## IRB Approvial

Date: February 20, 2020

From: The Institutional Review Board (IRB) at Milligan College

Re: *The Effects of Instructional Coaching on Student Performance in Reading and Math of Elementary Students at a Selected School District*

Submission type: Revised Submission

Dear Rachel,

On behalf of the Milligan College Institutional Review Board (IRB), we are writing to inform you that your study *The Effects of Instructional Coaching on Student Performance in Reading and Math of Elementary Students at a Selected School District* has been approved as expedited. This approval also indicates that you have fulfilled the IRB requirements for Milligan College.

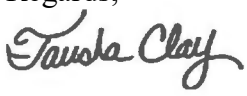
All research must be conducted in accordance with this approved submission, meaning that you will follow the research plan you have outlined here, use approved materials, and follow college policies.

Take special note of the following important aspects of your approval:

- Any changes made to your study require approval from the IRB Committee before they can be implemented as part of your study. Contact the IRB Committee at **IRB@milligan.edu** with your questions and/or proposed modifications.
- If there are any unanticipated problems or complaints from participants during your data collection, you must notify the Milligan College IRB Office within 24 hours of the data collection problem or complaint.

The Milligan College IRB Committee is pleased to congratulate you on the approval of your research proposal. Best wishes as you conduct your research! If you have any questions about your IRB Approval, please contact the IRB Office and copy your faculty advisor if appropriate on the communication.

Regards,



The IRB Committee

# APPENDIX B

## Superintendent Permission to Conduct Study

To:

FROM: Rachel C. Darnell

DATE:

SUBJECT: District Permission to Conduct Study

I would like your permission to conduct a research study in the _____ district as part of my doctoral dissertation at Milligan College. I am researching the effects of instructional coaching on student achievement in reading and math at the elementary level.

The purpose of this study is to determine if teachers who receive continuous professional learning and support through a coaching cycle with an instructional coach have a greater impact on student achievement and growth in reading and writing than teachers who do not receive support from an instructional coach.

This study will use AIMSweb universal screener data from August 2018 and May 2019 for all students in kindergarten through fifth grade. This data will be stored electronically. Only the researcher will have access to the data, and it will only be used for research purposes. All data will be destroyed once the study is complete. Student names will not be included in the findings of the study. If the study is published or presented to a professional audience, no personally identifying information will be released.

One of the possible benefits of this study for your school district is determining the impact of instructional coaching on student performance at the elementary level. This study will also help the district better understand the impact of instructional coaching and may help district personnel in making decisions about expanding the instructional coaching program and the placement of coaching.

Please sign and return one copy of this form to:

Rachel C. Darnell

Your signature indicates that you have read and understood the information provided above. It also indicates that you are willing to agree for me to utilize the school district's AIMS Web universal screening benchmark scores for reading and math in this study and that you have received a copy of this form.

I hereby consent to my school district's participation in the research described above.

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School District

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Director of Schools Signature

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Director of Schools Print

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Date

# APPENDIX C

## Principal Permission to Conduct Study

To:

FROM: Rachel C. Darnell

DATE:

SUBJECT: School Permission to Conduct Study

I would like your permission to conduct a research study in your school as part of my doctoral dissertation at Milligan College. I am researching the effects of instructional coaching on student achievement in reading and math at the elementary level.

The purpose of this study is to determine if teachers who receive continuous professional learning and support through a coaching cycle with an instructional coach have a greater impact on student achievement and growth in reading and writing than teachers who do not receive support from an instructional coach.

This study will use AIMSweb universal screener data from August 2018 and May 2019 for all students in kindergarten through fifth grade. This data will be stored electronically. Only the researcher will have access to the data, and it will only be used for research purposes. All data will be destroyed once the study is complete. Student names will not be included in the findings of the study. If the study is published or presented to a professional audience, no personally identifying information will be released.

One of the possible benefits of this study for your school is more information and data in determining strategic, individual professional learning paths for teachers within your building. This study may also provide more information about the types of professional learning that positively impacts student achievement.

Please sign and return one copy of this form to:

Rachel C. Darnell

Your signature indicates that you have read and understood the information provided above. It also indicates that you are willing to agree for me to utilize the school district's AIMS Web universal screening benchmark scores for reading and math in this study and that you have received a copy of this form.

I hereby consent to my school district's participation in the research described above.

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School Name

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School Principal Signature

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School Principal Print