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Self-Regulated Learning Instruction's Relationships with Teacher Subject Area, Teacher Beliefs, and Teacher Efficacy

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SELF-REGULATED LEARNING INSTRUCTION'S RELATIONSHIPS WITH TEACHER SUBJECT AREA, TEACHER BELIEFS, AND TEACHER EFFICACY

by

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ABSTRACT

Self-regulated learning (SRL) instruction develops essential competencies required in the classroom and the workplace (Johnson, 2002; Yan, 2017). SRL instruction helps learners develop the proficiency required for successful self-directed, life-long learning. Furthermore, SRL instruction produces the skills needed to plan, monitor, and achieve learning goals. However, SRL instructional techniques are difficult to implement in the classroom or workplace because educators must transfer learning responsibilities and outcomes to the learner. This study examined the relationships of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. The participants included PK-12 teachers from a public-school district in Alabama. The majority of participants were female teachers (81%) between 31 to 50 years old. This study collected data using a hard copy questionnaire. Data analysis employed quantitative techniques such as descriptive statistics, analysis of variance, simple, and multiple regression analysis. This study did not find statistically significant relationships between teacher subject area, teacher beliefs, and the use of SRL instruction. However, this research project did discover a relationship between teacher efficacy and the use of SRL instruction. Findings suggest that participants in this population believe self-regulated learning is important; however, lack of teacher efficacy limits implementation of SRL instruction.

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DEDICATION

I would like to dedicate this research project to all those who have served and are currently serving in the military or as first-responders in the United States. Without your sacrifice, dedication, and selfless service, I would not have the freedom, safety, and security to complete this study. I would also like to dedicate this research project to our nation's workforce who helps move our economy forward each day. Furthermore, I dedicate these research findings to our nation's children who deserve our total commitment and unyielding effort to help each of them become intelligent, competent, and productive citizens. Finally, I express my sincere gratitude to all teachers who fully understand the importance of developing self-regulated learners for our nation's workforce. May God bless each of you richly in the future!

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LIST OF ABBREVIATIONS

IRB	Institutional Review Board
PK-12	Pre-Kindergarten through 12th grade
SRL	Self-Regulated Learning
SRLIS	Self-Regulated Learning Instruction Scale
SRLTBS	Self-Regulated Teacher Belief Scale
TSES-SRL	Teacher Self-Efficacy Scale - SRL

CHAPTER I – INTRODUCTION

Top-tier organizations make human capital recruitment, development, and retention top priorities for long-term viability (Clifton, 2011; Sareen & Mishra, 2016). In today's competitive global environment, employees must be intelligent, self-directed, and highly adaptable (Paul & Elder, 2018). Therefore, successful employers carefully screen for these competencies when making hiring and retention decisions (Mitjans, 2014). In particular, the ability to learn, unlearn, and relearn is vital for sustainable success (Senge, 2006; Warrell, 2014). According to Belasco and Stayer (1993), "The world changes so fast that we need to keep learning new things so we can cope. The rapid pace of change drives the need for continual learning" (p. 80). Self-directed learners are proficient at identifying, planning, and taking the necessary steps to close intellectual and skill gaps (Finegold, Gatta, Salzman, & Schurman, 2010; Luthans, 2008). Furthermore, self-directed learners are motivated and understand how to acquire new knowledge from multiple sources to achieve professional learning goals (Knowles, 1989; Trilling & Fadel, 2009).

Self-directed learning, critical thinking, and the ability to solve complex problems are valuable attributes in the workforce (Luthans, 2008; Paul & Elder, 2018). Higher order thinking skills develop through intentional instruction, practice, and modeling over time (Bandura, 1986; Kelly, 2004; Paul & Elder, 2018). Consequently, teachers and trainers play a crucial role in human capital development across one's life span. These scholar-practitioners teach in pre-Kindergarten classrooms, university lecture halls, military training sites, and corporations around the world (Sears, 2003). Regardless of title or location, most educators recognize the importance of life-long learning for

academic, career, and ultimately life success (Johnson, 2002). Helping individuals understand how to learn, not just what to learn, is critical for sustainable performance in technology-driven, global environments (Clifton, 2011). Understanding the processes of learning, facilitates acquisition and retention of new information (Davis & Neitzel, 2011). Furthermore, the use of authentic assessments help measure comprehension and application of new knowledge or skills (Dignath-van Ewijk, 2016).

Authentic assessments measure actual understanding and proficiency with new content, not merely memorization and recall of data. Authentic assessments allow learners to demonstrate proficiency of newly acquired knowledge or skills through realistic, context-specific applications (Johnson, 2002; Sears, 2003). This requires academic and workplace assessments to move beyond multiple choice, fill-in-the-blank, or narrative exams. Authentic assessments require learners to demonstrate content knowledge or technical skills in realistic, time-measured scenarios. An example of an authentic workplace assessment would be a technician demonstrating the proper use of a computerized drill press, instead of simply taking a written test on the operating procedures for the equipment. Though many pedagogical strategies focus on life-long learning and authentic assessments, this research project examines a learner-centered approach referred to as the Contextual Teaching and Learning System.

CTL's Self-Regulated Learning Component

The Contextual Teaching and Learning (CTL) System is an instructional system designed for academic and workplace learning (Sears, 2003). The CTL system comprises eight inter-related components (Johnson, 2002). The CTL components include the following: (a) making meaningful connections, (b) doing significant work, (c) self-

regulated learning, (d) collaborating, (e) critical and creative thinking, (f) nurturing the individual, (g) reaching high standards, and (h) using authentic assessment (Johnson, 2002). These components work together as an instructional system to enhance learner engagement, cognitive performance, and develop classroom and workplace competencies (Berns & Erickson, 2001).

The CTL system facilitates learning by connecting new information with learners' interests and real-world requirements (Berns & Erickson, 2001). CTL's context-based approach also inspires creativity and critical thinking (Paul & Elder, 2018; Sears, 2003). Additionally, CTL's project and inquiry-based activities cultivate teamwork and problem-solving skills (Johnson, 2002). Authentic assessments measure learners' ability to effectively apply new knowledge to community or organizational problems (Baker, Hope, & Karandjeff, 2009). Although the CTL system is comprised of eight components, this study focused strictly on self-regulated learning. According to Perels, Merget-Kullmann, Wende, Schmitz, and Buchbinder (2009), "self-regulated learning follows the new demands students are faced with today, because increasing knowledge makes it necessary to learn strategies to acquire new knowledge and to adapt existing knowledge to new requirements during the whole life" (p. 311). Furthermore, by concentrating on CTL's self-regulated learning component, it reduced the overall scope of this research project. The following section provides more in-depth rationale for this study.

Study Background

America's economy has experienced seismic shifts over the past century and will witness additional changes in the decades to come (Clifton, 2011; Trilling & Fadel,

2009). Since the beginning of the 21st Century, non-stop advances have occurred in digital technology and global communications (Clifton, 2011; Moretti, 2012). Furthermore, nations around the world have experienced exponential financial growth, dramatically driving up competition for the United States (Moretti, 2012). These market factors mean American workers must continually refresh knowledge and skills to remain competitive (Morgan, 2017). However, life-long learning requires individuals to possess the motivation and competencies necessary to seek-out and absorb relevant information (Haddad, 2001; Trilling & Fadel, 2009). Self-regulated learning is the ability to accurately identify new knowledge requirements, develop learning plans, and achieve desired learning goals through self-directed performance (Zimmerman, 2000; Zimmerman & Schunk, 1989). The following section describes the self-regulated learning construct in greater detail.

Self-Regulated Learning

According to self-regulated learning (SRL) theory, learners must harness their unique cognitive abilities to achieve specific learning goals (Zimmerman, 2000; Zimmerman & Schunk, 1989). Persistence to accomplish one's learning goals must come from within, especially when faced with adversity or set-backs (Avolio & Luthans, 2006; Bandura, 1977). Therefore, self-regulated learners must become proficient at goal-setting and creating comprehensive plans to accomplish learning goals (Bandura, 1986; Bandura, 1997; Zimmerman, 2000; Zimmerman & Schunk, 1989). Competent self-regulated learners monitor and adjust learning performance as necessary. Additionally, self-regulated learners adapt learning strategies based upon past performance to enhance future results (Davis & Neitzel, 2011).

According to Zimmerman (2000), the three phases of self-regulated learning include forethought, performance, and self-reflection. Learners must master each SRL phase to maximize learning performance outcomes (Dembo, 2001; Dembo & Seli, 2008). The forethought phase includes all pre-planning activities required before beginning a learning task (Zimmerman, 2000). The objective of the forethought phase is to think clearly and logically through all task requirements before taking any action (Boekaerts, 1999). The forethought phase involves the meta-cognitive processes of task analysis, goal setting, and strategic planning (Campbell et al., 2005). Additionally, in the forethought phase, internal motivation increases when learning goals connect to one's interests, values, and talents (Boekaerts, 1999).

The performance phase includes all actions required while actively pursuing one's learning goal (Zimmerman, 2000). This phase puts into motion the meta-cognitive and behavioral strategies identified during the forethought phase. These strategies help the learner maintain focus, monitor progress, and persist when faced with challenges while striving toward a learning goal (Dembo and Seli, 2008; Dignath-van Ewijk, 2016). Finally, the self-reflection phase takes place after achieving one's learning goal (Dembo & Seli, 2008). The self-reflection phase includes a detailed self-assessment and reflection of one's performance (Davidson & Sternberg, 2003). These after-action reviews require an analysis of one's emotions and motivational levels encountered while pursuing learning objectives (Yan, 2016). Proficiency in all three-phases of the self-regulated learning process is essential for knowledge acquisition, retention, and application (Zimmerman, 2000). Whether in the classroom or on the production floor, SRL proficiency develops through instruction, demonstration, and practice over an

extended period (Yan, 2017). The following section introduces the foundations of self-regulated learning instruction.

Self-Regulated Learning Instruction

Self-regulated learning is both a teachable and learnable competency (Johnson, 2002; Zimmerman, 2000). SRL instruction develops proficiency in assessing requirements, establishing goals, and adapting performance to accomplish a task (De Smul, Heirweg, Van Keer, & Vandevelde, 2018; Harding et al., 2018). According to Zimmerman (2000), SRL instruction is effective across the entire life-span. SRL instruction aligns closely with three adult learning or andragogy principals (Knowles, 1989). The first andragogy principal is that instruction must focus on the learner's needs and interests (Knowles, 1989). SRL instruction like andragogy places priority on the act of learning instead of the act teaching (Harding et al., 2018; Yan, 2017). The second andragogy principal for successful learning requires individuals to be self-directed and internally motivated. Finally, the third andragogy principal states that the learner, not the teacher, is the process owner (Knowles, 1989). The teacher serves as a facilitator and mentor to assist learners as they acquire new knowledge and skills.

SRL instruction requires learners to be proactive throughout the entire learning process (Ormrod, 2003). According to Yan (2016), SRL instruction prepares learners to seek performance feedback and perform frequent self-assessments. SRL instruction incorporates self-awareness, goal setting, and self-monitoring activities to enhance learning performance (Paris & Winograd, 2001; Yan, 2017). SRL instruction also fosters meta-cognitive, strategy selection, and intrinsic motivation competencies (James & McCormick, 2009). Using SRL instructional activities, learners explore, identify, and

practice using various learning styles (Harding et al., 2018; Johnson, 2002). SRL instruction also develops self-confidence to off-set feelings of apathy and avoidance often associated with learning (Garner, 2009). Furthermore, SRL instruction takes into consideration how learners' home environment and social networks influence learning effectiveness (Paris & Paris, 2001).

Meta-cognition, intrinsic motivation, and goal setting are vital components of SRL instruction (Dignath-van Ewijk, 2016). Meta-cognition allows learners to monitor and adjust performance to reach desired learning objectives (Dignath-van Ewijk & Van der Werf, 2012). SRL instruction teaches metacognitive evaluation of one's own thinking (Kellough, Kellough, Williams, & Dunn, 2003). Metacognitive evaluation is the ability to assess one's current knowledge, identify possible learning barriers, and perform cognitive self-appraisals (Paris & Winograd, 2001). Furthermore, intrinsic motivation is an essential psychological component required to persist toward challenging learning goals (Dignath-van Ewijk & Van der Werf, 2012). SRL instruction helps learners examine and regulate intrinsic motivational levels (Dembo & Seli, 2008; Kaplan, 2008). Additionally, SRL instruction helps learners master the process of setting learning goals, establishing action plans, and monitoring progress toward goals (Paris & Paris, 2001; Paris & Winograd, 2001).

SRL instruction invokes the necessary physiological responses in learners to facilitate higher-order learning (Paul & Elder, 2018). This requires connecting new knowledge content to each learner's interests and goals (Anderman & Maehr, 1994). However, because of its complexity, SRL instructional success requires commitment and practice for effective utilization (Vandevelde, Vandenbussche, & Van Keer, 2012).

Additionally, self-regulated instruction demands teachers embrace non-traditional teaching methods (Thompson, 2013). Furthermore, SRL instruction requires teachers to give learners more responsibility in defining learning objectives, methods, and performance outcomes (Harding et al., 2018; Lajoie, 2008). Consequently, teachers play a critical role in the use of SRL instruction.

Teachers' Role in Developing Self-Regulated Learners

According to Avolio (1999), teachers are the second most important influencers in society, ranking just behind that of parents. Specifically, teachers play a crucial role in cultivating critical self-regulated learning competencies required in today's advanced work environments (Dignath-van Ewijk, 2016). Self-regulated learners are proficient at continuous learning, allowing them to keep pace with rapidly changing knowledge and skill requirements (Yan, 2017). However, preparing self-regulated learners requires individuals capable of modeling and teaching SRL concepts (Davis & Neitzel, 2011; Harding et al., 2018). Because of the workforce impact, variables influencing teachers' decisions to use or not use SRL instruction are relevant to human capital development research (Yan, 2017). Whether in the classroom or workplace, SRL instruction shifts responsibility for learning outcomes from teachers to learners (Knowles, 1989; Yan, 2017). Consequently, learners must take active versus passive ownership in the entire learning process (Harding et al., 2018; Yan, 2017). In this new learning paradigm, teachers become coaches, facilitators, and mentors; not simply dispensers of knowledge. In their new role, educators assist and encourage learners in their individual pursuit of new knowledge (Boekaerts, 1999). Therefore, SRL instructional activities require adaptability to accommodate different learning styles (Kaplan, 2008). These learning

tasks bridge the gap between new information and real-world application (Sears, 2003). The following sections will briefly discuss potential relationships of teacher subject area, teacher beliefs, and teacher efficacy on SRL instruction.

Teacher Subject Area and SRL Instruction

Teachers influence students' classroom engagement and depth of learning through their demonstrated passion, knowledge, and subject area expertise (Ball & McDiarmid, 1990). *Teacher subject area* refers to a specific knowledge domain where educators possess specialized instructional training and expertise (Edglossary, 2019). The term, *teacher content area*, is often synonymous with teacher subject area. The most common teacher subject areas found in public schools are language arts, mathematics, science, and social studies (Edglossary, 2019). According to Ball and McDiarmid (1990), teacher subject area is a critical aspect of overall teacher knowledge. A teacher's proficiency in their subject area helps learners see important relationships that exist between academic content and relevant, real-world applications (Johnson, 2002). Furthermore, teachers' subject area expertise ensures effective questioning, idea re-enforcement, and the assignment of appropriate learning activities (Harding et al., 2018). Teachers who possess an extensive understanding of their subject area are also willing to use more complex instructional strategies and allow more student participation in the learning process (Baumert & Kunter, 2013). Though limited, there is some published research that connects teacher subject area with the use of SRL instruction.

According to Fauzi and Widjajanti (2018), educators use of SRL instruction is higher in math classes than in other teacher subject areas. Chatzistamatiou, Dermitzaki, and Bagiatis (2013), discovered that math teachers tend to use instructional strategies that

facilitates self-directed learning and creative problem solving. Furthermore, Chatzistamatiou et al. (2013) found that the use of SRL instruction increases when teachers value, enjoy, and are committed to their subject area. Teachers' beliefs for or against the subject area impact instructional choices and student learning outcomes. The following section will elaborate on the construct of teacher beliefs and possible links to the use of SRL instruction.

Teacher Beliefs and SRL Instruction

Teacher beliefs forged through professional development, life experiences, and environmental factors influence instructional behavior (Baumert & Kunter, 2013). Lombaerts, De Backer, Engels, Van Braak, and Athanasou (2009), discovered that teachers with positive beliefs regarding self-regulated learning were more likely to utilize SRL instruction in the classroom than those with negative or neutral beliefs. Furthermore, research indicates that teacher beliefs influence SRL instruction more than environmental factors such as leadership priorities or organizational culture (Lombaerts et al., 2009; Yan, 2017).

Self-regulated learning instructional success begins with supportive teacher beliefs (Yan, 2017). In Hong Kong, Yan (2017) found a relationship between supportive teacher beliefs and SRL instruction. Additionally, Yan (2017) discovered that positive SRL beliefs form relatively easily. One approach includes informing teachers about actual performance improvements realized by using SRL instruction (Lombaerts et al., 2009). Furthermore, Dix (2009) found that teachers who received SRL instructional training in pre-service programs were more likely to use it in actual classrooms. However, even when favorable beliefs exist, educators may not choose to use SRL

instruction (Spruce & Bol, 2015). Lau (2013) discovered that some teachers believe self-regulated learning is valuable; however, they lack confidence in learners' ability to comprehend and utilize SRL strategies.

Institutional policies and organizational leaders may circumvent teacher SRL beliefs. If the employing school district emphasizes test prep over long-term learning, educators may abandon their beliefs supporting self-regulated learning (Davis & Neitzel, 2011). The relationship between teacher beliefs and SRL instruction is complex and requires further examination (Spruce & Bol, 2015). Researchers have also discovered that teacher self-efficacy influences instructional choices (Tschannen-Moran & Woolfolk Hoy, 2001).

Teacher Efficacy and SRL Instruction

Teacher efficacy is an educator's belief that they can successfully engage students in the process of learning (Tschannen-Moran & Woolfolk Hoy, 2001). According to Skaalvik and Skaalvik (2010), teacher efficacy plays three key roles in classroom instruction. First, teacher efficacy levels influence teachers' emotions in the classroom. High teacher efficacy drives positive emotions and increased career satisfaction. Whereas, lower teacher efficacy drives negative emotions and contributes to accelerated classroom burnout (Skaalvik & Skaalvik, 2010). Second, teacher efficacy relates to instructional behavior and classroom creativity (Bandura, 1997). Third, teacher efficacy influences overall student learning outcomes (Tschannen-Moran & Woolfolk Hoy, 2001). According to Bandura (1997), educators possessing positive teacher efficacy levels are more effective in helping individuals learn, especially those with learning disabilities.

SRL instruction requires educators to move beyond traditional teaching practices (Ertmer, 2005). Self-regulated learning instruction is a multi-faceted, student-centered instructional strategy. This advanced instructional technique demands proficiency before implementation (Hoidn, 2017). According to Tschannen-Moran & Woolfolk Hoy (2001), educators who possess higher teacher efficacy are more apt to utilize advanced instructional techniques. However, school leadership, collegial support, and the availability of resources may influence teacher efficacy levels (Skaalvik & Skaalvik, 2010; Tschannen-Moran & Woolfolk Hoy, 2001). Teacher subject area, teacher beliefs, and teacher efficacy are measurable constructs (Yan, 2017). Research findings indicate that these three teacher variables may influence the selection and use of instructional strategies in the classroom (Yan, 2017). According to Ross (1992), survey instruments can assess instructional propensities and explain classroom behavior. The next section will further outline the research problem addressed by this study.

Statement of the Problem

SRL instruction cultivates the intellect, motivation, and self-control required for deep learning and knowledge retention (Fauzi & Widjajanti, 2018). Utilizing SRL instruction, teachers prepare students to plan, monitor and adapt performance to achieve established learning goals (Moos & Ringdal, 2012; Zimmerman, 2000). Additionally, with SRL instruction, teachers learn, practice, and enhance instructional behaviors (Bembenutty, White, & Vélez, 2015). SRL instruction increases teacher self-efficacy, independence, and proficiency in employing complex instructional strategies. Despite these substantial benefits, teachers rarely use SRL instruction in the classroom (Bembenutty et al., 2015; Yan, 2017).

Purpose of the Study

Organizations and its employees must continually learn to successfully compete in highly dynamic, data-intensive environments (Belasco & Stayer, 1993; Senge, 2006). SRL instruction prepares individuals to plan, monitor, and adapt learning performance to achieve learning goals (Yan, 2017; Zimmerman, 2000). This study examines the influence of teacher-specific variables on the use of SRL instruction. Teacher-specific variables for this research project include teacher subject area, teacher beliefs, and teacher efficacy. This research project attempted to identify which, if any, of these three variables impact teachers' decision to use or not use self-regulated learning instruction.

Research Question and Objectives

The research question for this study is; What are the individual and combined relationships that exist between teacher subject area, teacher beliefs, teacher efficacy, and the use of SRL instruction? Based upon the research question above, the following objectives guided the actions taken in this study:

RO1 – Describe participants' age range, gender, grade level, subject area taught, and teaching experience.

RO2 – Determine the relationship between teacher subject area and the use of SRL instruction.

RO3 – Determine the relationship between teacher beliefs regarding self-regulated learning and the use of SRL instruction.

RO4 – Determine the relationship between teacher efficacy and the use of SRL instruction.

RO5 – Determine the relationship between teacher beliefs, teacher efficacy, and the use of SRL instruction.

Theoretical Framework

Four principal theories form the foundation for this study's theoretical framework. The first perspective is *human resource development theory*. According to Swanson and Holton (2009), human resource development theory involves the deliberate human capital development strategies required to help individuals reach their full potential in the workplace. Teacher beliefs impact human capital development through educators' choice of pedagogical strategies (Tschannen-Moran & Woolfolk Hoy, 2001). The second perspective is *self-efficacy theory*. Self-efficacy theory is the belief in one's own abilities to accomplish a task or reach a goal (Bandura, 1997). According to this theory, four primary factors influence self-efficacy (Bandura, 1977). These factors include prior outcomes, internal locus of control, vicarious modeling, and external encouragement (Bandura, 1977). The third perspective is *self-regulated learning theory*. According to SRL theory, individuals must be active participants in the learning process (Davis & Neitzel, 2011). Additionally, learners must take ownership in defining performance outcomes (Chatzistamatiou et al., 2013). SRL theory calls for learners to plan, monitor, adjust, and examine their learning efforts (Zimmerman, 2000). SRL theory implies that self-regulated learning is a learnable and teachable competency. The fourth perspective used to develop this theoretical framework is *social cognitive theory*. Social cognitive theory argues that humans learn principally through observing and interacting with others (Bandura, 1977). Figure 1 depicts this study's theoretical framework.

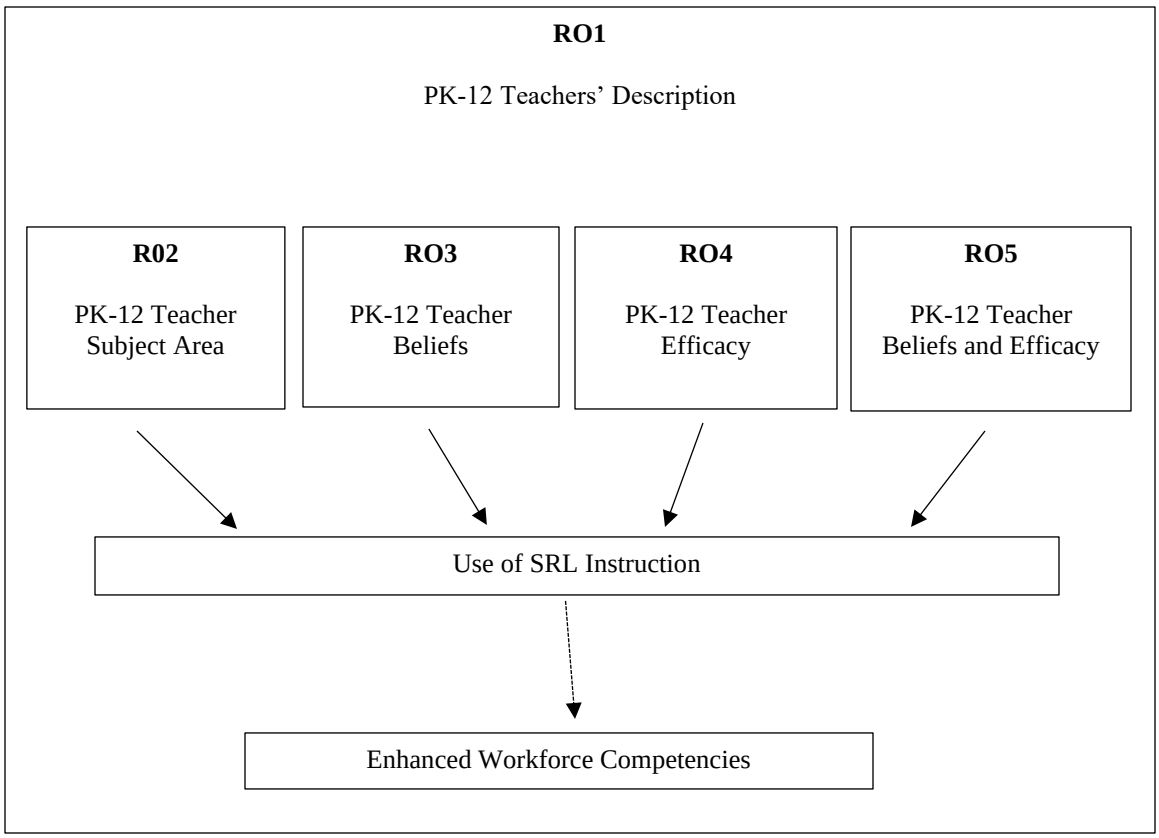

Figure 1. Teacher Variables Influencing SRL Instruction

Significance of the Study

Continuous performance improvement is essential if organizations are to survive in today's highly competitive global markets (Senge, 2006). Employees must be able to learn new knowledge and skills in a rapid and self-directed manner (Clifton, 2011; Senge, 2006). According to Zimmerman (2000), self-regulated learners are skilled in planning, monitoring, and adapting performance to reach learning objectives. Self-regulated learning (SRL) instruction develops these high-level learning competencies (Yan, 2017). SRL instruction is learner-centric, contextually-based, and effective across the entire life span (Knowles, 1989). By using SRL instruction, teachers and trainers prepare individuals to learn, unlearn, and relearn new competencies as necessary. However, SRL

instruction is complex and requires an active commitment and dedicated practice to implement properly (Dignath-van Ewijk, 2016).

Teachers' and trainers' decision to use or not use SRL instruction ultimately impacts the availability of proficient self-regulated learners in the workforce (Dignath-van Ewijk, 2016). Yan (2017) reports teacher-specific variables can impact the decision to implement SRL instruction. Therefore, this study examined the influence of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. Potential benefactors of this study are learners, teachers, school administrators, and employers (Johnson, 2002; Moretti, 2012; Trilling & Fadel, 2009). Findings from this project may contribute to human capital research focused on developing academic teachers and workforce trainers. The next section addresses delimitations imposed on this study.

Delimitations

Delimitations are restrictions or boundaries imposed by the researcher on a study (Creswell, 2009). These limitations may influence such areas as the research questions, research objectives, variables chosen, and the population of interest. Research involving self-regulated learning spans multiple contexts (Spruce & Bol, 2015). A review of the literature indicates that SRL research often focuses on students, administrators, or school environments. However, there is limited research examining the impact of teachers on SRL instruction. Therefore, this study examined the influence of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction in one PK-12 public-school district located in the United States. Because this study focused on a single public-school district in only one state, it lacks generalizability to other public or private school districts. Finally, this research project used only quantitative methods to collect

and analyze data. According to the literature, a mixed-methods approach may provide a deeper understanding of relationships between teacher-specific characteristics and SRL instruction (Dignath-van Ewijk, 2016; Yan, 2017). The following section will address assumptions for this study.

Assumptions

According to Creswell (2009), assumptions are typically elements that are beyond the researcher's span of control. In this study, the first assumption was that participants answered all survey questions accurately. The second assumption was that participants closely resembled the overall teacher population in the school district examined. Finally, the third assumption was that participants had a foundational understanding of SRL instruction from their pre-service or in-service training.

Definition of Key Terms

The key terms that were important in this research project include the following:

1. *Self-Regulated Learning* – A self-governing approach to education that permits individuals to make choices and take ownership for their learning outcomes. SRL allows the learner to ask questions, explore, and experiment to accomplish a task. SRL instruction may occur individually or in groups (Johnson, 2002).
2. *SRL Instruction* – Activities that give students an opportunity to make choices and take ownership for their learning outcomes (Dembo & Seli, 2008).
3. *Teacher Beliefs* – Beliefs regarding learning and educational strategies forged by professional development, personal values, past experiences, motivation, and environmental factors that influence classroom instruction (Baumert & Kunter, 2013).

4. *Teacher Demographics* – Teacher characteristics such as age, gender, grade level, subject area, and teaching experience (Lombaerts et al., 2009).

5. *Teacher Efficacy* – An educator's belief that they can successfully engage students in the process of learning (Tschannen-Moran & Woolfolk Hoy, 2001).

6. *Teacher Subject Area* – refers to a specific knowledge domain where educators possess specialized instructional training and expertise (Edglossary, 2019). The term, *teacher content area*, is often synonymous with teacher subject area. The most common teacher subject areas found in public schools are language arts, mathematics, science, and social studies (Edglossary, 2019).

Summary

This study examined the relationship of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. The purpose of Chapter One was to introduce the reader to the research topic and provide preliminary background information. Additionally, this introductory chapter outlined the problem and purpose statements of this research project. Finally, this chapter described the study's research questions, research objectives, conceptual framework, and significance of the entire project. Chapter Two provides a review of the literature relating to foundational theories, key constructs, teacher-specific variables, and self-regulated learning instructional practices. Chapter Three describes the methodology, sampling approach, and data analysis procedures employed in this research study. Chapter Four reports the statistical analysis and findings obtained from the data collected in this study. Chapter Five summarizes the study's overall results, limitations, and research opportunities for the future.

CHAPTER II – LITERATURE REVIEW

Highly innovative environments demand rapid acquisition of information and skills (Clifton, 2011; Johnson, 2002;). This requirement is true for both organizations and individuals (Senge, 2006). Belasco and Stayer (1993) stated, "Success has always depended upon learning, but in the past the change was slower, so we could take longer to learn…as the pace of change quickens, the race belongs to the swiftest learner" (p. 81). Cultivating self-regulated learners in the classroom or workplace requires learner-centric strategies capable of connecting new knowledge with real-world opportunities (Hoidn, 2017; Johnson, 2002). This is the primary objective of the Contextual Teaching and Learning (CTL) system (Johnson, 2002). However, the CTL system is ineffective without competent teachers and trainers to deliver learning instruction to individuals of all ages. Therefore, this literature review begins with a brief discussion of the CTL system. The remainder of the chapter focuses on the self-regulated learning component of CTL. Specifically, this research endeavor focused on three specific teacher variables that may influence the use of SRL instruction. These variables include teacher subject area, teacher beliefs, and teacher efficacy.

Contextual Teaching and Learning System

The Contextual Teaching and Learning (CTL) system is composed of eight inter-related components (Johnson, 2002). The components work together as an instructional system designed to enhance learning engagement, cognitive performance, and develop critical workforce competencies (Berns & Erickson, 2001). According to Johnson (2002), the CTL system addresses learning requirements at the individual level. Figure 2 illustrates how the eight components flow together into one cohesive instructional

system. Properly employed, the CTL system helps individuals learn more effectively (Johnson, 2002).

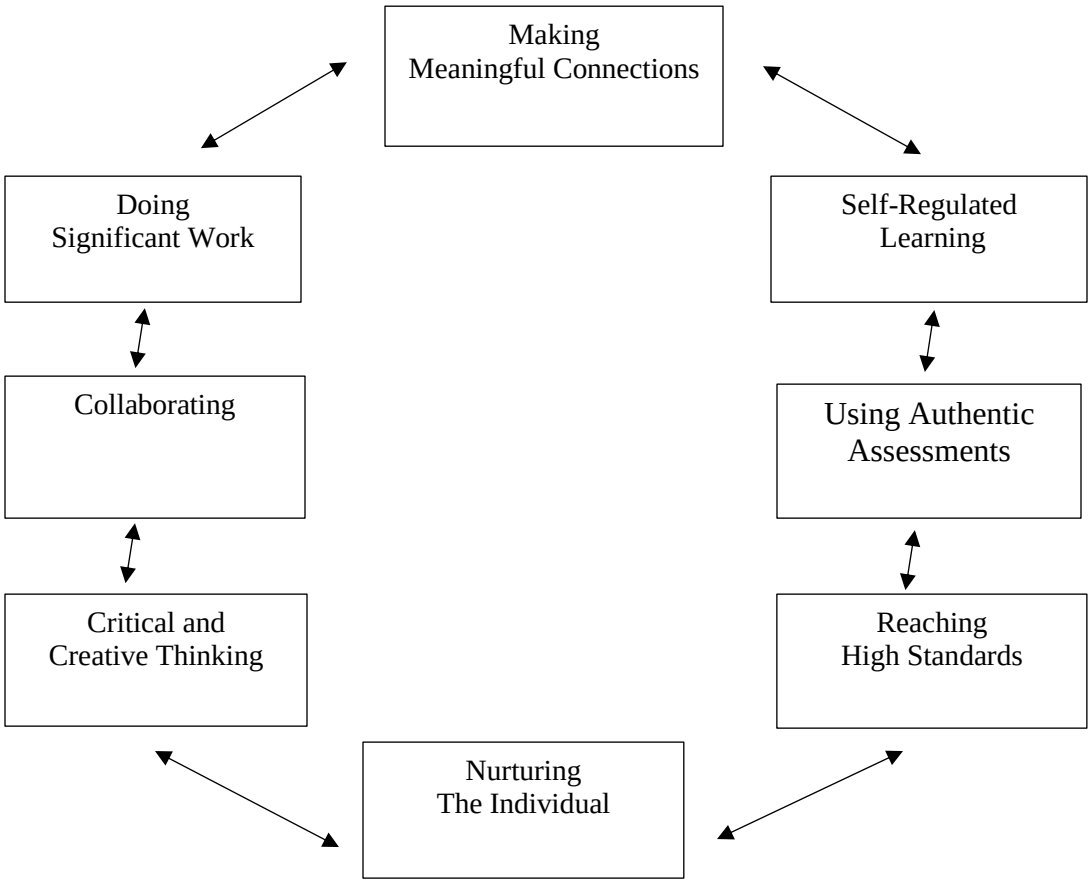

Figure 2. Contextual Teaching and Learning Model

The first component of the CTL system requires meaningful connections between new knowledge and the learner's current reality (Johnson, 2002). Connecting learning requirements with personal interests and life experiences establishes relevance, meaning, and purpose. Relevance, meaning, and purpose increases motivation to learn new information. Therefore, teachers must carefully consider learners' current knowledge level, interests, and life experiences when selecting instructional strategies to deliver new information.

The second component of the CTL system is doing significant work. An educator must develop inspirational lessons and learning activities that correlates to the real-world. Learning outcomes must matter beyond the classroom or workplace. Additionally, learners must be involved in all aspects of planning and developing learning assignments and assessments (Johnson, 2002).

The third component of the CTL system is collaborating. Collaboration helps develop a sense of community and shared purpose among learners whether it be in academics or the workforce (Johnson, 2002). Group learning assignments help nurture accountability, networking, and pro-social behavior. Collaboration skills are critical for success in today's highly diverse, team-oriented environments (Thompson, 2013).

The fourth component of the CTL system is critical and creative thinking. Applying academic content to real-world problems in the learner's community cultivates critical thinking skills (Johnson, 2002). Higher order thinking is the ability to think rationally, examine facts, and work through problems logically (Davidson & Sternberg, 2003). This cognitive understanding is essential for scientific inquiry, decision making, and problem solving in high-tech industries. Critical thinkers examine problems systematically, ask probing questions, and arrive at sound conclusions. Critical thinkers are also able to objectively evaluate the assumptions and logic of others as well (Flavell, Miller, & Miller, 2002). The CTL system cultivates creativity through questioning, brain storming, risk taking, and developing trust (Haddad, 2001).

The fifth component of the CTL system is nurturing the individual. Individuals differ in genetics, personality types, life experiences, and learning styles. Instruction

should be adapted to fit the unique requirements of the learner. One size-fits-all teaching and learning strategies are minimally effective (Johnson, 2002).

The sixth component of the CTL system is helping learners reach high standards. According to Johnson (2002), teachers establish high standards by setting challenging but achievable learning goals. Additionally, consistent learning routines create a structure for learning. However, learning routines should not impede creativity and out of the box thinking (Sears, 2003).

The seventh component of the CTL system involves the use of authentic assessments to accurately evaluate learning. Authentic assessments measure the quality, depth, and usability of new information (Davis & Neitzel, 2011). Additionally, they assess knowledge construction, depth of inquiry, and knowledge application against real-world requirements (Trilling & Fadel, 2009). Furthermore, authentic assessments examine the ability to synthesize data, think critically, and solve complex problems. Authentic assessments probe into how learners think, not just what they remember (Paul & Elder, 2018). These instruments help learners realize their true level of comprehension and highlight gaps in learning (Hoidn, 2017). Furthermore, authentic assessments psychologically engage learners by incorporating interesting subject matter (Ormrod, 2003). Consequently, authentic assessments become a continuation of learning, not simply summative activities. Because authentic assessments measure overall instructional and learning effectiveness, both the teacher and the learner are involved in the development process (Baker et al., 2009).

The eighth and final component of the CTL system is self-regulated learning. Self-regulated learning (SRL) is active, independent inquiry that connects academics and

the real world in a meaningful and purposeful manner (Spruce & Bol, 2015). SRL enhances self-efficacy, goal obtainment, knowledge retention, and encourages life-long learning (Dembo & Seli, 2008). Self-regulated learning also plays a crucial role in developing a self-directed workforce (Johnson, 2002; Trilling & Fadel, 2009). According to Van Tiem, Moseley, and Dessinger (2012), "Self-directed learning is critical for success in higher education, in organizational learning, and in selecting, training, and retaining adults who are savvy in the interactive technologies" (p. 261). Additionally, Van Tiem et al. (2012) state, "A self-directed individual is one who is motivated to fulfill the demands of the work that is required, responsible to follow through when the going gets tough, trustworthy in a collaborative posture with peers, clients, and variable stakeholders, and accountable for his or her actions" (p. 261). These competencies align near perfectly with the fundamentals of self-regulated learning (Zimmerman, 2000).

Self-Regulated Learning

Self-regulated learning (SRL) is an active, learner-centric approach that connects new content with real world context in a relevant, purposeful manner (Yan, 2017; Zimmerman, 2000). Additionally, SRL is a passion for new knowledge that yields incremental cognitive gains across one's entire life (Baker et al., 2009; Boekaerts, 1999). Life experiences, current knowledge, and future aspirations are significant drivers leading to SRL competency (Paris & Paris, 2001; Paris & Winograd, 2001). Therefore, SRL proficiency develops from differentiated instruction aligning with one's preferred learning style (James & McCormick, 2009; Spruce & Bol, 2015). SRL is a construct that has emerged from research performed in cognitive science, education, and psychology (Boekaerts, 1999).

Foundations of Self-Regulated Learning

Self-regulated learning began to emerge in the field of education in the late 1990s (Sears, 2003). SRL arose from research that discovered that students who had more input into their learning activities, demonstrated higher levels of engagement and knowledge retention (Paris & Winograd, 2001). SRL requires students and teachers be involved in defining learning objectives, classroom activities, and performance outcomes (Zimmerman, 2000). SRL pedagogy is rooted deeply in constructivism where the learner's personal experiences, home environment, and life goals impact learning effectiveness (Dignath-van Ewijk & Van der Werf, 2012; Ormrod, 2003). According to Bandura (1986), self-regulation is the product of self-awareness, self-monitoring, and self-control (Dignath-van Ewijk & Van der Werf, 2012). Therefore, these self-competencies are essential components of SRL theory and the SRL model (Chatzistamatiou et al., 2013; Zimmerman, 2000).

The SRL model includes three phases: planning, practice, and evaluation (Chatzistamatiou et al., 2013). Each phase of the model requires monitoring and assessment of incremental learning performance (Dix, 2009). In the planning phase, the learner identifies and evaluates the learning task at hand. Next, the learner selects the appropriate learning strategy required to achieve the desired goal (Zimmerman, 2000). In the practice phase, learners implement the strategy selected and make performance corrections along the way to the intended goal (Hoidn, 2017). Finally, in the evaluation phase, learners assess the overall effectiveness of previous performance outcomes. Learners then adjust future strategies based upon findings derived from these performance reviews (Zimmerman, 2000).

SRL competency develops through study, practice, and a commitment to cognitive mastery (Davis & Neitzel, 2011). According to self-regulated learning theory, learners must harness their unique cognitive abilities to achieve specific learning goals (Zimmerman, 2000). Additionally, SRL requires individuals to assess and deploy the strategy best suited for that specific learning task and environment (Garner, 2009). Likewise, self-regulated learners must be intrinsically motivated to be successful (Bandura, 1986). Persistence to accomplish one's goals must come from within, especially when faced with adversity or set-back (Avolio & Luthans, 2006; Bandura, 1977). Furthermore, self-regulated learners must be proficient at goal-setting and creating comprehensive plans to accomplish learning goals (Bandura, 1986; Bandura, 1997; Zimmerman, 2000). Skilled self-regulated learners monitor and adjust their learning performance as necessary. Finally, self-regulated learners adapt their learning strategies based upon performance assessments to enhance future results (Davis & Neitzel, 2011).

Self-Regulated Learning Model

Zimmerman's (2000) cyclical SRL model includes three phases: forethought, performance, and self-reflection. Learners must master each SRL phase to maximize learning performance outcomes (Dembo & Seli, 2008). The forethought phase includes all pre-planning activities required before beginning a learning task (Zimmerman, 2000). The objective of the forethought phase is to think clearly and logically through all task requirements before taking any action (Boekaerts, 1999). The forethought phase involves the meta-cognitive processes of task analysis, goal setting, and strategic planning (Campbell et al., 2005). Additionally, in the forethought phase, learners must seek

internal motivation by connecting the learning goal to their interests, values, and talents (Boekaerts, 1999). The performance phase includes all actions required while actively pursuing one's learning goal (Zimmerman, 2000). This phase puts into motion all the meta-cognitive and behavioral strategies identified during the forethought phase. These strategies help the learner maintain focus, monitor progress, and persist when faced with challenges while striving toward their learning goal (Dignath-van Ewijk, 2016). Finally, the self-reflection phase takes place after achieving one's learning goal (Dembo & Seli, 2008). The self-reflection phase includes a detailed self-assessment and reflection of one's performance (Davidson & Sternberg, 2003). The after-action review also involves an analysis of one's emotions and motivational levels encountered while pursuing the learning objective (Yan, 2016).

Self-Regulated Learning Proficiency

Self-regulated learners must become proficient at selecting and using different learning strategies to accomplish their goals (Paris & Winograd, 2001). Furthermore, SRL requires intense focus and the ability to adapt thinking to meet changing requirements (Gunaratana, 2002). According to Paris and Winograd (2001), selecting the appropriate learning strategy requires three specific actions. The first action is to comprehend the different types of learning strategies (Zimmerman, 2000). The second action is the ability to select the best learning strategy for a given set of conditions (Usta & Bozpolat, 2014). Finally, the third action is the ability to properly utilize various learning strategies. Self-regulated learners are strategic in their actions, they carefully evaluate the task before selecting a learning strategy (Steinbach & Stoeger, 2016b). After deciding on a strategy, self-regulated learners summon and maintain the necessary

motivation to reach their goal (Vandevelde et al., 2012). Self-regulated learning proficiency resembles that of being a martial arts' black belt. Black belts have in-depth knowledge and competency in various self-defense techniques (Morgan, 1992). This allows the martial artist to effectively evaluate a given threat situation, then select and execute the appropriate self-defense strategy required for success (Morgan, 1992).

Learning can be challenging, frustrating, and sometimes even physically painful (Dembo & Seli, 2008). Therefore, self-motivation is an essential element for successful SRL (Paris & Paris, 2001). Self-motivation is the inner spark required to undertake and complete a very challenging task (Dignath-van Ewijk & Van der Werf, 2012). Therefore, self-regulated learners must become skilled at monitoring and controlling their thoughts, feelings, and actions when pursuing learning goals (Dignath-van Ewijk & Van der Werf, 2012). According to Bandura (1986), the constructs of learning and motivation are highly inter-connected. Motivation stimulates the desire and energy to pursue a goal. Furthermore, motivation involves an interaction of conscious and unconscious physiological factors (Brewer & Hewstone, 2004). These motivational factors include an intensity of desire, the reward for action, and self-efficacy regarding the task (Ormrod, 2003). These various elements combine to influence both behavior and persistence toward a goal (Brewer & Hewstone, 2004). An example of self-motivation would be a student who spends extra time studying for an exam because they want to earn a high grade in their class (Kelly, 2004). Self-motivation helps learners persist when faced with difficult decisions and unexpected obstacles (Eliot, 2006). The next three sections will examine teacher-specific variables that may influence or predict SRL instruction. These variables include teacher subject area, teacher beliefs, and teacher efficacy (Yan, 2017).

Teacher Subject Area

Rapid change, fueled by technological advances and globalization demands a new approach to teaching and learning (Clifton, 2011; Harding et al., 2018; Yan, 2017). Consequently, advanced instructional strategies that focus on holistic learning processes are necessary to cultivate adaptive problem solvers (Senge, 2006; Harding et al., 2018). According to Van Tiem et al., (2012),

> The future role of the educator will include many new aspects, such as individualized and customizing learning, virtual and physical learning, nonlinear and collaborative, problem-based learning, discovery learning that engages the whole mind, and more emphasis on multimedia and technology. (p. 34)

However, many educators today have not embraced the integrated teaching approach outlined above. Consequently, many students see class assignments as purely mundane tasks that have no real value outside of school (Trilling & Fadel, 2009). Students are unable to understand how learning subject area information can benefit them in the future (Ormrod, 2003). The common *so what* question posed by students is often due to a teacher's inability to connect subject area content to real-world requirements (Johnson, 2002; Yan, 2017). Furthermore, some subject area teachers may have difficulty linking subject area curriculum to their students' current knowledge levels and everyday life experiences (Dignath-van Ewijk, 2016).

Teacher subject area, or teacher content area, is a specific area of knowledge or skill (Edglossary, 2019). Teacher subject areas often refer to various course offerings such as language arts, mathematics, science, and social studies (Yan, 2017). According to Ball and McDiarmid (1990), teacher subject area knowledge is essential for effective

student learning. Teacher subject area expertise helps learners build a bridge between academic content and why the information is personally relevant (Johnson, 2002; Thompson, 2013). Furthermore, teachers' expertise and passion for a subject area generates excitement, interest, and intrinsic motivation in students (Harding et al., 2018). However, despite the importance of subject area understanding, pre-service teachers take very few content specific classes while attending college (Ball and McDiarmid, 1990).

In the United States, most teacher trainees take most of their coursework in liberal arts, not in education (Ball & McDiarmid, 1990). For high school teachers, it is common for education majors to take relatively few classes in their specific subject area (Finegold et al., 2010). Likewise, elementary pre-service teachers take limited introductory courses in subject areas such as art, history, languages, math, and science (Ball & McDiarmid, 1990; Thompson, 2013). Furthermore, due to growing workforce shortages, teachers frequently instruct subjects outside of their area of specialization (Johnson, 2002; Thompson, 2013). Consequently, teachers must rely on knowledge acquired while attending elementary, middle, and high school (Ball & McDiarmid, 1990). Limited subject area knowledge and practical experience negatively impact teachers' instructional choices and classroom performance (Chatzistamatiou et al., 2013).

Teachers utilize advanced instructional strategies such as SRL instruction when they possess a deep understanding and appreciation for their subject area. Chatzistamatiou et al. (2013) discovered that top-performing math teachers use SRL instruction more often than lower-performing math teachers. Furthermore, when teachers lack subject area experience, teachers constrain learning opportunities by using primarily lecture-based instruction (Chatzistamatiou et al., 2013). These instructional choices

reduce students' ability to connect personal experiences, current knowledge, or future goals with subject area lessons. Teacher-led versus student-led instruction also limits the chance for students to collaborate and learn from each other (Johnson, 2002). Consequently, many students graduate high school with limited subject area expertise and even less skill in linking subject area concepts with career and life requirements (Ball & McDiarmid, 1990; Trilling & Fadel, 2009). The next section examines the definition, formation, and impact of teacher beliefs on instructional choices and classroom behavior.

Teacher Beliefs

Beliefs are highly personalized perspectives and reside in a person's inner-most consciousness (Farr, 1998; Steinbach & Stoeger, 2016b). Beliefs shape one's perception of reality and serve as lens for interpreting people and situations (Avolio, 1999). Beliefs are extremely powerful influencers in a person's life. However, a person may not fully understand their belief system (Bandura, 1986). According to Cashman (2008), the holder recognizes conscious beliefs, but shadow beliefs are unexamined or purposefully avoided. Whether understood or not, beliefs are powerful determinants of one's thoughts, motivations, and actions (Avolio, 2005; Brewer & Hewstone, 2004).

Power of Beliefs

Beliefs have the power to expand or contract a person's awareness, understanding, and accomplishments (Cashman, 2008). Locus of control beliefs explain one's ability to influence performance outcomes (Luthans, 2008). Individuals who possess an internal locus of control believe they can control outcomes based upon their abilities, efforts, and skills. However, individuals with an external locus of control feel performance results depend on luck or the efforts of others (Luthans, 2008). Locus of

control beliefs impact one's motivation to undertake, persist, and complete difficult tasks (Bass, 1990). Furthermore, locus of control beliefs influence stress levels and strategic decision-making abilities (Luthans, 2008). When it comes to the realm of education, teachers are not immune to beliefs' powerful influences (Pajares, 1992).

Cultivating Teacher Beliefs

Teacher knowledge generally develops from the acquisition of facts and from objective reasoning (Pajares, 1992). However, teacher beliefs develop from subjective experiences and goals that vary from educator to educator (Avolio & Luthans, 2006; Baumert & Kunter, 2013; Fenstermacher, 1994). Research indicates that beliefs cultivated early in teacher preparation may influence instructional decisions and classroom behavior across an entire career (Dignath-van Ewijk, 2016; Schraw, Crippen, & Hartley, 2006). Specifically, post-secondary education programs play a significant role in shaping teacher beliefs (Dignath-van Ewijk, 2016). University and college education curriculums teach pedagogical knowledge, content knowledge, and pedagogical content knowledge to aspiring educators (Shulman, 1986). Pedagogical knowledge is the understanding of how to teach. Content knowledge is the understanding of what to teach (Ormrod, 2003). Pedagogical content knowledge is the understanding of various instructional strategies to deliver content knowledge (Dignath-van Ewijk & Van der Werf, 2012).

According to Kellough et al. (2003), there are two competing worldviews when it comes to teaching pedagogical knowledge. The first worldview is a traditional or direct instructional approach that is teacher-centered. The second worldview is a constructivist or direct experiencing that is student-centered (Kellough et al., 2003). The traditional

worldview argues that learning is dependent primarily on sensory experiences such as observing and listening (Kellough et al., 2003; Ormrod, 2003). The constructivist worldview argues that learning comes from a combination of one's environment, experiences, and current knowledge (Ormrod, 2003). Depending on an institution's pedagogical worldview, student-teacher beliefs germinate and take root over time (Dignath-van Ewijk & Van der Werf, 2012).

Beliefs Drive Instruction

Upstream instructional choices influence and shape future workforce readiness (Ajzen, 1991; Ertmer, 2005). According to Pajares (1992), teacher beliefs effect instructional strategies, academic content, and student activities. Because beliefs and emotions closely align, educators may succumb to traps such as confirmation bias when making instructional decisions (Goleman, Boyatzis, & McKee, 2002; Shafir, 1993). Confirmation bias is the tendency to search for only information that affirms one's beliefs, at the expense of other evidence (Hammond, Keeney, & Raiffa, 2011). According to Hammond et al. (2011), there are two very powerful psychological forces associated with confirmation bias and decision making. The first psychological force is the tendency to subconsciously decide what action to take before determining why to take that action. The second psychological force is the tendency to choose easy versus difficult pathways when making decisions (Gary, 2006; Hammond et al., 2011). These psychological forces hold true in the classroom as well. Educators often make decisions regarding teaching strategies and curriculum activities based upon ease of implementation versus learning effectiveness (Pajares, 1992).

Teacher beliefs established early in one's career may lead to instructional avoidance or biases later in life (Shulman, 1986). The strength of teacher beliefs may even over-ride school policies that mandate the use of alternative teaching methods (Spruce & Bol, 2015). Therefore, policy makers and school leaders should thoroughly understand existing teacher beliefs before directing implementation of new instructional strategies (Lombaerts et al., 2009). Despite evidence pointing to enhanced learning performance gained by using a new instructional approach, teacher beliefs can thwart implementation efforts in the classroom (Chatzistamatiou et al., 2013).

Beliefs in the Classroom

Teacher beliefs may sway curriculum choices and learning activities (Antonietti & Giorgetti, 2006). More specifically, beliefs about self-regulated learning bias teacher selection of SRL instructional strategies (Dignath-van Ewijk & Van der Werf, 2012; Peeters et al., 2014). Teacher beliefs infused with strong negative emotions may override compelling evidence that supports the use of SRL instruction (Steinbach & Stoeger, 2016a). Furthermore, pre-service academic experiences shape educators' SRL instructional beliefs (Vandevelde et al., 2012; Vrieling, Bastiaens, and Stijnen, 2012). Researchers have published similar findings across several continents.

In Western Europe, Lombaerts et al. (2009) discovered that teacher beliefs influence SRL instructional decisions and classroom behaviors. Lau (2013) found that Chinese educators who held positive SRL beliefs often did not implement SRL instruction due to concerns that lower performing students may not grasp SRL concepts. Whereas, teachers in Hong Kong abandoned their beliefs because of the government emphasized memorization training over SRL instruction to boost standardized test scores

(Yan, 2016). However, educational research suggest that teacher efficacy may be an even more powerful predictor of SRL instruction than teacher beliefs (Dignath-van Ewijk & Van der Werf, 2012; Tschannen-Moran, Hoy, & Hoy, 1998).

Teacher Efficacy

Self-efficacy is the belief in one's personal abilities to successfully accomplish a goal (Antonakis, Cianciolo, & Sternberg, 2004; Bandura, 1997; Bass, 1990). Additionally, self-efficacy encompasses the beliefs regarding one's adaptability, ingenuity, and ability to perform under stressful conditions (Bass, 1990). High self-efficacy generally equates to positive emotions, resilience, and a sense of control regarding the future. However, low self-efficacy is associated with negative emotions, a desire to quit, and a lack of control over future outcomes (Bandura, 1997). Teachers who have higher classroom management and instructional self-efficacy experience higher career satisfaction (Aydemir, Duran, Kapidere, Kaleci, & Aksoy, 2014). According to Bandura (1977), there are four factors that influence self-efficacy levels. These factors include performance attainment, vicarious experiences, social persuasion, and emotional arousal (Bandura, 1997; Luthans, 2008). The following section will elaborate on the four areas influencing self-efficacy levels.

Factors Influencing Self-Efficacy

The first factor is mastery experiences or performance attainment with a specific task (Bandura, 1997; Luthans, 2008). According to Luthans (2008), this factor may be the most impactful on self-efficacy levels because it is based on performance feedback. Past successes raise self-efficacy expectations, while poor past performance diminishes self-efficacy expectations (Luthans, Youseff, & Avolio, 2007). The second factor is

vicarious experiences or modeling (Bandura, 1997). Individuals learn by observing and modeling others who are similar or relevant. When an individual sees another similar individual succeed at an action, they may begin to believe they can be successful as well. However, if a similar person fails, doubts may arise regarding one's ability to master the same task (Bass, 1990). Vicarious experience or modeling is particularly important when individuals have limited experience with a process or activity (Luthans, 2008). The third factor impacting self-efficacy is social persuasion. Positive feedback from a well-respected authority figure can elevate self-efficacy during challenging times (Bass, 1990). Conversely, negative feedback from a relevant other can diminish self-efficacy levels. Social persuasion is extremely helpful during times of struggle or set-back while pursuing a difficult goal (Bandura, 1986). The fourth factor impacting self-efficacy is physiological and psychological arousal. Self-efficacy is highly dependent on an individual's mental, emotional, and physical well-being (Luthans, 2008). Poor health in one or both areas may erode self-efficacy levels. However, good physical and psychological health encourages growth of self-efficacy (Luthans, 2008). These same four factors described above not only influence general self-efficacy levels, but also impact teacher efficacy as well (Tschannen-Moran et al., 1998).

Efficacy in Academics

Teacher efficacy is the self-confidence an educator has in their own ability to help students learn (Tschannen-Moran & Woolfolk Hoy, 2001). According to Tschannen-Moran et al. (1998), teacher efficacy is based on an educator's perceived competence rather than actual competence. Unfortunately, teachers often over or under-estimate their true instructional ability (Bandura, 1986). Teacher efficacy mis-calculations can

adversely affect instructional choices and classroom behaviors (Aydemir et al., 2014; Bandura, 1986). Additionally, social and environmental factors such as demographics, culture, and institutional priorities also influence teacher self-efficacy (Tschannen-Moran et al., 1998). Researchers have found that teachers report high or low self-efficacy levels depending on who, what, and where they are teaching (Dix, 2009). Educational policies, school culture, and principals' leadership styles impact teacher efficacy levels as well (Tschannen-Moran & Woolfolk Hoy, 2001). Finally, organizational or group efficacy impacts individual teacher efficacy levels (Bandura, 1977; Luthans, 2008).

Teacher efficacy impacts instructional motivation, classroom initiative, and student learning performance (Ross, 1992). According to Tschannen-Moran et al. (1998), educators who have higher teacher efficacy levels are more energetic and productive in the classroom. Furthermore, higher teacher efficacy inspires greater instructional creativity and willingness to employ more challenging teaching methods (Tschannen-Moran et al., 1998). Research also suggests higher self-efficacy levels equate to greater teacher resiliency levels and lower stress levels (Chaplain, 2008; Luthans et al., 2007). Increased resiliency helps teachers bounce back faster when faced with frustrations or obstacles at school (Avolio & Luthans, 2006). Finally, elevated teacher efficacy drives greater enthusiasm and commitment to helping students succeed (Toussi & Ghanizadeh, 2012; Tschannen-Moran & Woolfolk Hoy, 2001).

Teacher efficacy influences pedagogy and curriculum selection (Skaalvik & Skaalvik, 2010; Wolters & Daugherty, 2007). Educational researchers have discovered that higher teacher efficacy levels result in more student-led and scaffolded instructional activities (Tschannen-Moran & Woolfolk Hoy, 2001; Vrieling et al., 2012). This is

particularly true regarding the use of more complex teaching strategies such as self-regulated learning instruction (Persico, Milligan, & Littlejohn, 2015). According to Chatzistamatiou et al. (2013), math teachers with higher teacher efficacy utilized SRL instructional practices more frequently than math teachers with lower teacher efficacy levels. Furthermore, teachers who possess supportive SRL beliefs and have positive teacher efficacy levels provide their students with SRL instruction more frequently (Vrieling et al., 2012). The following section will describe SRL instructional strategies and techniques.

SRL Instruction

Self-regulated learning is a vital workforce competency that develops from the use of SRL instruction (Clifton, 2011; Hoidn, 2017; Yan, 2017). SRL instruction is an active, independent learning approach that connects new knowledge to the real world in a meaningful and purposeful manner (Johnson, 2002). SRL instruction permits learners to explore, identify, and use a learning strategy that best fits their learning preference and life interests (Boekaerts, 1999). SRL instruction is a self-governing approach to teaching that requires the learner to make decisions and take responsibility for learning outcomes (Johnson, 2002). SRL instruction also allows learners to explore, experiment, and solve problems that matter individually and collaboratively (Spruce & Bol, 2015). SRL instruction challenges learners to identify, select, and implement the most appropriate learning strategy based upon the task encountered (Vrieling et al., 2012). SRL instruction also enhances learner efficacy, knowledge retention, knowledge transfer, and nurtures the innate passion for learning (Dembo & Seli, 2008). Furthermore, SRL instruction inspires the self-directed effort necessary for sustainable human capital growth and workforce

differentiation (Becker, Huselid, & Beatty, 2009; Mitjans, 2014). From the educator perspective, SRL instruction reduces teacher burnout, increases job satisfaction, and fosters classroom creativity (Klassen & Chiu, 2010; Liu & Ramsey, 2008).

According to Belasco and Stayer (1993), "The skills that were right yesterday become today's wrong ones…continued learning is crucial to continued success" (p. 81). Career success demands an aptitude and motivation for learning new knowledge and skills (Clifton, 2011; Gleb, 1998; Senge, 2006). Self-regulated learners are proficient in planning, monitoring, and adapting performance to reach their current and future learning goals (Yan, 2017; Zimmerman, 2000). Self-regulated learning proficiency develops from highly specialized instruction, substantial practice, and real-world application (Johnson, 2002; Yan, 2017). If executed properly, SRL instruction cultivates the skills necessary to establish goals, adjust effort, and perform after-action analysis following a learning activity (Zimmerman, 2000).

Self-regulated learning instruction develops valuable cognitive skills required in the workplace and beyond (Johnson, 2002; Trilling & Fadel, 2009). This learner-centered instructional approach fosters a passion for learning throughout one's life (Hoidn, 2017). SRL instruction, with its associated activities, teaches individuals how to plan, monitor, and adjust learning performance to reach desired goals (Yan, 2017). SRL instruction is relevant, learner-centric, and effective when working with individuals of all ages (Knowles, 1989). By using this instructional strategy, both teachers and students share responsibility for defining learning objectives and outcomes equally (Dignath-van Ewijk, 2016).

Developing self-regulated learners requires a departure from educational strategies designed for the Industrial Age (Aydemir et al., 2014; Bembenutty et al., 2015; Clifton, 2011). In the Information Age, professional educators must foster authentic, relevant, and collaborative learning environments (Harding et al., 2018; Yan, 2017). Lesson plans and educational activities should be learner-centric; tailored for learning differences, life experiences, and future aspirations (Johnson, 2002; Sears, 2003). Consequently, preparing tomorrow's educators using yesterday's learning philosophies is counter-productive (De Smul et al., 2018). Today's teachers, whether assigned to classrooms or workplaces, must utilize instructional tools that prepare individuals for challenges not yet imagined (Dignath-van Ewijk, 2016; Senge, 2006). Inspiring inquisitiveness and confidence to solve novel problems must become the goal of teaching. Therefore, teachers must become proficient in reflective and analytical thinking. Additionally, educators must examine their own assumptions, beliefs, and biases that limit learning outcomes (Kramarski, Desoete, Bannert, Narciss, & Perry, 2013). Furthermore, aspiring teachers must be knowledgeable of learning theories that explain cognitive processes and knowledge retention (Fauzi & Widjajanti, 2018).

According to Chatzistamatiou et al. (2013) self-regulation is a vital aspect for both effective teaching and learning. SRL instruction requires an in-depth understanding of the components of social and situational learning (Bandura, 1986). Furthermore, self-regulated learning instruction requires educators to acknowledge the value of context when teaching new content (Spruce & Bol, 2015). SRL instruction links goal planning and performance evaluation with increased self-regulation (Yan, 2017). SRL instruction ensures every learner has an opportunity to compare learning outcomes against learning

goals (Harding et al., 2018; Yan, 2017). Additionally, SRL instruction prepares learners to adapt existing or construct new learning strategies to meet current conditions (Zimmerman, 2000). SRL instruction allows learners to select different pathways to reach learning goals based upon their preferred learning style (Johnson, 2002). Finally, SRL instruction helps individuals summon the necessary motivation and interpret performance feedback to enhance learning outcomes (Harding et al., 2018). Because SRL instruction demands more preparation and commitment than traditional teaching methods, many educators choose not to use SRL instruction (Dignath-van Ewijk, 2016; Johnson, 2002; Yan, 2017). Consequently, a teacher's decision not to use SRL instruction in the classroom, results in a shortage of self-regulated learning competency in the workplace (Harding et al., 2018; Senge, 2006; Yan, 2017).

Cultivating self-regulated learners across the life-span require complex, differentiated instruction (Pieschl, Stahl, & Bromme, 2008; Usta & Bozpolat, 2014). SRL instruction concentrates on developing planning skills, self-monitoring habits, and performance adaptation strategies to achieve learning goals (Brewer & Hewstone, 2004; Moshman, 2005). Furthermore, SRL instruction helps learners regulate brain executive functions required for advanced cognitive performance (Gleb, 1998; Shafir, 1993). Executive functions include all mental processes required for self-regulation of human behavior (Martin, 2004; Moshman, 2005). Attention control, inhibition, and memory are all components of the brain's executive function (Davis, 1997). Consequently, SRL instruction facilitates fluid intelligence and higher order thinking skills (Campbell et al., 2005).

Fluid Intelligence and Higher Order Thinking

Fluid intelligence is the ability to recall data from long-term memory and then apply this knowledge abstractly and creatively to new situations (Gleb, 1998; Ormrod, 2003). Fluid intelligence helps individuals identify connections and patterns between diverse concepts, data, or objects (Gladwell, 2005). Similar to fluid intelligence, higher order thinking is the capacity to investigate, compare, reason, and connect novel concepts or ideas (James & McCormick, 2009; Ormrod, 2003). Higher order thinking incorporates three executive function competencies. The first competency is the ability to recall existing knowledge and apply this information to new challenges in different environments. The second competency is the ability to think critically when working through intellectual challenges. Finally, the third competency is the skill to solve complex problems effectively (Brookhart, 2010). According to Brookhart (2010), the principal difference between fluid intelligence, higher order thinking, and basic memorization is the capability to use existing knowledge to solve unique problems in a variety of situations. SRL instruction helps increase fluid intelligence and higher order thinking proficiency when solving new problems and making difficult decisions in the classroom and workplace (Brookhart, 2010).

Problem Solving and Decision Making

According to Brookhart (2010), the primary objective of formal education should be to prepare individuals to solve problems and make logic-based decisions. This requires learners to become skilled in assessing source credibility, identifying personal biases, and continually learning new information (Swanson & Holton, 2009). Additionally, individuals must become skilled in formulating goals and identifying

pathways to reach these goals (Hoidn, 2017). Being able to set goals, develop plans, and overcome obstacles require higher order thinking and problem-solving skills (Ajzen, 1991; Shafir, 1993). Furthermore, problem-solving proficiency demands information recall, solution generation, option analysis, and communication of potential courses of action (Gary, 2006). According to Garner (2009), complex problem-solving cannot occur by simply recalling memorized facts, it requires knowledge transfer and abstract reasoning. Problem-solving and decision-making competency emerges from engaged research, analysis, and immersive hands-on practice (Fenstermacher, 1994; Gary, 2006). This requires the use of an instructional system that connects academic content with a real-world context that is relevant to each learner (Brookhart, 2010). Additionally, this teaching strategy must tailor content delivery to meet the respective learning style of each learner (Anderman & Maehr, 1994). Learner-centric and context-relevant teaching objectives are essential cornerstones for SRL instruction (Dignath-van Ewijk, 2016).

Foundations of SRL Instruction

SRL instruction emerged from educational research associated with three foundational learning theories (Lajoie, 2008). The first theory, behaviorism, emphasizes the relationship of stimulus-to-response for learning to take place (Ormrod, 2003). Behaviorism focuses primarily on observable behavior or learner performance outcomes (Kelly, 2004). However, behaviorism does not take into consideration actual knowledge formation, long-term knowledge retention, or the building of new knowledge upon existing knowledge (Flavell et al., 2002).

The second theory, constructivism, examines the process of constructing new knowledge on top of knowledge that the learner already possesses (Ormrod, 2003).

Because brain processing capacity is finite, individuals must be selective in what they absorb at any one time (Hattie, Biggs, & Purdie, 1996). Learners search for relationships between what is known and what is new (Davis, 1997). Constructivism or connectionism is the process of linking current knowledge to new knowledge (Gleb, 1998). Therefore, one's existing knowledge actively influences one's ability to receive, interpret, and internalize new knowledge (Campbell et al., 2005). According to constructivism, it is essential to understand learners' current knowledge levels before introducing new information (Berns & Erickson, 2001; Pressley, Harris, & Marks, 1992). Furthermore, active learning with strong emotional appeal is critical to invoke the required motivation to learn new information (Restak, 2001). Classroom activities such as project-based learning, team learning, virtual reality, and work-based learning nurture deep learning (Baker et al., 2009). Constructivism demands learner-centric inquiry, intrinsic versus extrinsic motivation, and higher-order thinking processes (Berns & Erickson, 2001).

The third learning theory, cognitive psychology, examines outward learning performance, environmental factors, and actual brain physiological activity (Davis, 1997). According to cognitive psychologists, the learner's home environment, interests, and life experiences play a significant role in learning ease, speed, and retention (Johnson, 2002). Additionally, learning accelerates when new information connects to existing knowledge (Campbell et al., 2005). The brain functions and learning processes described in behaviorism, constructivism, cognitive psychology are fundamental components of self-regulated learning instruction (Garner, 2009; Yan, 2017).

SRL Instruction Matters

Monolithic instruction is not conducive to nurturing self-regulated learners in academics or the workforce (Johnson, 2002). Consequently, learner-centric delivery is a fundamental tenet of SRL pedagogy (Paris & Winograd, 2001). SRL instructional effectiveness is determined by the receiver not the transmitter of knowledge (Davis & Neitzel, 2011). Therefore, SRL instruction is adaptive to the three principal learning styles - auditory, visual, or kinesthetic (Ormrod, 2003). According to Davis and Neitzel (2011), SRL instructional effectiveness requires competency in four areas. The first competency is proper identification of brain and personality types that drive learning styles (Amen & Amen, 2016). The second competency is instructing learners on how to conduct end-to-end or systems thinking (Campbell et al., 2005; Senge, 2006). The third competency is the ability to help learners identify appropriate learning strategies based upon specific task requirements (Restak, 2001). Finally, competency in teaching how to monitor and adapt performance to meet learning goals is critical (Restak, 2001). These SRL instructional competencies require patience, practice, and time to develop (Dix, 2009). Furthermore, specific instructional strategies are necessary to cultivate self-regulated learners.

SRL Instructional Strategies

Explicit instruction, directed reflection, and metacognitive discussions promote SRL competency development (Paris & Winograd, 2001). According to Paris and Winograd (2001), teachers should use SRL instruction across the life-span. According to Ormrod (2003), learning self-assessment is an essential skill required in school, the workplace, and in life. Learning activities and assessments should require individuals to

monitor and self-reflect on their thinking patterns. Journaling is a learning activity that encourages self-reflection and leads to awareness of one's thinking (Johnson, 2002). SRL instruction provides opportunities for learners to discuss journal entries and reflect upon learning difficulties encountered (Brookhart, 2010). Furthermore, learners gain SRL proficiency through group projects, brainstorming activities, and critical thinking exercises (Sears, 2003). SRL instruction requires the implementation of progress charts and learner portfolio assignments that track personal learning progression (Ormrod, 2003).

Charting learning progression is an SRL instructional technique that fosters self-regulated learning proficiency (Paris & Winograd, 2001). Charts may include goal achievement status, performance standards, and task completion timelines. Through charting activities, learners gain confidence and take ownership in the learning process (Ormrod, 2003). In addition to charting progression, another SRL activity is creating learner self-reflection portfolios. Self-reflection portfolios document learning achievement and personal growth over time (Thompson, 2013). Another SRL instructional technique is the use of narrative writing assignments. These assignments require each learner to write essays that reflect on past life experiences and highlights future aspirations (Johnson, 2002). Role playing, classroom recordings, and reflective conversations are other SRL instruction tools (Boekaerts, 1999). These exercises allow both teachers and learners to assume new roles, share views, and develop greater self-awareness. Additionally, SRL instruction demands learners take responsibility for their timelines, goals, and performance outcomes (Davis & Neitzel, 2011). Furthermore, SRL

instruction requires learners to understand and conduct learning self-assessments regularly (Paris & Winograd, 2001).

According to Kellough et al. (2003), individuals frequently struggle with distinguishing relevant from irrelevant facts when learning. Furthermore, learners either over or under-estimate their true understanding of new content (Dembo & Seli, 2008). Therefore, SRL instruction helps individuals gain proficiency in conducting self-appraisals to measure learning effectiveness (Paris & Winograd, 2001). The self-appraisal process includes monitoring progress, efficiency, and motivation levels (Paris & Winograd, 2001). Self-appraisal competency emerges by transferring learning responsibility from teachers to learners (Palincsar & Brown, 1984). SRL instruction requires teachers to provide timely feedback to ensure learners understand what went right or wrong and to improve performance going forward. Prompt feedback prevents re-enforcement of flawed thinking or faulty processes (Paris & Winograd, 2001). In conjunction with self-appraisal proficiency, SRL instruction helps learners master goal setting skills (Sears, 2003).

Goal setting is a difficult concept for many adolescents and even some adults to fully understand and put into practice (Anderman & Maehr, 1994; Moshman, 2005). SRL instruction teaches individuals how to develop realistic and measurable learning goals (Johnson, 2002). SRL instruction requires goal setting assignments to be challenging, but also achievable within a reasonable time horizon (Dembo & Seli, 2008). SRL instruction provides learners with the opportunity to help define and establish learning goals (Anderman & Maehr, 1994). Additionally, SRL instruction prepares learners to distinguish between and develop short, medium, and long-term learning goals.

Furthermore, SRL instruction prepares learners to evaluate learning progress and adjust effort as necessary to achieve goals (Johnson, 2002). According to Anderman and Maehr (1994), the development of the learner is the ultimate performance objective for goal setting instruction. In addition to nurturing goal setting competencies, SRL instruction cultivates critical time management skills (Trilling & Fadel, 2009).

Time management skills are essential for learning goal obtainment in school and beyond (Dembo & Seli, 2008). Time management helps learners reduce stress, establish priorities, and accomplish goals (Bourne, 2005). SRL instruction utilizes a variety of assignments to hone learners' proficiency in task prioritization and time-for-completion estimates (Paris & Winograd, 2001). Requiring learners to calculate time estimations throughout the class develops time management skills (Anderman & Maehr, 1994). For example, learners must dissect a classroom assignment into major sub-components and then calculate time requirements for each task (Thompson, 2013). Effective time management requires learners to accurately allocate time for each of the smaller tasks required to achieve a larger goal (Dembo & Seli, 2008). SRL instruction requires teachers to model effective time management by using day planners, to-do lists, and adapting to changing conditions as required (Spruce & Bol, 2015). Being able to perform self-appraisals, set goals, and manage time are skills cultivated by SRL instruction. However, there is no SRL instructional priority higher than creating a classroom culture that promotes a passion for life-long learning (Dignath-van Ewijk, 2016).

SRL Classroom Culture

SRL instruction requires teachers to model a passion for learning in the classroom and beyond (Johnson, 2002). Additionally, SRL instruction requires teachers to cultivate

a classroom culture that is safe to explore, make mistakes, and ask lots of questions (Dignath-van Ewijk, 2016). SRL instruction helps learners see that mistakes are not bad, they are simply opportunities to develop (Burford & Arnold, 1992). Therefore, SRL instruction demands that teachers understand how each learner reacts to and copes with set-backs or failures (Davis & Neitzel, 2011). This requires teachers using SRL instruction to develop proficiency in personality and motivational identification (Dignath-van Ewijk, 2016). SRL instruction helps learners increase self-efficacy by dissecting reasons for poor performance and by developing clear strategies to overcome difficulties (Bandura, 1977; Luthans et al., 2007).

SRL instruction provides learners with opportunities to fail. This creates teachable moments where teacher and learner can discuss reasons for difficulties and devise ways to overcome similar obstacles in the future (Luthans et al., 2007). This helps learners become skilled at not making personal attributions for mistakes or failures (Johnson, 2002). SRL instruction builds instead of tear-down self-confidence when faced with adversity in life (Luthans, 2008). Practice, encouragement, mistakes, and the enforcement of high standards incubates the desire and expertise to learn, unlearn, and relearn (Bandura, 1997; Warrell, 2014). Furthermore, SRL instruction helps learners gain proficiency in asking questions, conducting research, and making logic-based decisions (Brookhart, 2010; Gary, 2006). SRL instruction teaches techniques to separate root causes from symptoms, and then craft innovative solutions to problems (Davidson & Sternberg, 2003; Senge, 2006). SRL instruction equips learners with problem solving strategies to analyze different situations and make intelligent decisions (Boekaerts, 1999).

Cognitive discipline, attention stability, and intrinsic motivation are characteristics of self-regulated learners (Campbell et al., 2005). SRL instruction connects new knowledge with existing knowledge, life conditions, and future aspirations (Baumert & Kunter, 2013). This requires teachers to make intentional connections between curriculum and the learner's life story. Furthermore, learners must be able to tackle real-world problems that are relevant to them and their community (Anderman & Maehr, 1994; Brewer & Hewtone, 2004). Collaboration and people skills flourish by having learners work on problems in project teams and incorporate realistic contexts (Johnson, 2002). Finally, information technology and analytical tools can help educators provide differentiated lessons (Kramarski et al., 2013). Computer-aided instruction allows each learner to access content in a format and at a level best suited for their current skill (Davis & Neitzel, 2011; Kaplan, 2008).

Professional development (pre-service and in-service) may increase the probability of teachers using SRL instruction (Moos & Ringdal, 2012). According to Yan (2017), teachers' willingness to try new instructional approaches is essential. Factors such as teacher subject area, teacher beliefs, and teacher efficacy influence willingness to experiment with new teaching methods (Chatzistamatiou et al., 2013; De Smul et al., 2018; Yan, 2017). Therefore, understanding these teacher-specific variables is informative for human capital research focused on increasing use of self-regulated learning instruction.

Summary

SRL instruction cultivates human capital competencies required in today's workforce (Johnson, 2002). Competencies include the ability to plan, monitor, and adapt

intellectual performance to achieve learning goals (Zimmerman, 2000). Furthermore, SRL instruction develops proficiency in acquiring new knowledge by building upon that which is already known (Pressley et al., 1992). Despite its apparent benefits for workforce development, there is limited research explaining why SRL instruction is employed or not (Moos & Ringdal, 2012). Very few studies examine the relationship of teacher subject area, teacher beliefs, and teacher efficacy on use of SRL instruction (Chatzistamatiou et al., 2013). Through deeper understanding of these teacher-specific variables, adjustments may be possible to increase the use of SRL instruction in classrooms and workplaces (Kramarski et al., 2013).

This chapter began with a general discussion of the self-regulated learning construct and associated foundational theories. The following sections addressed three teacher-specific variables that possibly influence the use of SRL instruction. These variables include teacher subject area, teacher beliefs, and teacher efficacy. This chapter concluded with an in-depth narrative addressing the use of SRL instruction. The following chapter will outline the research design, methodology, and instruments utilized in this research study.

CHAPTER III – METHODOLOGY

The objective of this study was to examine the relationships of teacher subject area, teacher beliefs, and teacher efficacy on the use of self-regulated learning instruction. This chapter begins with a brief discussion regarding potential relationships of teacher-specific variables on use of SRL instruction. A description of the study's research design and sampling strategy follows. Additional sections describe survey instrumentation, data collection, and statistical analysis for each research objective. Finally, the chapter concludes with a discussion of potential validity concerns relating to this study.

Teacher Influence on SRL Instruction

Research previews indicate that self-regulated learning is a teachable skill, regardless of the learner's age (Johnson, 2002; Zimmerman, 2000). However, the impact of teacher-specific variables on SRL instruction is significant when measuring learning performance outcomes (Dignath-van Ewijk, 2016; Moos & Ringdal, 2012). Teachers proficient in SRL instruction develop learners who possess the college and career skills required in the 21st Century (Trilling & Fadel, 2009; Yan, 2017). SRL instructional effectiveness comes from both teaching and modeling goal setting, progress monitoring, effort adaptation, and post-performance review behaviors on a consistent basis (Vrieling et al., 2012; Zimmerman, 2000). For this study, teacher-specific variables included teacher subject area, teacher beliefs, and teacher efficacy. According to published literature, these variables may impact teachers' choice of curriculum and classroom behavior (Lombaerts et al., 2009). Consequently, more targeted research is necessary to understand relationships between teacher-specific variables and SRL instruction (Yan, 2017). Therefore, this study examined both individual and combined relationships that

may exist between teacher subject area, teacher beliefs, teacher efficacy, and the use of SRL instruction.

Research Question and Objectives

The research question for this study was: What are the individual and combined relationships that exist between teacher subject area, teacher beliefs, teacher efficacy, and the use of SRL instruction? Based upon this research question, this study accomplished the following research objectives:

RO1 – Describe participants' age range, gender, grade level, subject area taught, and teaching experience.

RO2 – Determine the relationship between teacher subject area and the use of SRL instruction.

RO3 – Determine the relationship between teacher beliefs regarding self-regulated learning and the use of SRL instruction.

RO4 – Determine the relationship between teacher efficacy and the use of SRL instruction.

RO5 – Determine the relationship between teacher beliefs, teacher efficacy, and the use of SRL instruction.

Research Design

This study utilized a post-positivist approach to research. The post-positivist worldview is based on the fundamental belief that causes determine effects (Creswell, 2009). Post-positivist researchers acquire knowledge through objective observation and measurement of their world (Field, 2013). Additionally, the post-positivist approach employs quantitative methods as a primary tool of discovery. Two principal tools used in

quantitative scientific discovery are surveys and experiments (Creswell, 2009; Phillips, Phillips, & Aaron, 2013). Surveys assess various constructs by evaluating participants' inputs, beliefs, and trends (Phillips et al., 2013).

This research project used a cross-sectional research design. According to Field (2013), a cross-sectional design examines participants in natural settings with limited interference from researchers. A cross-sectional study collects data from participants who are similar in many characteristics but may differ in areas such as age, education, or income levels (Creswell, 2009; Creswell & Plano Clark, 2011). Furthermore, cross-sectional studies may utilize new or previously collected information. The use of pre-existing data makes cross-sectional designs less resource intensive (Creswell, 2009). However, because cross-sectional studies only examine variables at a single point in time, research findings cannot infer causality (Field, 2013; Shadish, Cook, & Campbell, 2002).

Causal-comparative or *ex post facto* research is the examination of interventions or treatments conducted at an earlier period (Heiman, 1995). In the case of SRL instruction, some educators receive initial training in this teaching method while enrolled in post-secondary education degree programs. Teachers may receive SRL instructional training during in-service professional development (Dignath-van Ewijk & Van der Werf, 2012). This causal-comparative research project examined individual relationships for teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. Furthermore, this study examined the potential combined relationships of teacher beliefs and teacher efficacy on the use of SRL instruction. The independent variables for the study were teacher subject area, teacher beliefs, and teacher efficacy. The dependent

variable was SRL instruction. The following section describes the population utilized for this research project.

Population

In the Southeast Region of the United States, there is increasing urgency for PK-12 teachers to prepare students for workforce requirements found in the advanced manufacturing sector. In the State of Alabama, companies compete in a variety of global markets that include aerospace, automotive, bio-tech, and defense manufacturing (Morgan, 2017; Sylacauga Chamber of Commerce, 2018). Today, a growing number of advanced manufacturers operating in Alabama are foreign-owned. Because of cultural differences, nations such as Germany and South Korea place extremely high value on workers' intelligence (Finegold et al., 2010; Moretti, 2012; Morgan, 2017). In particular, Asian and European companies covet employees who proactively acquire new knowledge and skills to ensure organizational competitive advantage (Clifton, 2011; Hoidn, 2017; Luthans, 2008).

Teachers who utilize self-regulated learning instruction cultivate the cognitive skills required by advanced manufacturing companies (Spruce & Bol, 2015; Yan, 2017). Therefore, the population chosen for this study were teachers employed full-time in a small city school district located in the Southeast Region of the United States. This school district was representative of teacher populations examined in similar studies according to current self-regulated learning literature (Yan, 2017). Permission to conduct this research project is in Appendix B.

The school district studied operates four schools with an overall enrollment of 2,339 students (Public-school Review, 2018). 157 certified teachers are currently

employed in the school district. The ratio of teacher to students is 16 students to one teacher. Based upon school size, socio-economic statistics, geographical location, and teacher credentials, the school district is representative of many public-school districts in the State of Alabama (Public-school Review, 2018). Teacher ethnicity is approximately 66% Caucasian, 30% African-American, and the remaining 3% being Hispanic and other. Teachers holding an undergraduate degree equals 85%, with the remaining 15% possessing a graduate degree (Sylacauga City Schools, 2018). The age range of the faculty 20 to 30 years old equals 16%, 31 to 40 equals 18%, 41 to 50 equals 19%, 51 to 60 equals 20%, and 61 and over equals 27%. According to the school district's website (Sylacuaga City Schools, 2018), the primary subject area percentages for teacher assignments are: electives (5%), history (20%), languages (25%), math (25%), and science (25%). Finally, the approximate PK-12 teaching experience in years is 0 to 5 equals 15%, 6 to 10 years equal 19%, 11 to 15 years equal 20%, 16 to 20 equals 25%, and over 20 years of experience equals 21% (Sylacauga City Schools, 2018).

According to Niche's (2018) ranking of best schools in 2018, the school district studied ranked #2,809 out of 10,574 as the best school district in the United States. The district ranked #1,276 out of 10,541 districts with the best teachers in the nation. At the state level, the school district ranked #42 of 132 among the best school districts in Alabama. Furthermore, the district ranked #10 out of 134 districts for best teachers in Alabama (Niche, 2018). Additionally, the district ranked #15 out of 135 for the most diverse school districts in Alabama. Finally, the district ranked #42 out of 132 best school districts to work for in Alabama (Niche, 2018).

Selection of the school district was based on accessibility (access to participants), proximity (geographical distance from the researcher), and local workforce requirements. Because of its isolated geographical location, local employers in this community rely on the school district to produce its future generation of workers. Consquently, the school district has made college and career readiness a top priority for all students (Sylacauga City Schools, 2018; Sylacauga Chamber of Commerce, 2018). As research indicates, SRL instruction is an effective method for preparing self-regulated and self-directed learners (Bandura, 1986; Dembo & Seli, 2008). Therefore, this study's objective was to determine the potential relationships of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction in PK-12 classrooms.

Sampling

This study conducted a census of PK-12 teachers employed in the school district. According to Phillips et al. (2013), a census includes all members of a given population. However, individuals could opt-out of the study without any negative repercussions. This research project used a convenience sample. Convenience sample is a non-probability selection process based upon geographic proximity and subjects' availability to participant in a research project (Fink, 2003). According to Fink (2003), research volunteers often possess similar personality characteristics. Convenience samples may lack generalizability and may not accurately reflect demographical differences in the entire population (Shadish et al., 2002). Convenience samples have the risk of bias due to certain demand characteristics (Fink, 2003). Demand characteristics occur when participants adjust their behavior or survey responses to satisfy the perceived intent of the research (Creswell, 2009).

Response Rate

Understanding a population is not possible without a sufficient number of responses. Response rate is the actual number of surveys received from participants (Phillips et al., 2013). To ensure adequate statistical power for a population of 157 teachers, this study required 112 responses with a 5% margin of error and a 95% confidence rate (www.Raosoft.com).

Incentives

Eight pieces of artwork (two per school) served as incentives for this research project. According to Phillips et al. (2013), incentives encourage individuals to participate in a study and motivate them to complete the task requested. Participants who completed the entire questionnaire received a ticket for the art drawing. Upon completion of the questionnaires, a random drawing determined the recipients of two pieces of artwork for each school visited.

Instruments

According to Kerlinger and Lee (2000), researchers should select the most economical and unobtrusive method to collect data. It is important that researchers do not disturb the population any more than necessary (Creswell, 2009; Heiman, 1995). Additionally, requests by organizational or process owners regarding the timing, duration, and method of data collection should be honored when possible (Creswell, 2009). Based upon a review of published SRL findings, quantitative, qualitative, and mixed-methods were all viable design candidates (De Smul et al., 2018; Lombaerts et al., 2009; Yan, 2017). Previous SRL studies collected data using surveys, interviews, focus groups, or a combination of all (Yan, 2017).

According to Kerlinger and Lee (2000), personal interviews and focus groups have the potential to encourage certain demand characteristics by respondents. Demand characteristics such as reactivity and social desirability may occur when participants try to please the interviewer during face-to-face activities (Fink, 2003). According to Heiman (1995), increased validity and reliability results from reducing demand characteristics. The use of surveys is one strategy for reducing in-person demand characteristics (Phillips et al., 2013). A properly constructed survey serves as an effective data collection tool for researchers (Fink, 2003; Heiman, 1995; Phillips et al., 2013). Surveys give participants anonymity, flexibility, and time when responding (Phillips et al., 2013). Furthermore, surveys reduce certain demand characteristics and may increase response integrity (Kerlinger & Lee, 2000). Surveys are also less resource intensive compared to in-person collection methods (Creswell, 2009; Heiman, 1995).

Survey administration may utilize hardcopy, electronic, or hybrid solutions (Fink, 2003). Electronically administered surveys are efficient, versatile, and eliminate printing requirements (Creswell, 2009). Additionally, many digital survey programs have analytical and graphic tools included that simplifies data reporting (Creswell, 2009). However, electronic surveys often require participants to have access to computers with internet connectivity (Miles, Huberman, & Saldana, 2014). When digital survey applications are not practical, paper-based surveys are a viable alternative for collecting data (Miles et al., 2014). Due to limited time and computer availability, the school district superintendent and researcher made the decision to use hard-copy surveys for this project.

The questionnaire used in this research project is located at Appendix C. This instrument examined the relationship of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. The SRL teacher questionnaire was composed of four sections. The first section of the questionnaire collected teacher subject area and other demographical information. The second section collected teacher belief data using the 10-item Self-Regulated Learning Teacher Belief Scale developed by Lombaerts et al., 2009. Approval to use this scale is in Appendix D. The third section of the questionnaire collected teacher efficacy data using the 21-item Teacher Self-Efficacy Scale - SRL developed by De Smul et al. (2018). Approval to use this scale is located at Appendix E. Finally, the fourth section collected teacher SRL classroom behavior data using the 10-item Self-Regulated Learning Instruction Scale developed by Yan (2017). Approval to use this scale is in Appendix F. More detail regarding each section of the questionnaire follows below.

Teacher Subject Area and Other Demographics

The 5 items in Section 1 of the SRL teacher questionnaire (Appendix C) collected teacher subject area and other demographical data. This study used the information to describe the participants involved. Additionally, further analysis examined potential relationships between teacher subject area and the use of SRL instruction. According to Baumert and Kunter (2013), teachers who possess a strong understanding of their subject area are more likely to employ advanced, student-centered instructional methods. Likewise, Fauzi and Widjajanti (2018) discovered that math teachers tend to use SRL instruction more frequently than teachers from other subject areas. Math teachers

provided students with more opportunity to solve problems using self-regulated learning strategies (Fauzi & Widjajanti, 2018).

In addition to teacher subject area, this study also collected demographical data that included age range, gender, grade level, and teaching experience. According to Yan (2017), teachers' age influences their decision to use (or not) metacognitive instruction in the classroom. Likewise, Elmas, Demirdöğen, and Geban (2011) discovered a relationship between a teacher's gender and their instructional behavior. Published research findings indicate that female teachers are more likely to use self-regulated learning strategies than male teachers. Finally, Lombaerts, Engels, and Vanderfaeillie, (2007) found a relationship between teaching experience and the use of metacognitive instruction.

Self-Regulated Learning Teacher Belief Scale

According to Errington (2004), teacher beliefs significantly influence educators' willingness to embrace and implement new pedagogical strategies in the classroom. Therefore, the Self-Regulated Learning Teacher Belief Scale (SRLTBS) examines two specific aspects of teacher beliefs relating to SRL instruction. According to Lombaerts et al. (2009), the first aspect addresses teacher beliefs regarding the learners' ability to grasp and employ self-regulated learning strategies. The second aspect is teachers' perceived value of SRL instruction in the classroom and beyond. The original SRLTBS sampled primary school teachers in Belgium (Lombaerts et al., 2009). However, since its inception, researchers have used the SRLTBS to collect data at various grade levels and in different cultures (Yan, 2017).

The SRLTBS' 10 items in Section 2 of the SRL teacher questionnaire (Appendix C) examine teacher beliefs about self-regulated learning value to students (Lombaerts et al., 2009). The SRLTBS employs a five-point scale (*1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree)* to capture participant responses. The score for this section is determined by summing participant responses for the 10 items. The SRLTBS encourages teachers to examine the effectiveness and practicability of self-regulated learning instruction in the classroom. The use of SRLTBS also prompts instructional reflection and teacher dialogue regarding self-regulated learning (Lombaerts et al., 2009). Furthermore, the SRLTBS brings awareness to administrators regarding teacher beliefs that either promote or inhibit SRL instruction (Lombaerts et al., 2009; Yan, 2017).

The SRLTBS demonstrated initial validity during development based upon factor analytic measures (Lombaerts et al., 2009). According to Lombaerts et al. (2009), further research confirmed overall reliability and validity of the SRLTBS. Additionally, exploratory factor analysis demonstrated adequate internal consistency (Lombaerts et al., 2009). Whereas, confirmatory factor analysis verified the scale's one-factor structure and uni-dimensionality (Lombaerts et al., 2009). However, Lombaerts et al. (2009) analyses highlighted potential measurement limitations of the SRLTBS. The SRLTBS excludes several indirect factors that may influence teachers' SRL beliefs (Lombaerts et al., 2009). These factors include demographics, socio-economic status, and other environmental variables that may impact SRL instructional effectiveness (Lombaerts et al., 2009). Further omissions include organizational influencers such as faculty, administration, and overall school culture. Despite these limitations, Lombaerts et al. (2009) determined that

the SRLTBS possesses strong psychometric properties and is effective in the assessment of teacher beliefs regarding self-regulated learning instruction.

Teacher Self-Efficacy Scale – Self-Regulated Learning

The Teacher Self-Efficacy Scale – Self-Regulated Learning (TSES-SRL) located in Section 3 of the SRL teacher questionnaire (Appendix C) consist of 21 items developed by De Smul et al. (2018). The TSES-SRL uses a five-point scale *(1-Cannot Do At All, 2-Can Do Limitedly, 3-Can Do Moderately, 4-Can Do Certainly, 5-Highly Can Do)* to capture participant responses (De Smul et al., 2018). The score for this section is determined by summing participant responses for the 21 items. This instrument examines teacher self-efficacy relating to SRL instruction. According to De Smul et al. (2018), the original scale consisted of 24 items covering both explicit (items 1–8) and implicit (items 9–24) SRL instructional factors. Items 9 through 24 assess teachers' competence in providing students with learning options, self-governance, complex challenges, and self-evaluation. De Smul et al. (2018) performed reliability analysis to evaluate the internal consistency of the TSES-SRL. Reliability analysis examined internal consistency of the four factors used in the scale. Model based internal consistency coefficients were determined to indicate high reliability of the four sub-scales (De Smul et al., 2018). Additionally, multiple regression assessed the scale's predictive validity. This analysis verified teacher efficacy was significantly correlated with self-reported SRL instructional behavior (De Smul et al., 2018). Furthermore, De Smul et al. (2018) confirmed that teacher SRL efficacy is highly predictive of SRL classroom instruction. Following repeated analyses, De Smul et al. (2018) deleted three items from the original instrument. The final version of the TSES-SRL contains a total of 21 items.

Self-Regulated Learning Instruction Scale

The 10-item Self-Regulated Learning Instruction Scale (SRLIS) located in Section 4 of the SRL teacher questionnaire (Appendix C) examines teachers' SRL instructional practices (Yan, 2017). The SRLIS uses a five-point scale *(1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree)* to capture participant responses. The score for this section is determined by summing participant responses for the 10 items. Current literature, expert assessments, and pilot testing generated the original SRLIS items (Yan, 2017). According to Yan (2017), several existing instruments formed the foundation for the SRLIS. These included the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991), the Self-directed Learning Scale (Mok, Cheng, Moore, & Kennedy, 2006), the Self-Regulated Learning Inventory for Teachers (Lombaerts et al., 2007), and the Teachers' Reported Practices about Self-Regulated Learning (Dix, 2009). Additional SRLIS items resulted from focus groups with primary and secondary teachers (Yan, 2017). An expert panel reviewed and validated SRLIS items. The final version of the SRLIS contains 10-items that met psychometric and administrative considerations (Yan, 2017). Table 1 maps the relationship of this study's five research objectives to the questions located in the four sections of the SRL Teacher Questionnaire (Appendix C):

Table 1

Survey Map

Research Objectives	Survey Questions
RO1: Describe participants in the study.	Section 1: Q1 – Q5
RO2: Determine the relationship between teacher subject area and the use of SRL instruction.	Section 1: Q4 Section 4: Q1 – Q10
RO3: Determine the relationship between teacher beliefs and the use of SRL instruction.	Section 2: Q1 – Q10 Section 4: Q1 – Q10
RO4: Determine the relationship between teacher efficacy and the use of SRL instruction.	Section 3: Q1 – Q21 Section 4: Q1 – Q10
RO5: Determine the relationship between teacher beliefs, teacher efficacy, and the use of SRL instruction.	Section 2: Q1 – Q10 Section 3: Q1 – Q21 Section 4: Q1 – Q10

Institutional Review Board

Data collection occurred following Institutional Review Board (IRB) approval (Appendix A). The IRB is an oversight body created to protect the welfare and rights of human research subjects (Phillips et al., 2013). The IRB is responsible for reviewing all proposed research studies involving human subjects. An IRB is authorized to approve, disapprove, and monitor all research activities conducted by faculty, staff, and students. The IRB reviews experimental and informed consent procedures for possible ethical procedural deficiencies. Additionally, the IRB may examine research components such as survey instruments and statistical power to ensure adequacy (Shadish et al., 2002). The goal of an Institutional Review Board is to ensure all researchers strictly adhere to

federal and state regulations, institutional policies, and ethical research protocols to prevent potential harm to research participants (Shadish et al., 2002).

Data Collection

Based upon an agreement with the school district superintendent, the researcher conducted four separate data collection sessions. These sessions occurred during a two-day teacher training conference scheduled before the beginning of the Spring Semester. Grade-level groupings included two elementary schools, one middle school, and one high school. According to the school district's website (Sylacauga City Schools, 2018), the expected group size was 36 teachers per elementary school (PK – 5). For the middle school (6 – 8), the expected group size was 35 teachers. For the high school (9 – 12), the expected group size was 50 teachers (Public-school Review, 2018). The researcher used the Participant Information Sheet located in Appendix G as a script to provide 157 participants with information regarding this research study and answer questions. Following the overview presentation, 156 teachers completed a hardcopy Informed Consent Form (Appendix H). Upon completion of consent forms, 156 participants completed the SRL Teacher Questionnaire (Appendix C). The time needed to conduct presentations, collect data, and award incentives was approximately 20 minutes per group. Table 2 outlines the data collection, analysis, and reporting timeline.

Table 2

Data Collection Plan

Timeline	Activity
Week 0	IRB submission and approval
Week 1 (Day 1 & 2)	Researcher conducts information presentations for four separate teacher groups. Individuals wishing to participate will complete Informed Consent Form and SRL Questionnaire
Weeks 2 - 8	Analyze data and report results

Data Analysis

The researcher utilized IBM's SPSS (25.0) software package for statistical analysis. Table 3 outlines the data analysis procedures for each research objective in this study.

Table 3

Data Analysis Plan

RO	Variable(s)	Scale	Statistical Test(s)	Notes
RO1	Age	Ordinal	Frequency	Section 1: Participant Data
	Gender	Nominal	Frequency	
	Grade Level	Ordinal	Frequency	
	Subject Area	Nominal	Frequency	
	Experience	Ordinal	Frequency	
RO2	Teacher Subject Area	Nominal	ANOVA	Section 1: Participant Data (Predictor)
	SRL Instruction	Ordinal		Section 4: Self-Regulated Learning Instruction Scale (Criterion)

Table 3 Continued

RO	Variable(s)	Scale	Statistical Test(s)	Notes
RO3	Teacher Beliefs	Ordinal	Simple Regression Analysis	Section 2: Self-Regulated Learning Teacher Belief Scale (Predictor)
	SRL Instruction	Ordinal		Section 4: Self-Regulated Learning Instruction Scale (Criterion)
RO4	Teacher Efficacy	Ordinal	Simple Regression Analysis	Section 3: Teacher Self-Efficacy Scale – Self-Regulated Learning (Predictor)
	SRL Instruction	Ordinal		Section 4: Self-Regulated Learning Instruction Scale (Criterion)
RO5	Teacher Beliefs	Ordinal	Multiple Regression Analysis	Section 2: Self-Regulated Learning Teacher Belief Scale (Predictor)
	Teacher Efficacy	Ordinal		Section 3: Teacher Self-Efficacy Scale – Self-Regulated Learning (Predictor)
	SRL Instruction	Ordinal		Section 4: Self-Regulated Learning Instruction Scale (Criterion)

Notes. RO = Research Objective; SRL = Self-Regulated Learning; Missing Data = Zero

Research Objective One

For RO1, descriptive statistics described the teacher demographics collected in Section 1 (Appendix C) of the SRL teacher questionnaire (Field, 2013). Descriptive statistics present quantitative data in a usable and logical manner (Field, 2013). The

primary descriptive statistic used for this study was distribution. *Distribution* is a summary of frequencies of individual values or ranges of a variable (Field, 2013).

For this study, demographic data collected included age range, gender, grade level, subject area, and teaching experience. The five age ranges used where 20–30, 31–40, 41–50, 51–60 and 60 plus. For gender, responses include male or female. The grade level responses where PK–2, 3–5, 6–8, and 9–12. The subject matter responses included languages, mathematics, science, social studies, and other/multiple. The final demographic question assessed years of teaching experience. The ranges were 0–5, 6–10, 11–15, 16–20, and 20 plus years of teaching experience.

Research Objective Two

For RO2, an analysis of variance (ANOVA) test determined if there was a difference in the means for the five subject areas: languages, mathematics, science, social studies, and other/multiple. Based upon prior research, the statistical significance was determined by comparing *p*-values with a .05 significance level (Yan, 2017). The significance level represents the chance of identifying differences between group means that do not exist (Field, 2013). If statistical significance existed, the researcher selected Tukey's Honest Significant Difference post hoc test to determine where the groups were different (Field, 2013; Heiman, 1995).

Research Objectives Three and Four

RO3 and RO4 underwent simple regression analyses (Field, 2013). Simple regression explained the relationship between one continuous dependent variable and one independent variable. For this study, SRL instruction served as the study's dependent variable (Yan, 2017). Teacher beliefs and teacher efficacy were the independent

variables (Field, 2013; Yan, 2017). According to Field (2013), regression models assume a linear relationship exists between dependent and independent (predictor) variables. Therefore, change and strength of effect between dependent and independent variables are predictable (Field, 2013; Shadish et al., 2002). Regression analysis also involves a best fit line through a scatter plot (Phillips et al., 2013).

According to Field (2013), simple regression analysis identifies the magnitude of effect of an independent variable on a dependent variable. This statistic explains how much a dependent variable will change in relationship with a change of the independent variable (Shadish et al., 2002). Model fit is important when conducting simple regression analysis (Field, 2013). R-squared (R^2) is a statistical measure of how close the data are to the fitted regression line (Field, 2013).

Research Objective Five

RO5 utilized multiple regression analyses (Field, 2013). A multiple regression is a model with only one dependent variable, but has two or more independent variables. For this study, the independent variables were teacher beliefs and teacher efficacy. The dependent variable was SRL instruction. Multiple regressions assume the relationship between data is linear. According to Field (2013), non-linearity can be determined by examining scatter plots. Furthermore, multiple regression assumes relationships do not exist between independent variables; often referred to as multicollinearity (Field, 2013). Multicollinearity can be examined by calculating the variance inflation factor to identify potential correlations and strengths between independent variables (Field, 2013). Finally, this RO examined the interaction or combined effect of teacher beliefs and teacher

efficacy on use of SRL instruction. The following section addresses potential internal and external validity concerns associated with this research study.

Validity

According to Shadish et al. (2002), internal validity addresses the significance achieved from an experimental treatment. Furthermore, internal validity examines the evidence required to substantiate a research conclusion (Shadish et al., 2002). This study did not utilize an experimental treatment, but instead employed an *ex-post facto* approach. Teachers' SRL instructional usage is based on teacher beliefs and teacher efficacy cultivated from past experiences collected using a participant questionnaire. Because the SRL instruments used in this study originated outside of the United States, two potential internal validity threats existed. The first threat encompassed potential language and cultural differences associated with the survey items. The second validity threat surrounded sample selection techniques and limited sample size (Shadish et al., 2002).

External validity refers to whether a causal relationship holds true across participants at different locations (Shadish et al., 2002). It is possible that administration of the SRL questionnaire at four different times may allow those participating earlier to communicate with those taken the questionnaire later. Prior knowledge of the questionnaire could impact participant responses. Additionally, external validity diminishes due to the lack of standardization for teacher preparation. Furthermore, there is a lack of uniformity of educational policies and procedures across the United States (Shadish et al., 2002).

Summary

Chapter Three provided information about the research design and methodology used in this study. The chapter began with a brief discussion regarding the potential relationships between teacher-specific variables on the use of SRL instruction. A description of the research objectives and research design used for this project followed. The next section addressed data collection, statistics, and data reporting objectives. Finally, the chapter concluded with a brief discussion highlighting potential study limitations. The following chapter will provide an analysis of data for this study.

CHAPTER IV – ANALYSIS OF DATA

SRL instruction cultivates essential learning competencies required by the 21st Century workforce (Johnson, 2002; Yan, 2017). SRL instruction can inspire and nurture learning across the entire life span (Berns & Erickson, 2001). This study examined relationships between teacher subject area, teacher beliefs, teacher efficacy, and the use of SRL instruction. This chapter details the analysis performed with the data collected from a public-school district in the Southeast Region of the United States. The following sections describe data collection and statistical results for the five research objectives addressed by this study.

Data Collection Results

The population for this study consisted of PK-12 teachers from a rural city school district. The number of teachers employed by the school district was approximately 157 according to employment data files. The researcher received 156 completed SRL Teacher Questionnaires (Appendix C), yielding a response rate of 99.37%. The next section outlines findings for this study.

Results of Research Objectives

The study focused on five specific research objectives. Each research objective generated data in one of two data categories: nominal and ordinal.

Research Objective One

RO1 – Describe participants' age range, gender, grade level, subject area taught, and teaching experience.

Table 4 outlines participant data collected. A majority of the 156 participants were females (n = 127, 81%) ranging in ages 31 to 50 years old (n = 87, 55%). Thirty

teachers in grades 6 through 8 provided the fewest responses (19.5%). Conversely, 43 responses were from high school teachers (27.9%). Regarding the subject area currently taught item, there were 110 "other/multiple" responses (70.5%). This skewness was due to teachers in grades pre-Kindergarten through 8th teaching multiple subjects. In the item referencing teaching experience, 48 teachers (31%) had taught 0 to 5 years, while 42 teachers (27%) had more than 20-year response categories.

Table 4

Comparisons for Teacher Demographics

Demographic Variables	n	Group%	Cumm%
Age Range			
20-30	36	23.1	23.1
31-40	39	25.0	48.1
41-50	48	30.8	78.9
51-60	30	19.2	98.1
>60	3	1.9	100.0
Gender			
Male	29	18.6	18.6
Female	127	81.4	100.0
Grade Level			
PK-2	41	26.6	26.6
3-5	40	26.0	52.6
6-8	30	19.5	72.1
9-12	43	27.9	100.0
Subject Area			
Languages	17	10.9	10.9
Mathematics	15	9.6	20.5
Science	8	5.1	25.6
Social Studies	6	3.8	29.5
Other/multiple	110	70.5	100.0
Teaching Experience			
0-5	48	31.8	31.8
6-10	24	15.9	47.7

Table 4 Continued

Demographic Variables	n	Group%	Cumm%
Teaching Experience			
11-15	25	16.6	64.3
16-20	12	7.9	72.2
>20	42	27.8	100.0

Research Objective Two

RO2 - Determine the relationship between teacher subject area and the use of SRL instruction.

Participants (n = 156) reported responses regarding teacher subject area and the use of self-regulated learning instruction using an SRL Teacher Questionnaire (Appendix C). Participants selected the subject area they were currently teaching. Responses included: 1 – Languages, 2 – Mathematics, 3 – Science, 4 – Social Studies, 5 – Other/Multiple. Additionally, participants reported their use of SRL instruction in the classroom. SRL instructional usage responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The SRL instructional usage score was a sum of these 10 items. An analysis of variance (ANOVA) examined mean differences between subject area groups. According to Field (2013), an ANOVA has two primary assumptions. The first is a normally distributed population. The second is responses are independent of each other. Residual and scatter plots verified ANOVA assumptions (Field, 2013). Table 5 reports the means for each subject area and Table 6 displays the results of the ANOVA.

Table 5

Means Table for Teacher Subject Area

Subject Area	*N*	*M*	*SD*
Languages	17	3.9765	.59005
Mathematics	15	4.1467	.36227
Science	8	4.1000	.34226
Social Studies	6	3.8167	.59805
Other/Multiple	110	3.8264	.60407

Table 6

Analysis of Variance of Teacher Subject Area for SRLIS

SRL Instruction	Sum of Squares	*df*	Mean Square	*F*	*Sig.*
Between Groups	1.945	4	.486	1.474	.213
Within Groups	49.790	151	.330		
Total	51.734	155			

Note. SRLIS = Self-Regulated Learning Instruction Scale

According to ANOVA results, no significant differences (p = .213) existed between subject area and use of SRL instruction. Therefore, there were no differences between the means of the subject area groups examined. Consequently, the ANOVA results did not require a follow-up post hoc test (Field, 2013; Heiman, 1995).

Research Objective Three

RO3 - Determine the relationship between teacher beliefs regarding self-regulated learning and the use of SRL instruction.

Participants (n = 156) reported responses regarding teacher beliefs and the use of self-regulated learning instruction using an SRL Teacher Questionnaire (Appendix C). Participants responded to 10 items examining their beliefs about self-regulated learning. The teacher beliefs' score was a sum of these 10 items. Additionally, participants reported their use of SRL instruction in the classroom. SRL instructional usage responses

ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The SRL instructional usage score was a sum of these 10 items. A simple regression examined relationships between teacher beliefs and use of SRL instruction.

According to Field (2013), a simple linear regression has nine basic assumptions. The first is a linear relationship exists between teacher beliefs and the use of SRL instruction. The second is the mean of residuals is zero. The third is the presence of homoscedasticity. Homoscedasticity is the consistency of random disturbances between teacher beliefs and the use of SRL instruction. The fourth assumption is no autocorrelation of residuals is present. Autocorrelation means that the current value is dependent of the previous values. The fifth assumption is that teacher beliefs variable and residuals are uncorrelated. The sixth assumption is the number of observations must be greater than number of independent variables. The seventh assumption is the variability in teacher belief values are positive. The eighth assumption is the regression model is correctly specified. The ninth and final assumption of a simple linear regression is that residuals are normally distributed. A residual plot depicted the SRL instruction variables on the vertical (y) axis and the teacher beliefs variable on the horizontal (x) axis (Field, 2013). Table 7 presents the results for this research objective.

Table 7

Simple Regression Analysis of Teacher Beliefs for SRLIS

Variable	*b*	*SE*	Standardized Coefficients Beta	*t*	*Sig.*
(Constant)	3.487	.261		13.368	.000
Teacher Beliefs	.124	.080	.125	1.558	.121

Note. SRLIS = Self-Regulated Learning Instruction Scale

The results of the simple regression indicate no significant relationships between teacher beliefs and the use of SRL Instruction (p = .121). Therefore, teacher beliefs do not impact teachers' use of SRL instruction in the classroom.

Research Objective Four

RO4 - Determine the relationship between teacher efficacy and the use of SRL instruction.

Participants (n = 156) reported responses regarding teacher efficacy and the use of self-regulated learning instruction using an SRL Teacher Questionnaire (Appendix C). Participants responded to 21 items examining their beliefs about self-regulated learning. The teacher efficacy score was a sum of these 21 items. Additionally, participants reported their use of SRL instruction in the classroom. SRL instructional usage responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The SRL instructional usage score was a sum of these 10 items. A simple regression examined relationships between teacher beliefs and use of SRL instruction.

According to Field (2013), a simple linear regression has nine basic assumptions. The first is a linear relationship exists between teacher efficacy and the use of SRL instruction. The second is the mean of residuals is zero. The third is the presence of homoscedasticity. Homoscedasticity is the consistency of random disturbances between

teacher efficacy and the use of SRL instruction. The fourth assumption is no autocorrelation of residuals is present. Autocorrelation means that the current value is dependent of the previous values. The fifth assumption is that the teacher efficacy variable and residuals are uncorrelated. The sixth assumption is the number of observations must be greater than number of independent variables. The seventh assumption is the variability in teacher efficacy values are positive. The eighth assumption is the regression model is correctly specified. The ninth and final assumption of a simple linear regression is that residuals are normally distributed. A residual plot depicted the SRL instruction variables on the vertical (y) axis and the teacher efficacy variable on the horizontal (x) axis (Field, 2013). Table 8 presents the results for this research objective.

Table 8

Simple Regression Analysis of Teacher Efficacy for SRLIS

Variable	*b*	*SE*	Standardized Coefficients Beta	*t*	*Sig.*
(Constant)	2.417	.199		12.157	.000
Teacher Efficacy	.440	.058	.520	7.548	.000

Note. SRLIS = Self-Regulated Learning Instruction Scale

The results of the simple regression indicate a significant relationship exists between teacher efficacy and the use of SRL instruction ($p = .000$). Therefore, teacher efficacy impacts teachers' use of SRL instruction in the classroom.

Research Objective Five

RO5 - Determine the relationship between teacher beliefs, teacher efficacy, and the use of SRL instruction.

Participants (n = 156) reported responses regarding teacher beliefs, teacher efficacy, and the use of self-regulated learning instruction using an SRL Teacher Questionnaire (Appendix C). Participants responded to 10 items examining their beliefs about self-regulated learning. The teacher beliefs' score was a sum of these 10 items. Participants also responded to 21 items examining their teacher efficacy about self-regulated learning. The teacher efficacy score was a sum of these 21 items. Additionally, participants reported their use of SRL instruction in the classroom. SRL instructional usage responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The SRL instructional usage score was a sum of these 10 items. A multiple regression examined relationships between teacher beliefs, teacher efficacy, and use of SRL instruction.

According to Field (2013), a multiple linear regression has ten basic assumptions. The first is a linear relationship exists between teacher beliefs, teacher efficacy and the use of SRL instruction. The second is the mean of residuals is zero. The third is the presence of homoscedasticity. Homoscedasticity is the consistency of random disturbances between teacher beliefs, teacher efficacy, and the use of SRL instruction. The fourth assumption is no autocorrelation of residuals is present. Autocorrelation means that the current value is dependent of the previous values. The fifth assumption is that teacher belief and teacher efficacy variables and residuals are uncorrelated. The sixth assumption is the number of observations must be greater than number of independent variables. The seventh assumption is the variability in teacher beliefs and teacher efficacy values are positive. The eighth assumption is the regression model is correctly specified. The ninth assumption is that no perfect multicollinearity

exists between teacher beliefs and teacher efficacy variables. The tenth and final assumption of a multiple linear regression is that residuals are normally distributed. A residual plot depicted the SRL instruction variables on the vertical (y) axis and teacher beliefs and teacher efficacy variables on the horizontal (x) axis (Field, 2013). Table 9 depicts the results for this research objective.

Table 9

Multiple Regression Analysis of Teacher Beliefs and Efficacy for SRLIS

Variables	*b*	*SE*	Standardized Coefficients Beta	*t*	*Sig.*
Constant	2.591	.271	9.57	.000	
Teacher Belief	-.024	.072	-.34	.737	.737
Teacher Efficacy	.416	.067	6.34	.000	.000
Belief*Efficacy	-.125	.092	-1.37	.174	.174

Note. SRLIS = Self-Regulated Learning Instruction Scale

This research objective tested for a possible interaction effect between teacher beliefs and teacher efficacy on the use of SRL instruction. An interaction effect occurs when one independent variable depends on the level of the other independent variable (Field, 2013). For this study, there was no statistically significant interaction between teacher beliefs and teacher efficacy on the use of SRL instruction ($p = .174$).

Summary

This chapter reported results for each research objective outlined in this study. The purpose of this statistical analysis was to identify relationships between teacher-specific variables and the use of SRL instruction. Validated, pre-existing instruments examined teacher beliefs, teacher efficacy, and SRL instructional usage. The data collection process garnered a total of 156 completed questionnaires, yielding a 99% response rate. Analysis found no statistically significant relationships between teacher

subject area and SRL instruction. Furthermore, no statistically significant relationships existed between teacher beliefs and SRL instruction. However, a statistically significant relationship existed between teacher efficacy and SRL instruction. Finally, there was no interaction between teacher beliefs and teacher efficacy on the use of SRL instruction. The next chapter provides a summary of this study and highlights potential opportunities for future research.

CHAPTER V – SUMMARY

According to Belasco and Stayer (1993), "The skills that were right yesterday become today's wrong ones…continued learning is crucial to continued success" (p. 81). The ability to learn, unlearn, and relearn is essential in the 21st Century workplace (Senge, 2006; Warrell, 2014). Self-regulated learners are skilled in planning, monitoring, and adapting performance to achieve desired learning objectives (Harding et al., 2018; Zimmerman, 2000). Self-regulated learning proficiency develops from highly specialized instruction, substantial practice, and real-world application (Johnson, 2002; Yan, 2017). If executed properly, SRL instruction cultivates the skills necessary to establish goals, adjust effort, and perform after-action analysis following a learning activity (Zimmerman, 2000). Consequently, SRL instruction is challenging for many teachers to comprehend, embrace, and implement effectively (De Smul et al., 2018; Yan, 2017).

Successful SRL instruction requires educators to develop and use learner-centric lesson plans and authentic assessments to present their curriculum (De Smul et al., 2018; Yan, 2017). Teachers and learners must share responsibility for defining the various learning objectives and outcomes. With a multitude of internal and external factors influencing student success, teachers and workforce trainers are reluctant to use SRL instruction (Dignath-van Ewijk, 2016). This study examined teacher-specific variables that potentially influence the use of self-regulated learning instruction. Chapter V provides findings, conclusions, and recommendations from this study. This final chapter also highlights possible opportunities for human capital scholar-practitioners to build upon this research.

Introduction

SRL instruction requires teachers to identify each student's learning style, personal interests, current knowledge, and past experiences. Furthermore, SRL instruction connects new information with relevant, real-world requirements. SRL instructional competency emerges from pre-service and in-service training opportunities (De Smul et al., 2018). This study examined the relationship of teacher subject area, teacher beliefs, and teacher efficacy on the use of SRL instruction. Participants included PK-12 teachers employed full-time in a public-school district. The following sections discuss the findings, conclusions, and recommendations of this study.

Finding One

Finding 1: Teacher subject area is not related to the use of SRL instruction.

The study identified subject area taught for each participant. Teachers across all subject areas reported near equivalent use of SRL instruction. Data analysis indicated that teacher subject area does not have a relationship to the use of SRL instruction for this population.

Conclusion

A review of scholarly publications yielded limited findings addressing the relationship of teacher subject area with the use of SRL instruction. One study suggests teachers who possess in-depth subject area knowledge use advanced, student-centered instructional methods more frequently (Baumert & Kunter, 2013). Likewise, other researchers report math teachers as more likely to use SRL instruction than other subject area teachers (Fauzi & Widjajanti, 2018). Fauzi and Widjajanti (2018) discovered that

math teachers provided students with more opportunities to solve problems using self-regulated learning strategies. The results of the study do not support previous research.

Recommendation

Since subject area does not relate to the use of SRL instruction, the researcher recommends all teachers receive in-service training focused on self-regulated learning strategies. This will allow educators, regardless of subject area, the opportunity to enhance their SRL instructional knowledge. Furthermore, teachers should receive on-going professional development to increase subject area expertise. Deeper understanding of one's content area will facilitate greater use of SRL instruction.

Finding Two

Finding 2: Teacher beliefs do not influence the use of SRL instruction.

This study examined the relationship between teacher beliefs and the use of SRL instruction. This study found no statistically significant relationship between teacher beliefs and the use of SRL instruction. However, a review of questionnaire responses revealed many participants in this study held positive beliefs regarding self-regulated learning.

Conclusion

Despite teachers having positive beliefs regarding self-regulated learning, these beliefs did not increase the use of SRL instruction. This conclusion supports Spruce and Bol's (2015) research which states teachers failed to implement SRL instruction despite holding positive SRL beliefs. Spruce and Bol (2015) reported some teachers did not implement SRL instruction because they lacked confidence in their students' ability to grasp SRL concepts.

Recommendation

Participants in this study held positive beliefs about self-regulated learning. However, these beliefs did not increase the use of SRL instruction. This may be due to teachers lacking confidence that students can improve learning performance through SRL strategies. Therefore, in-service training sessions can highlight academic gains achieved in other school districts employing SRL instruction.

Finding Three

Finding 3: Teacher efficacy influences the use of SRL instruction.

This study examined the relationship between teacher efficacy and the use of SRL instruction. This research project found a relationship between teacher efficacy and the use of SRL instruction. Participants in this study felt moderately competent in implementing SRL instruction, providing challenging and complex tasks, and developing appropriate assessments.

Conclusion

Teachers who possess positive self-efficacy are more likely to use SRL instruction. This conclusion aligns with prior literature findings that indicate teachers who possess higher self-efficacy are more likely to use advanced instructional techniques in the classroom (Aydemir et al., 2014; Bandura, 1986; Tschannen-Moran & Woolfolk Hoy, 2001).

Recommendation

The researcher recommends participants receive in-service training focused on the use of SRL instruction. Additionally, teachers could teach mock classes to build their confidence in using these instructional techniques. Furthermore, teachers may attend

continuing education programs focused on SRL instruction. By increasing teacher efficacy, educators will become more confident and proficient at delivering SRL instruction to their students.

Discussion

Analysis of teachers' reported use of SRL instruction based upon the subject area taught did not reveal a significant relationship. However, math and science teachers reported higher levels of SRL instructional behaviors than those responsible for language and social study classes. Based upon prior findings, math teachers use SRL instruction more frequently than other subject areas due to pre-service preparation, state and federal educational mandates, and curriculum-specific teaching criteria (Yan, 2017).

While many participants reported positive self-regulated learning beliefs, research findings indicated no relationship exist between teacher beliefs and the use of SRL instruction. The disconnect between teacher beliefs and use of SRL instruction may be due to participants lacking confidence in their students' ability to apply self-regulated learning strategies. Additionally, limited leadership support may diminish the use of SRL instruction by educators. Likewise, state mandated priorities and standardized testing requirements may constrain teachers' ability to use self-regulated learning instruction in their classrooms. Furthermore, many participants reported having moderate levels of teacher efficacy regarding the use of self-regulated learning instruction. However, despite their reported confidence levels, very few participants formally incorporated SRL instruction into daily lesson planning and classroom activities.

Teachers face many challenges implementing SRL instruction in their classrooms: constrained resources, limited training, conflicting guidance, and wavering stakeholder

support for self-regulated learning concepts. The results of this study highlight the need for increased teacher professional development focused on the use of SRL instruction. This is particularly relevant in middle and high school where the literature reports teacher SRL efficacy and SRL instructional usage are the lowest (Yan, 2017).

Limitations of the Study

Limitations are conditions beyond a researcher's control that may influence the interpretation of findings. For this study, four specific limitations were present. The first limitation was the approach chosen to acquire data. This study used a single self-report questionnaire. When completing self-report questionnaires, biased responses may occur due to internal and external factors (Miles et al., 2014). Factors may include social desirability and collaboration between participants taking surveys at different times. The second limitation is the SRL instructional influences that extend beyond teachers' span of control. This study examined only the relationship of teacher-specific variables on use of SRL instruction. However, students, parents, school leaders, and a variety of other community stakeholders may affect use of SRL instruction based upon their beliefs for or against self-regulated learning (De Smul et al., 2018; Lombaerts et al., 2009). The third limitation involves the instruments selected for the study. The teacher beliefs, teacher efficacy, and SRL instructional usage instruments originated outside of the United States. Therefore, it is possible that translation of instruments from native languages into English may have impacted participant responses. The fourth limitation is this study only examined one school district; therefore, the results are not generalizable to a larger population of teachers. The following section will discuss possible opportunities to build upon the research stream initiated in this study.

Recommendations for Future Research

Future research examining the relationship of teacher-specific variables on the use of SRL instruction could begin with the limitations identified in this study. Specifically, subsequent data collection may incorporate qualitative methods such as classroom observations, teacher interviews, teacher focus groups, and examination of teaching artifacts. By employing mixed-method techniques, future research may yield increased data reliability and study validity. Additionally, follow-on studies could examine the use of SRL instruction from additional stakeholder perspectives such as students, parents, and school administrators to gain a more holistic perspective. Furthermore, future studies could incorporate both public and private school districts across the United States. Finally, if school leaders implement the recommended in-service SRL training, teacher-specific variables should be re-examined to identify potential changes in relationships. Future research should employ a modified question to ensure more accurate data collection on the teacher subject area variable. The summary below concludes the discussion of this research study.

Summary

Traditional PK-12 teaching methods fail to prepare high school graduates in the United States for the continuous learning requirements of the 21st Century workforce. School districts' emphasis on standardized testing has forced teachers to spend more time on teaching testable content rather than teaching students how to learn. Outdated teaching strategies have eroded the desire of many young Americans to pursue new knowledge beyond high school. Therefore, graduates enter the workforce ill-equipped to learn new information and skills necessary to remain competitive in today's global

markets. Consequently, American employers are losing ground to international companies staffed with self-directed life-long learners developed through years of SRL instruction.

Self-regulated learning instruction emphasizes learning by doing. It provides a pathway for learning success that students of all ages can follow. SRL instruction succeeds because learners use new information for a significant purpose. Self-regulated learning instruction gives learners an opportunity to attach new content to context that matters to the individual. Furthermore, SRL instruction lets the learner make decisions about how they will apply new information to the problems they face in everyday life. Finally, SRL instruction allows learners to take the initiative to shape their world. By doing so, self-regulated learning instruction can bring forth the full potential of each individual.

SRL instruction can be a powerful learning strategy for both traditional classrooms and modern-day workplaces. However, SRL instruction is not meant to replace other instructional methods, it is meant to compliment other methods. Nevertheless, SRL instruction is one of the few teaching strategies that takes a learner-centric, comprehensive approach to developing life-long learners across the entire life span. Arguably, the most valuable aspect of SRL instruction is its ability to allow all individuals a chance to reach their full learning potential, regardless of intellectual capacity or learning style. This study found that teacher's self-efficacy matters when implementing SRL instruction in the classroom. If teachers do not feel confident in their ability to grasp and employ SRL instructional principals, they will not offer this instructional opportunity to their students. Consequently, students may not have the

opportunity to become self-regulated learners prior to employment. Therefore, school leaders should provide intentional, well-designed professional development that cultivates teacher efficacy levels necessary to implement SRL instruction in the classroom. SRL instruction will ensure high school graduates can learn, unlearn, and relearn once they enter the workforce. These self-regulated learners will be able to adapt and thrive in rapidly changing environments. This will allow their organizations to compete more effectively in the dynamic global markets of the 21st Century.

APPENDIX A – IRB Approval Letter

IRB-18-179 - Initial: Goshorn Committee Letter – Exempt

irb@usm.edu

Thu 12/20/2018 10:42 AM

To: Hamett Brown <Hamett.Brown@usm.edu>; Jeffrey Coggin <Jeffrey.Coggin@usm.edu>; Michael Howell <Michael.Howell@usm.edu>; Michaela Donohue <Michaela.Donohue@usm.edu>

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NOTICE OF COMMITTEE ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:
The risks to subjects are minimized and reasonable in relation to the anticipated benefits.

- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately, but not later than 10 days following the event. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-18-179
PROJECT TITLE: The Influence of Teacher Demographics, Teacher Beliefs, and Teacher Efficacy on the Use of Self-Regulated Learning Instruction
SCHOOL/PROGRAM: School of ISPD, Human Capital Development
RESEARCHER(S): Jeffrey Coggin; Hamett Brown
IRB COMMITTEE ACTION: Approved
CATEGORY: Exempt
PERIOD OF APPROVAL: December 19, 2018 - December 19, 2019

Edward L. Goshorn, Ph.D.
Institutional Review Board Chairperson

APPENDIX B – Sylacauga City School District Approval

November 20, 2018

Mr. Jeff Coggin
1665 Abby Road
Auburn, AL 36830

Dear Mr. Coggin,

After reviewing your request to conduct survey based data collection regarding Self-Regulated Learning (SRL) from our K-12 faculty, I grant you permission to do so during the 2018-2019 school year in the form of a paper survey submitted voluntarily and anonymously by our teachers.

Please coordinate your efforts and contact with our faculty members through myself at 256-487-5120.

Sincerely,

Jon K. Segars, Ph.D.
Superintendent

APPENDIX C – SRL Teacher Questionnaire

Overview: This questionnaire examines *Self-Regulated Learning* from a K-12 teacher's perspective.

"Self-regulated learning" (SRL) refers to the learning process in which students are able to make use of skills that include self-evaluation, monitoring, control, and regulating to obtain knowledge. During the learning process, students acquire better results through setting learning goals, arranging learning plans, selecting learning strategies, monitoring learning processes, evaluating learning outcomes, and eliminating disturbance. As a reminder, your identity is anonymous and responses will be kept strictly confidential. Therefore, please provide accurate responses to all questions below. Please select only one response to each item. Your assistance is greatly appreciated with this research project.

Section 1: Please respond by circling the appropriate number below.

Q1: *Age Range?*	1 20-30	2 31-40	3 41-50	4 51-60	5 >60
Q2: *Gender?*	1 Male	2 Female			
Q3: *Grade Level?* (Currently Teaching)	1 PK-2	2 3-5	3 6-8	4 9-12	
Q4: *Subject Area?* (Currently Teaching)	1 Languages	2 Mathematics	3 Science	4 Social Studies	5 Other/Multiple
Q5: *Teaching Experience?* (K-12 Years Completed)	1 0-5	2 6-10	3 11-15	4 16-20	5 >20

Section 2: Please respond to the statement below by circling the appropriate number.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q1	Self-regulated learning makes pupils evaluate their learning approach better?	1	2	3	4	5
Q2	Pupils should be able to make decisions about the sequence and duration of their learning activities more often?	1	2	3	4	5
Q3	Pupils should be able to decide when they work on an assignment more often?	1	2	3	4	5
Q4	A self-regulated environment makes it easier to take into account pupils' experiences and interests?	1	2	3	4	5
Q5	Pupils have the capacity to determine what they want to learn?	1	2	3	4	5
Q6	Each pupil should be given the opportunity to regulate his/her own learning?	1	2	3	4	5
Q7	Self-regulated learning is practicable in K-12 education?	1	2	3	4	5
Q8	Self-regulated learning provides pupils with a more thorough preparation for their transition to life beyond high school graduation?	1	2	3	4	5
Q9	Self-regulated learning leads to a more efficient collaboration between pupils?	1	2	3	4	5
Q10	Pupils have the required self-discipline to take responsibility for their learning in K-12?	1	2	3	4	5

	Section 3: Please respond by circling the appropriate number from the rating scale below.	Cannot Do At All	Can Do Limitedly	Can Do Moderately	Can Do Certainly	Highly Certain Can Do
Q1	How well can you demonstrate self-regulated learning strategies (i.e., without explicitly explaining "the how" and "the why" of the strategy)?	1	2	3	4	5
Q2	How well can you express your thought process aloud when demonstrating self-regulated learning strategies?	1	2	3	4	5
Q3	How well can you encourage your students to use self-regulated learning strategies (for instance by asking open-ended questions)?	1	2	3	4	5
Q4	How well can you teach your students which self-regulated learning strategies exist?	1	2	3	4	5
Q5	How well can you inform your students about the importance and usefulness of self-regulated learning strategies?	1	2	3	4	5
Q6	How well can you teach your students how to use and apply different self-regulated learning strategies?	1	2	3	4	5
Q7	How well can you teach your students when and in what situations they can use and apply self-regulated learning strategies?	1	2	3	4	5
Q8	How well can you make decisions with your students about what they learn?	1	2	3	4	5
Q9	How well can you allow your students to make their own choices about the goals and expectations they set for themselves?	1	2	3	4	5
Q10	How well can you make decisions with your students about with whom they learn?	1	2	3	4	5
Q11	How well can you make decisions with your students about where they learn?	1	2	3	4	5
Q12	How well can you make decisions with your students when they learn?	1	2	3	4	5
Q13	How well can you provide your students just enough support so they can work independently?	1	2	3	4	5
Q14	How well can you challenge your students to achieve more than they initially thought (e.g., by determining with what additional help they can solve an exercise)?	1	2	3	4	5
Q15	How well can you adapt tasks and learning content so that they are sufficiently challenging for individual students?	1	2	3	4	5
Q16	How well can you present challenging exercises that can be solved in different ways?	1	2	3	4	5
Q17	How well can you apply new learning content in a meaningful, authentic context?	1	2	3	4	5
Q18	How well can you present new learning content in different contexts, so students can look at it from different angles?	1	2	3	4	5
Q19	How well can you let your students evaluate their own tasks?	1	2	3	4	5
Q20	How well can you let your students reflect on their own learning process?	1	2	3	4	5
Q21	How well can you let your students give feedback on the work of others?	1	2	3	4	5

	Section 4: Please respond by circling the appropriate number from the rating scale below.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q1	I teach students to find out the relationships between key points in their learning.	1	2	3	4	5
Q2	I teach students to understand the course content by hypothesis, deduction, etc.	1	2	3	4	5
Q3	I teach students to connect old knowledge with new knowledge by analogy, comparison, etc.	1	2	3	4	5
Q4	I teach students to check the mistakes they made on regular basis in order to monitor their learning situation.	1	2	3	4	5
Q5	I teach students to ask themselves questions to check whether they have understood the course content.	1	2	3	4	5
Q6	I teach students to set learning goals.	1	2	3	4	5
Q7	I teach students to select effective approaches and strategies to achieve their learning goals.	1	2	3	4	5
Q8	I teach students to positively evaluate their abilities to inspire their learning motivations.	1	2	3	4	5
Q9	I teach students to positively evaluate their "self-value" to inspire their learning motivations.	1	2	3	4	5
Q10	I teach students to reward themselves to inspire their learning motivations.	1	2	3	4	5

APPENDIX D – Self-Regulated Learning Teacher Belief Scale Approval

---------- Original Message ----------
Subject: Re: Permission to Use Self-Regulated Learning Teacher Belief Scale (Jeff Coggin)
From: "KOEN LOMBAERTS" <koen.lombaerts@vub.be>
Date: Fri, May 18, 2018 2:26 am
To: jeff.coggin@cogginops.com
Cc: "Free De Backer EDWE" <free.de.backer@vub.ac.be>

Dear colleague, of course no problem to use the instrument. The scale was part of a survey for teachers, there is not something like a soft copy. In the survey, we started with a metaphor on SRL to provide teachers an idea on the concept, as presented at the end of the paper.

Good luck with your study, looking forward to read about your results in the future.

Kind regards, Koen

<http://www.vub.ac.be/>

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bild.brussels <http://www.vub.ac.be/en/research/bild#about>

APPENDIX E – Self-Regulated Learning – Teacher Self-Efficacy Scale Approval

From: Mona De Smul <Mona.DeSmul@UGent.be>
Sent: Sunday, April 8, 2018 6:00 PM
To: Jeffrey Coggin
Subject: RE: University of Southern Mississippi (United States): Permission to Use the "Teacher Self-Efficacy Scale" (Jeff Coggin)

Dear Jeff,

Thank you for your email. Sorry for the late reply, I am currently exploring Canada and some parts of the state New York.

I am very pleased to hear that you liked the paper. You have my full approval to use the instrument. The English translation of the survey instrument with instructions is already added in the appendix of the manuscript. I also attached it to this e-mail. Struck-through items were used in the survey of my research, although left out of the final instrument (as you might have read in the paper).

If you have any other questions, please let me know. Success with your PhD.

Kind regards,
Mona

APPENDIX F – Self-Regulated Learning Instruction Scale Approval

From: YAN, Zi [C&I] <zyan@eduhk.hk>
Sent: Tuesday, May 8, 2018 8:33 PM
To: Jeffrey Coggin
Subject: RE: Self-Regulated Learning Instruction Scale (SRLIS): Request for Full Version and Usage Authorization (Jeff Coggin, PhD Candidate - The University of Southern Mississippi)

Hi Jeff,

Attached pls find the SRLIS. You are welcome to use this scale as long as appropriate citation is provided.

We obtained approval from Dr. Lombaerts for our project. You may try to contact some of his co-authors if he doesn't reply your request.

Best,
Yanzi

Yan Zi, PhD.
Associate Professor
Department of Curriculum and Instruction
The Education University of Hong Kong
10 Lo Ping Road, Tai Po, N.T.,
Hong Kong
Tel: 852 29486367

APPENDIX G – Participant Information Sheet

Self-Regulated Learning Research Project – Participant Information Sheet

Introduction:
Hello, my name is Jeffrey H. Coggin. I am a PhD Candidate in the Human Capital Development Department at the University of Southern Mississippi. I am currently working on my dissertation research entitled, "The Influence of Teacher Demographics, Teacher Beliefs, and Teacher Efficacy on the Use of Self-Regulated Learning Instruction."

Purpose:
I request all full-time educators please complete a very short questionnaire that will examine PK-12 teachers' perspective regarding "Self-Regulated Learning" instruction in the classroom. Self-regulated learning refers to the process in which learners are able to make use of self-monitoring skills that include self-evaluation, monitoring, control, and regulating to obtain knowledge. During the learning process, learners acquire better results through setting learning goals, arranging learning plans, selecting learning strategies, monitoring progress, evaluating learning outcomes, and eliminating disturbances. The results from this study may help advance teacher "Self-Regulated Learning" instructional effectiveness in the future.

Description of Study:
The questionnaire you will complete contains 46 items divided into four sections. The approximate time required to complete the questionnaire is 10 to 20 minutes. Once you read each item, please respond by circling the number with your desired response. I request you complete the questionnaire using a blue or black ink pen.

Benefits:
Your participation in this study is strictly voluntary. However, your assistance will help advance research and development focused on "Self-Regulated Learning" instruction. Participants who complete the entire questionnaire will have an opportunity to win a piece of art at the end of this event via a drawing.

Risks:
There are no risks expected from participation in this research study.

Confidentiality:
All information collected will remain confidential and will be strictly safe guarded. Furthermore, research questionnaires will not include any personal identifying information.

Alternative Procedures:
You are absolutely under no obligation to participate in this study.

Participant's Assurance:
The University of Southern Mississippi Institutional Review Board has verified that this research project involving human subjects follows federal regulations. Any questions or concerns about rights as a research participant should be directed to the Manager of the IRB at (601) 266-5997. Participation in this project is strictly voluntary and participants may withdraw from this study at any time without penalty or prejudice. Direct any questions about this research project to Jeffrey H. Coggin at (334) 663-2753 or Jeffrey.Coggin@usm.edu.

Questionnaire Administration:
If you wish to participate in this study, I will provide you with an Informed Consent Form to read and sign. Following completion of the Informed Consent Form, you will receive a two-page questionnaire for completion. Upon completion of the entire questionnaire, participants will receive a ticket for the art drawing. Thank You again for assistance with this important research project!

APPENDIX H – Informed Consent Form

Informed Consent Form

The Influence of Teacher Demographics, Teacher Beliefs, and Teacher Efficacy on the Use of Self-Regulated Learning Instruction

Direct questions regarding this project to Jeffrey H. Coggin at (334) 663-2753 or Jeffrey.Coggin@usm.edu.

This project and consent form have been reviewed by the Institutional Review Board which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

The purpose, benefits, risks, and other related information regarding this study was provided to me via the *Self-Regulated Learning Research Project – Participant Information Sheet* that I read completely.

The researcher's contact information was provided in case I have any questions regarding this study. I understand that participation in the project is strictly voluntary and participants may withdraw at any time without penalty, prejudice, or loss of benefits. I also understand that the information obtained from this project will be safeguarded and participation in this study will be completely anonymous.

Consent is hereby given to participate in the research project entitled *The Influence of Teacher Demographics, Teacher Beliefs, and Teacher Efficacy on the Use of Self-Regulated Learning Instruction.*

Please Print Your Full Name Below:

_____

_____ _____

Signature of participant **Date**

_____ _____

Signature of person conducting the study **Date**

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