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Metacognition as a Mental Health Support Strategy for Elementary Students with Anxiety

Kathi Weight
Seattle Pacific University

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Metacognition as a Mental Health Support Strategy for Elementary Students with

Anxiety

by

Kathi Weight

Dissertation presented to the

Faculty of the Graduate School of Education at

Seattle Pacific University

in Partial Fulfillment of the Requirements

for the degree of

Doctor of Education

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Date DECEMBER 2017

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Signature K. Weight
Date 1-9-18

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Seattle Pacific University

Abstract

Metacognition as a Mental Health Support Strategy for Elementary Students with
Anxiety

By Kathi Weight

Chairperson of the Dissertation Committee: Dr. John Bond, School of Education

Mental health issues affect learning and performance in profound ways. Schools tend to lack a comprehensive approach to address the needs of students with anxiety, due to the limited training staff receive in mental health identification and support. As teachers work to address barriers to learning, schools must develop a system to fully address the growing needs of students with anxiety. Metacognition plays a significant role in clinical psychology and is used as a mental health intervention and support in clinical settings. The possibility of the application of a specific cognitive strategy to classroom settings in order to support elementary students with anxiety could impact how students are served appropriately for mental health issues within the school setting. The purpose of this study was to examine the relationship between metacognition and its use as a mental health support strategy for elementary school students suffering from anxiety. The study presents a critical analysis of metacognition studies in both the educational setting and the clinical setting, as well as examines teacher perceptual data about supporting students with anxiety within the classroom. Participants in the study consisted of a convenience sample from an ex post facto survey administered to school staff in a small suburban Washington school district. Results of the study showed a statistically significant relationship between the use of metacognition, self-regulation as a component

of metacognition, and teacher confidence level in supporting students with anxiety. This study works to further advance the growing body of knowledge regarding the teacher's role in the support of mental health needs of students. Though the level of cognitive monitoring in children with generalized anxiety orders is not fully understood, further research linking the strategy of metacognition for students suffering from anxiety as a possible school intervention could aid the field of education in serving the social, emotional and behavioral development of students with anxiety.

Chapter One: Introduction

Mental health issues affect learning and performance in profound ways. Schools are increasingly recognized as an optimal setting for providing a full continuum of mental health supports to students, especially with the increased attention to the connection between mental health and academic success (Kauffman, 2001; Perfect & Morris, 2011; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). Unfortunately, a growing percentage of elementary age students struggle with mental health issues which create a barrier for achievement. According to a mental health report by the Office of the Surgeon General, anxiety disorders are among the most common mental health issues that manifest during the school years (United States Department of Health and Human Services [HHS], 1999). Anxiety-related disorders are estimated to have a lifetime prevalence as high as 31.9% of all youth, with nearly 9% experiencing severe impairment (Merikangas et al., 2010). The reported incidence of anxiety-related disorders is 5% to 18% in children (Connor & Meltzer, 2006). Despite the high rate of prevalence of this specific mental health concern and its implication on school success, strategic integration of mental health supports into education has proved challenging (Stephan, Sugai, Lever, & Connors, 2015). Mental health is defined by the United States Department of Health and Human Services (HHS, 1999) as:

A state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt and change and to cope with adversity. Mental health is indispensable to personal well-being, family, interpersonal relationships and contribution to community or society. (p. 4)

Educators have had limited training in strategies to address student mental health, and school-based support staff often have little experience in effectively providing a full continuum of mental health care for students (Stephan et al., 2015). Headley and Campbell (2013) reported that teachers receive very little training in children's mental health needs, therefore are unprepared to recognize and respond. Teachers acknowledge their role as potential helpers, but they lack confidence and would like to know more about student mental health (Rothi, Leavey, & Best, 2008).

Purpose of Study

As teachers work to address barriers to learning, schools must develop a system to fully address the growing needs of students with anxiety. Professionals with non-medical backgrounds, such as teachers, can learn to recognize mental health problems and manage such cases using relevant knowledge, attitudes, and skills (Rothi et al., 2008; Kidger, Gunnell, Biddle, Campbell, & Donovan, 2010). Metacognition has been acknowledged as a powerful strategy to enhance student learning in schools (Hattie, 2012). Additionally, metacognition has been recognized as one of the most important variables and effective strategies considered in treating anxiety within the field of psychology (Wells & King, 2006). The possibility of the application of a specific cognitive strategy in order to support elementary students with anxiety could impact how students are served appropriately for mental health issues within the school setting. Empirical studies have begun to analyze teacher perceptions of anxiety in children and indicate the absence of training in cognitive supports to apply to the classroom environment. Though the level of cognitive monitoring in children with generalized anxiety orders is not fully understood, further research linking the strategy of

metacognition for students suffering from anxiety as a possible school intervention could aid the field of education in serving the social, emotional, and behavioral development of students with anxiety. Teachers are in a unique position to provide identification and support for students with anxiety if provided a strategy to systematically apply within the context of the classroom.

Theoretical Construct

A theoretical construct that exists in the school setting and is also utilized in the clinical setting is metacognition. Metacognition includes knowledge and regulation of one's own thinking process. It is a deliberate reflection on cognitive function.

Metacognition plays an essential role in communication, reading comprehension, language acquisition, social cognition, attention, self-regulation, memory, writing, problem solving, and personality development (Flavell, 1979). Black and Wiliam (2009) acknowledged metacognition as a higher level psychological process (p. 19).

Metacognition refers to "all processes about cognition, such as sensing something about one's own thinking, thinking about one's own thinking and responding to one's own thinking by monitoring and regulating it" (Papaleontiou-Louca, 2003, p. 12). As a theoretical construct, metacognition is not equated with learning or development, but the conscious and deliberate regulation of that learning and development (Papaleontiou-Louca, 2003, p. 13). To equip students to succeed as learners in school and in life, teachers need to model metacognitive strategies, explicitly teach those strategies and provide time and scaffold support so strategies become automatic and a part of student's way of thinking (Fountas & Pinnell, 2001).

Metacognition develops with practice and is a “tool of wide application” (Papaleontiou-Louca, 2003, p. 25). The logical next step in promoting social and emotional health in schools is the deliberate consideration of metacognition as not only an academic strategy for children, but also as a mental health support strategy facilitated by teachers.

The purpose of this study was to examine the relationship between metacognition and its use as a mental health support strategy for elementary school students suffering from anxiety. The study presents a critical analysis of metacognition studies in both the educational setting and the clinical setting, as well as teacher perceptual data about supporting students with anxiety within the classroom. This study also presents a critical analysis of the research and theory to support educators in advocating the use of metacognitive strategies to enhance the social and emotional development of students. This study works to further advance the growing body of knowledge regarding the teacher’s role in the support of mental health needs of students.

Research Question

Is there a correlation between teacher utilization of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety?

Hypotheses

The two hypotheses and two null hypotheses derive from the research question presented:

H₁₀: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are independent.

H1_a: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are not independent.

H2₀: Metacognition and the confidence level in providing support to students with anxiety in the classroom are independent.

H2_a: Metacognition and the confidence level in providing support to students with anxiety in the classroom are not independent.

Research Design and Methods

A quantitative correlational research design was used for this study. A quantitative design focuses on finding statistically significant effects from data that can be quantifiable (Howell, 2010). The data can be expressed numerically and the results of the analysis tend to be generalizable across the larger population (Creswell, 2005). Quantitative data included data collected from a survey. A correlational design seeks to find relationships between two or more sets of variables (Creswell, 2005). In this study, the researcher studied the relationship between the use of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety. A separate qualitative analysis of the correlation was conducted via focus group. A qualitative data analysis is a method for analyzing verbal data (Vogt & Johnson, 2011).

Background

Steilacoom Historical School District No. 1 is geographically located next to Joint-Base Lewis McChord (JBLM) in Steilacoom, Washington. Established in 1854, Steilacoom Historical School District No. 1 is the oldest organized school district in Pierce County. The District serves the communities of Steilacoom, DuPont, and Anderson Island, plus portions of Lakewood and unincorporated Pierce County. Over

3,200 students are currently enrolled in the District's Pre-Kindergarten through 12th grade programs at six facilities: a remote and necessary K-5 elementary school on Anderson Island and five mainland schools - Cherrydale Primary School (Pre K-3), Chloe Clark Elementary (Pre K-3), Saltar's Point Elementary (4-5), Pioneer Middle School (6-8), Steilacoom High School (9-12). The District employs approximately 325 certificated and classified staff members. The proximity of the military installation and the positive academic reputation of the district has resulted in a high percentage of military families residing within the district especially within the boundaries of Chloe Clark Elementary School, which historically has nearly 60% or more students with at least one parent assigned to JBLM.

In 2013, the Washington State Legislature passed House Bill 1336, which increased the capacity of school districts to recognize and respond to troubled youth. This law required that each Washington school district have a safe-school plan in place by the 2014-2015 school year. The plan must address how a district will respond to student emotional and behavioral distress, including mental health concerns. The district conducted a preliminary analysis of current practices and discovered that basic response systems were not in place. The district sought out additional resources, as it lacked staff capacity and expertise in this area to address these needs. In spring of 2014, the district was awarded a nearly \$200,000 state grant to implement an emergency response system to expedite the response of first-responders in the event of a threat or emergency at a school. The district hired a consultant who led professional development for students, parents and staff in all schools. A plan was initiated, however there was still not a school-

wide systemic approach to address and respond to students in emotional and behavioral distress.

The district conducted a needs assessment during the 2015-2016 school year to identify current practices amongst schools in preventing, intervening, and supporting students in emotional and behavioral distress. The assessment included additional analysis (qualitative and quantitative) of student data (e.g., attendance, referrals, current student supports in place), staffing to student ratios (i.e., staff members who respond and support students in need), staff interviews, review of current services provided, and review of instructional services in social and emotional health. In this process, the district identified military connected students as a sub-group with unique needs and circumstances. The result of the analysis found that the district did not have a systemic process to identify, refer and support students in emotional and behavioral distress, and while the district has implemented additional supports for military impacted students, each program is isolated in nature and has not addressed military student challenges in a preventative and systematic manner. As a system, the district recognized that stressors for our military students include: abundant transitions, parent deployment, school curricula variations, various school requirements, adults lacking understanding of military culture, making new friends and leaving old friends, and limited access to extracurricular activities if arriving mid-year. Department of Defense data from 2011 shows that on average, military children move and change schools six to nine times and move three times more than their civilian peers (Clever & Segal, 2013). Whether the transitions impact a military child positively or negatively depends largely upon the support system within schools. Providing a cohesive and preventative approach to mental health supports

as a system was identified as a priority for the district. Review of the analysis conducted noted that staff self-report the lack of training and experience to effectively identify and respond to students in emotional distress.

In the fall of 2015, Steilacoom School District collected feedback from staff and communities by participating in the Center for Educational Effectiveness Survey (CEES). The survey, based on the Nine Characteristics of High Performing Schools, sought input using specific questions under the general headings of Collaboration and Communication; Clear and Shared Focus; High Standards and Expectations; Effective Leadership; Supportive Learning Environment; Parent and Community Involvement; Curriculum, Instruction and Assessment; and Monitoring Teaching and Learning. The feedback received from both staff and parents indicated a need for additional resources in the category of Supportive Learning Environment. A total of 644 parent surveys and 196 staff surveys were completed. A need for professional learning to personalize instruction to meet the needs of each student was indicated by 56% of staff respondents. Early intervention and remediation for struggling students was a need identified by 50% of staff respondents. An overwhelming need for training was indicated by 64% of staff to “meet the needs of a diverse student population in our school.” Only 30% of parents indicated that teachers accommodate special needs by adjusting instruction, which is another key indication of the need for further systematic alignment.

The district reviewed professional learning feedback from staff in early 2016. The district provides a weekly structure for staff to meet with professional learning communities and review data to improve instructional outcomes. Teachers were provided four additional days of professional learning directed by the district, as well as one hour,

per week to engage in professional learning opportunities. Staff members were introduced to social and emotional health training, including; Right Response; Love and Logic; and Theory of Mind. Derived from formative assessment data following professional learning courses, staff requested additional training in social and emotional health topics, specifically around social cognition and school-based preventive interventions designed to target children who are at risk for emotional distress.

In the 2013-2014 school year, the district partnered with JBLM and currently have two Military and Family Life Counselors (MFLCs) providing school-based services in four schools. These services are responsive in nature and provide short-term, non-medical problem solving activities. The positive outcome of the addition of MFLCs is their services allow for parents to attend sessions during school time. However, a barrier for tying the MFLCs work to the students' overall school community and school achievement (teachers, counselor, principal, etc.) is the confidential nature of the services. MFLCs are not allowed to take notes, log services, or communicate efforts with students' teachers. MFLCs are also supervised by staff outside of the school system. Due to these services being provided in the absence of a school-wide system, coupled with the short-term nature of the services, the needs assessment found staff sharing the difficulties of creating long-term support for struggling students.

At Pioneer Middle School and Steilacoom High School, there are established Student 2 Student (S2S) programs in place whose primary goals are to create a positive atmosphere for incoming students; ease the transition for incoming students and those leaving the school district, and to strive to make connections with new students. The needs assessment noted that many of the activities provided peer support during lunch

and other times (first day of school), which may cause anxiety and stress for students transitioning. Both schools also have a military health clinic on-site two days a week, to provide students an opportunity to have their medical appointments at school, and prevent additional missed instructional time. The coordinators of the military health clinics have stressed the importance of moving to a mental health services provider model as the next needed component of the school-based clinics based on the needs of students. In 2014, Pioneer Middle School served 22 students (8%) for behavioral and mental health diagnosis, while Steilacoom High School served 40 students (8%) for behavioral and mental health concerns. The school-based adolescent health clinics currently have capacity for screening for emotional or behavioral concerns and identify undetected emotional/behavioral health diagnoses as a primary concern for the military students served.

The needs assessment identified numerous initiatives taken by the district to support military impacted students. However, these efforts work individually without any integration of services. The lack of an integrated system and plan does not allow the district to use all available resources to have the greatest positive impact on students. In interviews, school counselors shared the challenge of balancing scheduling responsibilities (secondary schools) and direct instructional services (elementary schools) with support for students who may be experiencing emotional distress. Additionally, in the absence of a formal plan and system, there has been little coordination between the professional development offered and an evaluation of its effectiveness and direct impact on students. The ultimate goal was to determine a way in which teachers could provide support for mental health to students within the classroom setting.

Structure of Dissertation

This dissertation is organized into five chapters titled Introduction, Literature Review, Research Methods, Results, and Discussion of Results. Following the introduction of the dissertation in Chapter One, Chapter Two defines metacognition and reviews the literature in both the clinical field and within educational studies. Chapter Three describes the research design methodology of the study. Chapter Four summarizes the results of the study, including implications of the data. Finally, Chapter Five reports overall conclusions and recommendations resulting from the study.

Chapter Two: Literature Review

In this chapter, definitions, theoretical constructs, and empirical research on teacher knowledge of anxiety symptoms in children and the use of metacognition in both the educational realm and the clinical field are presented.

Definitions

Metacognition. Metacognition includes all processes about cognition, including thinking about one's thinking and the response to one's own thinking by monitoring and regulating it (Papleontiou-Louca, 2003). Metacognition is defined as enhancing metacognitive awareness of what one knows and metastrategic control in application of the strategies that process new information (Kuhn, 2000, p. 178). Teachers can use a variety of strategies to enhance metacognition, independent of grade level and subject area (Papleontiou-Louca, 2003).

Cognitive Behavioral Therapy. Cognitive Behavioral Therapy (CBT) emerged from learning and cognitive theory and strives to change maladaptive learning and thought patterns (Seligman & Ollendick, 2011). Metacognitive therapy is a form of CBT, which works to recognize the unhelpful thinking patterns and modify metacognition.

Self-Regulation. Borkowski, Chan, and Muthukrishna (2000) explained self-regulation as being at the heart of metacognition and recognized the complex elements of self-regulation as essential. Self-regulation is the basis for "adaptive, planful learning and thinking" (Borkowski, Chan, & Muthukrishna, 2000, p. 7). Self-regulation is a self-management process in which students transform their mental ability (Zimmerman, 1998).

Generalized Anxiety Disorder. Generalized Anxiety Disorder (GAD) is the most prevalent anxiety disorder, and can interfere with daily life functioning. GAD is characterized by excessive and difficult to control worry, combined with several anxiety symptoms (Barlow, 2002). GAD is often misunderstood but considered a valid diagnostic category with significant associated disability (Heimberg, Turk, & Mennin, 2004).

Theoretical Constructs

Metacognition and learning. The importance of metacognition in the process of learning is an idea that can be traced from Socrates' questioning methods to Dewey's twentieth-century position that one learns more from reflecting on one's experiences than from the actual experiences themselves (Dewey, 1910/1997). Dewey (1910/1997) concluded that one's own thinking and reflection was a critical component to improving learning and wrote:

As long as our activity glides smoothly along from one thing to another ... there is no call for reflection. Difficulty or obstruction in the way of reaching a belief brings us, however, to a pause. In the suspense of uncertainty, we metaphorically climb a tree; we try to find some standpoint from which we may survey additional facts and, getting a more commanding view of the situation, decide how the facts stand related to one another. (p. 11)

In alignment with Dewey's ideas that one's own thinking and reflection are significant components to improving learning, some scholars in the field of social cognitive development began to analyze the cognitive competencies of children (Mischel, 1981). John Flavell, an American developmental psychologist, wrote that analyzing and monitoring social cognitive competencies in detail would have "implications for the

rearing, education and welfare of children and adolescents” (Flavell, 1981, p. 286).

Knowledge about one’s own cognition and reflective processes were labeled as ‘metacognition’ by Flavell in 1976, with his preliminary work acknowledging the influence of Jean Piaget. In 1924, Jean Piaget explored the relationship between a child’s stages of developmental ability and the assimilation and accommodation into the surrounding environment. Piaget noted “there is a conscious effort on the part of thought to become more and more conscious of itself” (p. 143). Piaget recognized the significance of development and that “...all introspection is extremely difficult, for it requires that we should be conscious not only of the relations which our thought has woven, but of the actual activity of the thought itself” (Piaget, 1924, p.144). Piaget considered children’s ability of thought and the influence of cognitive development through interactions with peers.

As Flavell studied Piaget’s developmental theory and its relation to thinking processes, he considered the educational applications of metacognition in his future research work. Flavell described metacognition as consisting of both monitoring and regulating thought. Metacognitive knowledge, the awareness of one’s thinking, and metacognitive regulation, the ability to manage one’s own thinking processes, are essential in the understanding of metacognition (Flavell, 1976). Flavell (1976) asserted:

In any kind of cognitive transaction with the human or non-human environment, a variety of information processing activities may go on. Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in service of some concrete goal or objective. (p. 232)

Flavell emphasized four categories of metacognitive monitoring: knowledge; experiences; tasks or goals; and strategies or activities in which metacognitive tasks were the result of metacognitive knowledge and experiences, which could be monitored with strategies or activities to ensure the goal or task had been met (Flavell, 1979).

Metacognitive knowledge guides processing and implicit planning, which often operates outside of conscious awareness (Wells, 2002). Metacognitive planning of thought can also manifest more explicitly and is linked to processing for the control of cognition tasks. Wells (2002) stated “metacognitive knowledge data can serve to examine and modify thinking and beliefs” (p. 27).

Flavell reiterated that metacognition is one of the mind’s most important processes because it is one’s knowledge about processes and cognitive results. Metacognition is intentional, conscious, and can be directed at accomplishing a specific objective. Cognitive understanding evolves when a person is aware of his/her own cognitive abilities. Metacognitive strategies are ordered processes used to control one's own cognitive activities and to ensure that a cognitive goal has been met. These strategies are designed to monitor cognitive progress (Flavell, 1979). A person with good metacognitive skills and awareness uses these processes to oversee his own learning process, plan and monitor ongoing cognitive activities, and to compare cognitive outcomes with internal or external standards (Flavell, 1979). When metacognition is utilized, thought can be monitored and adjusted.

Theorists generally accept two aspects of metacognition: metacognitive knowledge and metacognitive regulation. Metacognitive knowledge is the information individuals have about their own cognition and about factors or strategies that affect it.

Metacognitive regulation is a range of executive functions that assist people in planning, monitoring and evaluating (Wells, 2002). Wells stated, “the idea that metacognition controls and monitors general cognition implies a distinction between two cognitive levels” (Wells, 2009, p. 7).

Bransford, Brown, and Cocking (2004) wrote, “Children develop knowledge of their own learning capacities-metacognition-very early. This metacognitive capacity gives them the ability to plan and monitor their success and to correct errors when necessary” (p. 234). Researchers have analyzed children’s understanding of the mental activity of thinking and Flavell (1999) noted that this awareness of mental state is already present during the preschool years and a great deal more develops during the elementary years. Metacognition in the form of inner speech as a cognitive activity was included in a 1997 study of preschoolers. Flavell, Green, Flavell, and Grossman (1997) found, “It is reasonable to think that experience in elementary school would foster awareness of inner speech. Reading, writing, and arithmetic-the basic staples of primary grade education-all require considerable private speech on the part of the learner” (p. 46). Flavell (1999) extended his definition of metacognition to “include anything psychological” and explained metacognition might also be attributed to processes of self-regulation that “are not conscious and perhaps not even accessible to consciousness” (p. 21). Metacognitive strategies, including “planning, monitoring and evaluating” (Schraw, 1998, p. 114) must be explicitly taught and practiced in context to solidify learning (Brown, 1992). Once metacognitive strategies become innate skills, individuals can utilize without consciously thinking about each strategy and can utilize in different contexts (Black & Wiliam, 2009).

Regulation of cognition refers to the activities used to regulate and oversee learning (Papaleontiou-Louca, 2008). One may show self-regulatory behavior in one situation but not another (Papaleontiou-Louca, 2008). Lagattuta, Wellman, and Flavell investigated Metacognition regulation strategies in three to six-year-old children in 1997. Researchers studied children's knowledge of the relation between thinking and feeling and the ability to generate metacognitive strategies to regulate emotion. Even the youngest children were able to apply the strategy. Still, sophistication is limited in understanding the link between thoughts and feelings, so must be taught explicitly as a strategy with young children. Flavell, Flavell, and Green (2001) concluded that 5-year-olds are generally unaware that thoughts accompany feelings without environmental cues as contributions. Flavell (1999) explained that even young preschoolers "show evidence of an understanding of emotions as experiential states of persons, as distinguished from the actions and expressions that emotions cause" (Flavell, 1999, p. 34). Exploring children's ability to regulate their emotions remains an important future research inquiry with implications for a range of cognitive and mental health outcomes. The promotion of social and emotional competence can facilitate cognitive skills and the development of self-regulation and, ultimately, learning (Blair & Diamond, 2008). Blair and Diamond (2008) explained students who can pay attention, persevere with tasks, solve problems, and work well with others generally do better in school than those who don't have these abilities or whose abilities are compromised by stress, anxiety, depression, or anger. The promotion of emotional competence can facilitate cognitive skills and the development of self-regulation and, ultimately, learning (Blair & Diamond, 2008).

Ann Brown, a developmental psychologist, concluded when problems in learning occur, it is not solely a matter of mental capacity, but rather, learners not making sense of what capacity they have (Brown & Smiley, 1978). Brown's definition of metacognition focused on two components. The first component referred to the knowledge one possesses about one's own cognitive processes and the second component involved the regulation of cognitive activity (Brown, 1994). Brown determined children often lack reflection and have "little insight into their own abilities to learn intentionally" (Brown, 1997, p. 400). Brown found that a child's level of metacognition is underestimated. She describes the vision of a metacognitive culture in classrooms with reflection and discussion as essential components of a quality environment. Brown (1997) encouraged schools to intentionally create metacognitive environments with "an atmosphere of wondering, querying, and worrying about knowledge" (p. 411).

Kuhn (2000) researched scientific reasoning and metacognition awareness and found that many adults lack the metacognitive awareness necessary to understand the source of their own belief system. Poor utilization of metastrategic knowledge may reinforce this inadequate metacognitive knowledge base. Kuhn (2000) furthered her work by studying metacognition in children and found that between ages 4 and 6, children begin to understand knowledge and begin to differentiate beliefs from knowledge:

Metacognition develops. It does not appear abruptly from nowhere as an epiphenomenon in relation to first-order cognition. Instead, metacognition emerges early in life, in forms that are no more than suggestive of what is to come, and follows an extended developmental course during which it becomes

more explicit, more powerful, and hence more effective, as it comes to operate increasingly under the individual's conscious control. (p. 178)

Hattie's contribution to the field of education includes a synthesis of meta-analyses that identify instructional strategies with high impact in the classroom setting. Hattie (2012) wrote, "The act of teaching requires deliberate interventions to ensure that there is cognitive change in the student" (p. 19). Hattie concluded most students need training in how to self-regulate their learning and other cognitive processes. Hattie defined self-regulation as a student's monitoring of their own learning and the term is used interchangeably with metacognition. The use of metacognitive strategies ranked high in Hattie's list of influences on student achievement with an effect size of 0.69 and an influence ranking of 14 out of 150 strategies analyzed (Hattie, 2012). Bransford et al. (2004) noted, "A metacognitive approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them" (p. 18).

Metacognition in the clinical field. The Progressive Movement of the early 20th century highlighted the emerging relevance of the field of educational psychology as emphasis was placed on the social and emotional well-being of children. The field of educational psychology became a defining force for the scientific study of learning, teaching, and assessment (Woolfolk, 2001). As a science, educational psychology depends on the systematic gathering of evidence or data to test theories and hypotheses about learning (Woolfolk, 2001).

The role of metacognition in the mental health field has evolved through the information-processing model by Wells and Matthews, which is associated with the self-

regulatory executive function model for vulnerability (Wells, 2009). Metacognition has been developed as a basis for understanding and treating psychological disorders (Wells & Matthews, 2014). Wells (2004) described metacognition as “the cognitive process, strategies and knowledge that are involved in the regulation and appraisal of thinking itself” (p. 167). When incorrectly activated, negative metacognitive beliefs result in interference with information interpretation and threaten mental health (Wells, 2004). The acknowledgement of the significance of metacognition contributed to the development of a form of therapy designed for individuals diagnosed with anxiety disorders. Metacognition is now examined as a fundamental basis for most psychological disturbances (Wells & Matthews, 2014). Wells (2009) stated, “There is something significant about the pattern of thinking seen in psychological disorders. It has a repetitive, recyclic, brooding quality that is difficult to control” (p. viii).

Flavell (1979) recognized the role of emotion, as well as cognition in the performance of tasks. While Flavell made the connection between educational practice and social psychology, promoting student metacognition has stayed isolated within each field. The possibility of the application of a specific cognitive strategy to classroom settings in order to support elementary students with anxiety could impact how students are served appropriately for mental health issues. Generalized anxiety disorder (GAD) is the most prevalent anxiety disorder and is characterized by excessive and difficult to control worry, combined with several anxiety symptoms (Barlow, 2002). Since becoming an official diagnostic category in 1980, GAD has been studied frequently in terms of prevalence, course, and characteristics (Koerner & Dugas, 2006). Worry is the key cognitive feature of the disorder. Worry involves catastrophizing what is yet to occur and

is difficult to control. The worrying process has been viewed as a coping mechanism, but the process itself can become a focus of worry (Wells, 1995). The worry about worry is a key concept in the metacognitive approach to treating GAD. Worry is linked to specific metacognitive beliefs and processes.

Metacognition refers to the aspect of the information processing system that monitors, interprets, evaluates, and regulates the contents and processes (Flavell, 1979; Wells, 2009). Negative thinking is problematic for emotional self-regulation because of multiple effects on “low level and strategic cognitive operations required for restructuring self-knowledge and developing effective coping strategies” (Wells, 2009, p. 32). Wells studied the relationship between cognitive awareness and regulation of cognitive activity and the needs of those diagnosed with GAD in 1995. Wells distinguished the difference between three basic varieties of metacognition in understanding GAD: (a) metacognitive knowledge; (b) metacognitive experiences; and (c) metacognitive control strategies (Wells, 1995). These three varieties of metacognition have substantial relevance in understanding metacognition in emotional disorders. Metacognitive knowledge can be explicit and implicit. Metacognitive experiences are the appraisals of the meaning of specific thoughts and how people use metacognitive knowledge to judge and appraise cognition. Wells’ metacognitive model considers the role of an individual’s beliefs and perceptions about their own cognition. Wells (2009) analyzed cognitive monitoring, which encompasses the ability to read one’s own mental states and assess accurately how that state will affect performance on mental activity tasks. Wells described metacognitive experiences as situational appraisals and feelings that individuals have of their mental status. These experiences are applied to one’s use of metacognitive knowledge to judge

and appraise cognition. Metacognitive strategies are the responses made to control and alter thinking in the service of emotional and cognitive self-regulation (Wells, 2009).

Wells (2009) wrote, “Strategies can be implemented independently of whether a thought is accurate. It adds the concept of subjectivity by experiencing self as an observer” (p. 258).

Vasey, a researcher on cognitive development and worry in children, suggested that anxious youth may lack the metacognitive awareness that they often worry about things that do not bother others and that they may be poor at recognizing and monitoring their level of affective arousal. He further suggested that young people with anxiety disorders fail to recognize when they are engaged in anxious self-talk, which could prevent them from engaging in self-regulatory mechanisms at the optimal time (Vasey, 1993).

Teachers need an understanding of anxiety, the consequences of excessive anxiety and how to identify symptoms indicating anxiety to address mental health cognitive barriers, so student learning can occur within the classroom. Teachers must be provided with cognitive classroom tools to address the issue and respond to student symptoms. One mechanism for addressing anxiety and preventing the problems associated with its debilitating effects is through cognitive behavior therapy (CBT) methods. CBT emerged from learning and cognitive theory and strives to change maladaptive learning and thought patterns (Seligman & Ollendick, 2011). CBT based strategies can be systematically applied to help reduce anxiety in students. The role of the teacher is not to provide therapy, but instead incorporate CBT based strategies that can be systematically applied to help reduce anxiety in students. CBT is a skill building approach, delivered in

a clinical setting that assists children in assimilating skills of new thinking into everyday situations. Its fundamental approach is similar to metacognition in that the therapy works to decrease cognitive distortion and “monitoring in anxiety provoking situations is often used to help a child identify specific maladaptive cognitions” (Seligman & Ollendick, 2011 p. 5). Cognitive behavioral therapy directly targets maladaptive thinking and helps students develop more appropriate and positive ways of thinking. CBT teaches students to use their inner speech to affect or to modify their underlying thinking, which in turn affects the way they behave. The inner speech consists of talking to oneself to solve a problem or guide behavior. Cognitive strategies can help students learn “how-to-think,” instead of “what-to-think.” These metacognitive strategies are student operated and are based on students’ self-control rather than external rewards and punishments. CBT includes cognitive restructuring, which “involves the identification and redirection of problematic channels of thought” (Ek & Eriksson, 2013, p. 231). This strategy can be used to teach students how to use their thinking. Wells (2002) found that “enhancing metacognitive skills and knowledge of unhelpful cognitive control strategies and the provision of replacement strategies for directing attention, discontinuing worry and retaining a metacognitive mode will be useful” (p. 119).

Metacognitive therapy is a form of cognitive behavioral therapy and an approach based on a theory by Wells and Matthews (2014) for the treatment of anxiety. In metacognitive therapy, metacognitive beliefs are a key influence on the manner in which an individual responds to negative beliefs and emotions. Those with psychological disorders, such as anxiety, have thinking patterns that become difficult to control, which leads to emotional distress. Wells (2009) stated, “They are the driving force behind the

toxic thinking style that leads to prolonged emotional suffering” (p. 6). Metacognitive therapy recognizes the unhelpful thinking patterns and works to modify metacognition. Therapists work to develop a greater metacognitive flexibility in their patients and thus modify the negative metacognitive beliefs that consume them. Essentially, a replacement plan for the negative thoughts is developed. Developing cognitive modification processes can be done when metacognition beliefs are utilized to guide the “content and nature of cognition” (Wells, 2002, p. 31). A strong focus of metacognitive research was initially on the theoretical aspects of metacognition, but there has been a strong focus regarding its educational application since “it is a helpful tool in teachers’ hands that is already in teachers’ repertoires” (Papaleontiou-Louca, 2003, p. 23).

Empirical Research

While the intentional use of metacognition is present in both the educational setting and the clinical setting, utilization of metacognition as a strategy that addresses the social and emotional needs of a student in the classroom setting did not appear frequently in the research studies. This may suggest the level of cognitive monitoring in children with anxiety disorders is not fully understood (Wells, 1995) and further research in children’s metacognitive beliefs is needed. Mental health conditions in children were not recognized consistently until recently. In fact, the Diagnostic and Statistical Manual of Mental Disorders, which contains a listing of diagnostic criteria for every psychiatric disorder that is recognized by the United States health care system, did not contain a developmental approach for children with GAD until 2013 (Anxiety and Depression Association of America, n.d.). Since GAD is a recent mental health concern, schools have not yet developed capacity for services to respond to the growing number of children

with an anxiety diagnosis (Stephan et al., 2015). Metacognition in relation to anxiety appeared more frequently in research studies conducted outside of the United States, but there was an obvious gap in the research involving children with GAD.

The impact of metacognition as an instructional strategy has been researched in a variety of classroom settings. Instructional time is enhanced through the utilization of metacognition since metacognitive thinking enables students to “identify and enlist strategies to promote and monitor learning....it would seem most appropriate that metacognitive instruction be conceptualized as an integral part of teaching activity” (Palincsar & Brown, 1987, p. 73). The focus of metacognitive instruction is to assist students in identifying and enlisting strategies to promote and monitor learning (Palincsar & Brown, 1987). To promote metacognitive development in children, “teachers should offer them opportunities for the fostering of metacognitive experiences, which in turn, will provide input to permanent metacognitive knowledge” (Papaleontiou-Louca, 2003, p. 18). The most significant gains in student achievement occur when students are taught the use of metacognitive strategies explicitly (Camahalan, 2006; Kistner et al., 2010).

Metacognitive activities in mathematics. Bond and Ellis (2013) studied the impact of metacognitive practice in the form of self-assessment on mathematics achievement of fifth- and sixth-grade students in a suburban area. Metacognitive skills in the form of reflection strategies teach students how to apply knowledge to coordinate thinking and decisions (Van Reusen & Head, 1994). Bond and Ellis (2013) conducted an experimental study, which included 141 students and six teachers. Students were randomly assigned to three groups (reflective assessment group, non-reflective review group and control group), with the reflective assessment student group receiving

metacognitive intervention in the form of “I Learned” statements and “Thinking Aloud” strategies immediately following the mathematics instruction (Bond & Ellis, 2013, p. 229). Students were given a post-test with questions derived from the mathematics curriculum. The post-test was found to be reliable with a Cronbach’s alpha coefficient of .72 (Bond & Ellis, 2013). A one-way analysis of variance (ANOVA) was conducted with an effect size of .273. Results showed a statistically significant main effect ($p < .05$). Students who were given the opportunity to employ reflective strategies were found to perform significantly better on the post-test when compared to the other groups in the study (Bond & Ellis, 2013). Students in the treatment group scored higher in the post-test ($M = 29.40$, $SD = 4.33$) than the other two groups. The results affirmed that, “Student reflection on material taught increases the probability that the student will learn the material” (Bond & Ellis, 2013, p. 233).

Metacognitive activities in science. In Cyprus, a study was conducted in primary school science content with sixty 11-year-old students to investigate the effect of metacognitive thinking incorporated with typical classroom activities (Georghiades, 2006). Students were studying the topic of electricity and were divided into two groups, both receiving instruction from the same teacher for the four lessons. The experimental group received metacognitive activities with content in the form of brief metacognitive activities lasting between two and six minutes. Students in the experimental group received an average of five to six metacognitive activities each lesson (Georghiades, 2006). The metacognitive activities employed were expected to “engage pupils in reflective thinking that subsequently helped them report or represent their understanding in a more conscious, meaningful and justifiable way” (Georghiades, 2006, p. 35). The

activities presented the opportunity for students to revisit new understanding and learning without adapting the teaching sequence of instruction.

Students' performance was assessed in three phases, with the final assessment at the end of the school year. An identical written test was utilized in all three phases with three different type of exercises to determine performance across contexts. Type A exercises did not include contextual evidence other than the question itself. Type B exercises were set in similar contexts to the science class. Type C exercises included tasks given in unfamiliar contexts. A statistically significant difference of 11% was found with the experimental group in Phase 3 assessments for Type A ($p = .05$) and Type B ($p = .023$) exercises. The study suggests children who engaged in metacognitive activities were able to make use of their knowledge for a longer period of time. Georghiades (2006) wrote, "Although metacognitive activities do not result in greater immediate gains in subject matter, they seem to be making a contribution towards more permanent restructuring of children's understanding" (p. 43). This study contributes to the understanding of the impact of situated metacognition on subject matter (Georghiades, 2004) and the feasibility of the use of metacognitive activities without sacrificing lesson content.

Metacognitive strategies and PISA scores. The use of metacognitive strategies was researched and found to be a significant predictor of achievement when controlling for socio-economic status (SES) and gender in a 2016 study (Callan, Marchant, Finch, & German, 2016). Researchers sought to determine the relationship between metacognition strategies and learning strategies for reading, math and science achievement. The 2009 Program for International Student Assessment (PISA) scores of 15 year-olds in 63

countries were examined. A total of 475,460 students were included in the study. Two Metacognitive Strategy Use Indexes (summarizing and remembering/understanding) and three Learning Strategy Use Indexes (memorization, control and elaboration) were included in the 2009 PISA data. Students were presented with scenarios and then evaluated the quality and usefulness of the strategies for reaching the intended goal. Researchers examined the relationship of Metacognitive Strategies and Learning Strategies to reading, math, and science achievement and analyzed which was the strongest predictor of achievement after controlling for SES and gender. Metacognitive Strategies entailed tactics to aid learners in thinking about thinking (Callan et al., 2016). Researchers concluded that Metacognitive Strategies strongly predicted achievement, while Learning Strategies did not. Strong correlation to achievement was found with Metacognitive Strategy Use ($r = .50$ for reading, $r = .46$ for math, and $r = .48$ for science); all $p < .001$. Learning Strategy Use component demonstrated a weak correlation to achievement ($r = .02$ for reading, $r = -.03$ for math, and $r = -.01$ for science).

Metacognitive strategies for reading comprehension and vocabulary. The direct teaching of metacognitive strategies in assisting students to comprehend text was studied in third grade classrooms (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007). The purpose of the research was to determine the effectiveness of systematic direct instruction of various metacognitive strategies in reading comprehension of expository text. One hundred and nineteen third-grade students in six classrooms were included in the five-week study. One school was selected as the intervention school and the other school served as the comparison school. All students were pre-tested and post-tested in both reading comprehension and vocabulary. The designated intervention school

classrooms incorporated specific “think aloud” metacognitive comprehension strategies and activities in vocabulary with visual representation of the word’s meaning instead of memorization, while the comparison school classrooms did not.

The post-test was a criterion-referenced vocabulary test and a standardized reading comprehension test. The intervention group improved significantly over the comparison group in vocabulary, $F(1, 117) = 22.521, p < .001$, with an effect size of 1.61, and in reading comprehension, $F(1, 117) = 4.28, p < .041$. Researchers used a Binomial Effect Size Display (BESD) to better understand the academic gain of the experimental group. The BESD showed the intervention group with a 40% difference in gains in vocabulary between the two groups and a 20% difference in gains in reading comprehension for the five weeks of the intervention. The metacognitive reading comprehension instruction significantly improved the academic achievement of third-grade students in reading comprehension and vocabulary (Boulware-Gooden et al., 2007).

Mental health and role in education. A teacher’s responses to a student’s struggles and achievements are pivotal for that student’s executive functions and metacognitive skills (Bodrova & Leong, 2007). By breaking a problem down into manageable pieces, drawing attention to salient details, and helping a student organize his/her thoughts, teachers not only help students plan and sequence their thoughts, but also enhance their ability to stay focused on a problem and ignore distractions (Schunk & Zimmerman, 1998).

Mental health educational researchers Meldrum, Venn, and Kutcher (2009) emphasized the critical position educators are in to help make a positive change in

childhood mental health. They advocated for mental health to be a part of the curriculum in schools and for teachers to receive mental health professional development in order to better understand and recognize the issues impacting student achievement. Gowers, Thomas, and Deeley (2004) surveyed 291 elementary school teachers about children's mental health and its role in education. Half of the teachers indicated awareness of children in their classrooms with mental health issues and 81% said these issues created difficulty while teaching. Fifty-six percent indicated either inadequate or fairly inadequate understanding of mental health issues.

Teacher awareness of anxiety symptoms in children. Teachers have the opportunity to observe students in a variety of settings and on a regular basis, yet studies addressing teacher awareness of anxiety in children have been limited. Layne, Bernstein, and March (2006) conducted a study of 453 children to evaluate teacher awareness of anxiety in students. Second to fifth grade students completed the Multidimensional Anxiety Scale for Children (MASC) as a self-nomination instrument of data collection. Teachers were asked to nominate the three most anxious students in their classroom. Layne et al. (2006) stated: "Because school-based mental health services offer tremendous opportunity for early intervention, knowledge about teachers' ability to identify anxiety in the classroom is of great importance" (p. 7). With focus on children ages seven to eleven, researchers had a 61% participation rate with active parental consent, with the mean age of students as 8.7 ($SD = 1.19$). Researchers generated a total anxiety score from the MASC assessing anxiety symptoms across four scales using a Likert scale. A 2x2x4 MANOVA was conducted to compare the main effects of teacher nomination, gender and grade. Significant gender differences in report of anxiety did not

emerge, but the interaction effect of nomination status and grade ($F [15, 1257] = 1.81, p = 0.03$) indicated significance at the $p < 0.05$ level. A univariate analysis indicated that teacher-nominated children had significantly higher anxiety scores than non-nominated children on the scales measuring total anxiety. Layne et al. (2006) methods included both a teacher nomination element, as well as the completion of the MASC by elementary students. The study's sample size ($n = 453$) was sufficient, but due to the parental consent limitation, the sample size was 583 less than intended by researchers. Teacher nomination was included as an additional means of identifying potentially anxious students, but no demographic information of teachers was provided in the study. Researchers did not include the sample size of teachers included in the study, thus limiting the usefulness of the findings. Though limited in scope, the study showed that teachers are able to identify anxiety in their students, beyond anxiety that manifests as observable behavior.

Teacher knowledge of anxiety in children. Although teachers have an understanding of anxiety, some appear to have difficulty recognizing the continuum of anxiety and how to help students suffering from anxiety in their classrooms (Headley & Campbell, 2013). Recognition of internalizing disorders, like anxiety, present a challenge for teachers who have not been trained in symptoms associated with mental health concerns (Headley & Campbell, 2013). Headley and Campbell's (2013) study in the *Australian Journal of Teacher Education* researched teacher knowledge of anxiety and the identification of excessive anxiety in children:

A surprising finding was that teachers commonly reported that anxiety reflected the inability to cope or manage. Considering this outcome in conjunction with the finding that many teachers believed the experience of anxiety was not normal or

was disordered, indicates that, although teachers may have a basic understanding of anxiety, they often consider it to be largely an unnatural experience. (p. 60)

Researchers considered teacher knowledge of anxiety and recognition of symptoms in the study of 315 primary school teachers with years of teaching experience $M = 16.72$. A Teachers' Anxiety Identification and Referral Questionnaire (TAIRQ) was administered to teachers in 27 Brisbane Catholic Education Schools in a large Australian city. Three key themes evolved through an inductive thematic analysis: definitions of anxiety, normality of anxiety and anxiety in context. Teachers described five subthemes when defining anxiety, with an overwhelming majority frequency rate of 239 for "emotional response." Teachers viewed anxiety in students as synonymous with nervousness, stress, fear or being scared (Headley & Campbell, 2013, p. 54). Teachers "acknowledged that anxiety has significant consequences for children" (Headley & Campbell, p. 61) and impacts performance. The TAIHQ results showed a lack of awareness of anxiety on a continuum. The study provided additional evidence that suggests teachers have a general understanding of anxiety but lack the knowledge in identifying mental health symptoms and have little experience in how to provide strategies to assist those struggling with anxiety. Headley and Campbell (2011) concluded teachers would benefit from specialized training and ongoing professional learning in children's mental health. Teachers are unable to distinguish moderate to severe anxiety and thus children are experiencing anxiety without referral for treatment.

A 2011 Australian study by Headley and Campbell investigated the ability of teachers to identify the severity of anxiety problems in children and teacher decisions regarding referral for mental health support. Two hundred and ninety-nine teacher

participants from 27 primary schools were included in the study that utilized the TAIRQ. One part of the TAIRQ included five vignettes, with four utilizing internalizing anxiety disorders, with increased severity for each vignette. The vignettes were analyzed and ranked by nine experts in the field of child psychology. The questionnaires randomized gender, since gender of the child has been shown to influence recognition of the problem (Headley & Campbell, 2011). A 2x2x5 MANOVA was used to investigate the effects of severity of anxiety, student gender, and teacher gender on teacher rankings of need for referral. The study revealed a significant multivariate main effect of severity of anxiety on the ranked need of referral for the children represented in the vignettes $V = .084$, $F(4, 237) = 301.96$, $p < .001$. Teachers were able to correctly identify the children in the vignettes who were in most need of referral, but were unable to distinguish between a child with moderate anxiety symptoms and one with severe anxiety disorder. Researchers found that teachers' gender played a role on the decision to refer a child, with female teachers ($M = 3.12$, $SE = 0.04$) referring more than male teachers ($M = 2.87$, $SE = 0.07$). The study found no significance in the child's gender, $F(1,284) = .037$, $p = .54$. Headley and Campbell's (2011) investigation showed that overall, teachers have difficulty distinguishing anxiety when at a moderate to severe level and male teachers are not as likely to refer a child of concern.

The 2011 and 2013 studies by Headley and Campbell included a survey method in the form of a teacher questionnaire to identify teacher knowledge of anxiety symptoms in students. This analysis of teachers' qualitative responses explored knowledge of childhood anxiety and referral decisions. No form of student data was included, so parental consent was not a barrier to participation in study. In both studies, the sampling

included teachers from one major city in Australia. Headley and Campbell's (2013) study included an inductive thematic analysis to code teacher responses into themes: definitions of anxiety, normality of anxiety, and anxiety in context. Themes were identified at a semantic level. The process "allowed a progression from a descriptive level to an interpretive level once the semantic content was organized into themes" (Headley & Campbell, 20013 p. 53). Teacher direct quotes were categorized under each theme and provided researchers an opportunity to find significance in the reporting frequency rates of specific themes. A clear theme emerged in teacher responses defining anxiety as an emotional response. A limitation to the study was the method of self-reporting by teachers ($n = 315$), rather than an interview method. Responses were limited in length and depth on the questionnaire and the study's qualitative nature lends itself to limited interpretation of results. Frequency of thematic identification was included, but coding of teacher responses was conducted by the researchers and not independently verified.

The 2011 study by Headley and Campbell was similar in design to the 2013 study, but included a smaller sample population ($n = 299$) with the TARQ self-report questionnaire and an added vignette interpretation of internalizing anxiety behaviors. Researchers also included their findings related to the influence of teacher gender on referral rates. One identified limitation in Headley and Campbell's (2011) study were the vignettes utilized had not been tested for validity and reliability. Teachers may have responded differently to the vignettes than their usual referral patterns within the classroom setting.

Relationship between metacognition, self-esteem, and mental health.

Metacognition as a strategy was analyzed in older students (Foumany, Salehi, & Ifaei, 2014) with conclusive results of one's ability to manipulate the cognitive process to improve learning. Individuals with well-developed metacognitive skills can approach a thought or learning task with more favorable outcomes.

A 2014 study in Iran analyzed the relationship between metacognition, mental health and self-esteem in college students attending Zanjan University. Although the study does not apply to an elementary school setting, the results showed an inverse correlation between metacognitive beliefs and the mental health of university students. The study sample included 203 male undergraduate students and 169 female undergraduate students selected using a stratified random sampling method. Foumany, Salehi, and Ifaei (2014) tested the hypothesis that metacognition and self-esteem are associated with mental health. Students were administered three questionnaires regarding the factors of metacognition level, self-esteem and mental health. The metacognition questionnaire had 30 items and included five subscales concerning uncontrollability of thoughts, beliefs about worry, cognitive awareness and confidence in the need to control thoughts. Reliability was obtained with the Cronbach alpha coefficient with a range from 0.72 to 0.93. The reported coefficient of internal consistency for the total scale was 0.91 and the test-retest was 0.73. The mental health questionnaire contained 8 subscales with the validity of the subscale of anxiety being 84% and showed a meaningful inverse correlation between metacognition and mental health in students, $r = .453$ and $p = .000$. Researchers concluded that students with positive metacognitive beliefs have better

mental health. In other words, maladaptive metacognitive beliefs have a major role in mental health.

Researchers concluded that metacognition is an important factor in vulnerability to psychological disorders, with maladaptive metacognitive beliefs playing a significant role in mental health. The study emphasized the importance of the deliberate teaching of strategies to increase effectiveness in academic arenas (Foumany et al., 2014). The researchers' 2014 study utilized three survey tools to measure the relationship between metacognitive beliefs, mental health and self-esteem as variables (Foumany et al., 2014). The results showed a positive correlation between metacognitive beliefs and better mental health. One of the questionnaires included was translated for use in the Iranian student population, while the other two surveys were not translated. Data was analyzed using the stepwise and multiple regression analysis, with internal consistency validity included in the study. No major methodological issues existed other than the inclusion of a total of 113 questions with the use of 3 measurement tools. The population of undergraduate students at Zanjan University were not described in detail, therefore it is not clear how the 203 male students and 169 female students were selected to participate in the study. Since all were undergraduate students, it may be difficult to assume the findings can be applied to a public school setting. College students are at a different developmental stage in cognitive awareness and no collection of information on early school experiences was conducted in the study. The study did not identify anxiety specifically in the discussion of mental health.

School-based mental health intervention. Collins, Woolfson, and Durkin (2013) evaluated the effects of a universal mental health promotion intervention in Scottish

primary schools. The intervention used was theoretically grounded in CBT and focused on developing coping skills (Collins, Woolfson, & Durkin, 2013). A total of 317 students, all 9- to 10-year-olds, from nine primary schools in Central Scotland were included. The study sample consisted of five classes with intervention led by school psychologist ($n = 103$) four classes in the teacher-led group ($n = 79$), and seven classes in the comparison group ($n = 135$). No significant gender differences were found between the groups; $p = 0.133$. Coping and anxiety were measured pre- and post-intervention and a six-month follow-up was conducted. All teachers and school psychologists leading the intervention groups attended a one day training session for a locally developed mental health program focused on cognitive behavioral therapy principles. The intervention program was intended to reduce anxiety in children by development and practice of coping and problem solving strategies (Collins et al., 2013, p. 90).

The intervention consisted of 10 lessons with a Coping Strategy Indicator (CSI) and the Spence Children's Anxiety Scale (SCAS) used measure coping and anxiety. The CSI and the SCAS were administered pre-intervention and post-intervention with a follow-up at six-months. ANOVAs were carried out to test for differences between the three groups on each of the dependent variables at pre-intervention, with no significant between-group differences found on anxiety, $F(2, 327) = 0.13, p = 0.878$. Significant differences were found between groups on all coping skills subscales: avoidance, social support, problem solving and seeking social support. After controlling for pre-intervention levels of anxiety, researchers found significant main effect of group, $F(2, 302) = 36.25, p < 0.001$. The post-intervention anxiety scores were significantly lower in the psychologist-led group to the comparison group, $t(302) = -8.09, p < 0.001, r = 0.41$

and in the teacher-led group compared to the comparison group, $t(302) = -5.77, p < 0.001, r = 0.31$. No significant differences were found between the teacher-led and psychologist-led groups ($p = 0.184$) during post-hoc tests. The level of self-reported anxiety significantly reduced in the intervention groups post-treatment, with effects still evident at the six-month follow-up. Researchers stated, “This provides robust evidence that appropriately trained teachers can deliver anxiety-intervention programmes effectively” (Collins et al., 2013, p. 95). The study contributes to an evidence base suggesting that children can benefit from CBT-based programming and teachers can be trained to support students’ mental health (Collins et al., 2013). The researchers surveyed students and applied a CBT intervention in the school setting. Results indicate intervention related to anxiety and coping can be successful with elementary students. Researchers included a discussion on the practical implementation regarding professionals that should deliver CBT strategies in the prevention of anxiety disorders. A methodological consideration to consider is that the random allocation of individual participants to intervention conditions is difficult since students are already in established classrooms. Variances between classrooms and schools could impact the causality and intervention conditions. Another consideration in the study was the demographics of the schools participating. All schools included in the study were relatively affluent and suburban school settings, thus transferability of findings would be difficult. Fidelity rate of intervention implementation was high and adherence to the intervention treatment was evaluated on a Likert scale of 1 (did not follow manual at all) to 7 (completely followed manual), but the study did not indicate who completed the fidelity rating scales across facilitator groups by lesson.

Temperament and anxiety: The mediating role of metacognition. The content of thinking is also important in explaining the nature of psychological disorders. How people think has an important role in understanding and designing treatment for mental health issues. Several studies indicate the relationship between metacognitive domains and a wide variety of mental disorders, particularly emotional disorders. Temperament and anxiety in adults diagnosed with anxiety disorders was analyzed in relation to the role of metacognition in Poland in 2014. A clinical sample of 216 adults was used to shed light on specific relationships between certain traits, like temperament, and psychopathology. The study results provided evidence of the validity of maladaptive metacognition as a significant factor influencing the temperament-anxiety relationship (Dragan & Dragan, 2014). The model was correlational and based on the premise that maladaptive metacognition is universal amongst all emotional disorders.

Dragan and Dragan (2014) analyzed the role of metacognition in mediating anxiety and temperament traits. Participants were administered the following questionnaires as part of the study: The Formal Characteristics of Behavior – Temperament Inventory (FCB-TI), The State-Trait Anxiety Inventory (STAI), and the Metacognitions Questionnaire-30 (MCQ-30). Descriptive Statistics for all variables with maladaptive metacognition as an intervening variable worked to clarify the relationships between anxiety and the three temperament traits. Metacognition was significantly predictive for anxiety in both males ($b = .49$) and females ($b = .37$). Researchers found that “maladaptive metacognitions linked with the intensification of anxiety” (Dragan & Dragan, 2014 p. 253). The study supports the intent of the use of a metacognitive strategy directed at modifying maladaptive metacognition to treat anxiety. Researchers expressed

the desire to conduct longitudinal studies on this topic to examine other components of maladaptive metacognition. Authors' findings support the relationship between metacognition and emotional regulation but the sample was adult psychiatric patients in Poland. The sample consisted of 55.1% females and 44.9% males, with more than half of the sample (55.5%) having received education through secondary school. The three questionnaires had acceptable Cronbach alphas, ranging from .73 to .85 for the FCB-TI, .88 for the STAI, and .87 for the MCQ-30. Results were correlational and did not address the various categories of anxiety disorders and only included participants seeking treatment for anxiety disorders.

Summary

School-based preventive interventions designed to target children who are at risk of emotional problems have been shown to alleviate symptoms and increase positive coping strategies (Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2014). One in five children will experience a significant mental health issue during their school years (HHS, 1999). 70% to 80% of children who receive mental health services receive those services in school and for many children the school system, it is their only form of support (Burns et al., 1995). Despite the growing need of mental health services, "the gap between the number of children who have documented mental health need and the number who actually receive services is becoming recognized nationally as critical in terms of its impact" (Kutash, Duchnowski, & Lynn, 2006, p. 20).

Mental health is still a widely misunderstood diagnosis, especially in children (Owens et al., 2002). One consideration that may limit the inclusion of metacognition as a strategy for students with anxiety in the school setting is that teachers currently receive

little pre-service training in the identification of children who present with mental health issues (Koller & Bertel, 2006). In a teacher perception study conducted by Reinke, Stormont, Herman, Puri, and Goel (2011), only 4% of teachers strongly agreed that they had the knowledge required to support children's mental health needs. Teachers have complex roles and are responsible for a variety of student needs, with numerous priorities to address.

Research from the United States is limited surrounding childhood anxiety and a specific strategy applied within the classroom setting to address this significant mental health concern. Of the empirical research found which specifically addressed anxiety disorders in children, most were from countries other than the United States. Barlow referenced studies in adult populations have analyzed cultural variations, but very few studies have considered child populations. Epidemiological studies related to childhood anxiety have not been typical (Barlow, 2002) compared to clinical studies. There is an abundance of literature regarding the prevalence and incidence of children's mental health concerns, yet very little information regarding specific training for staff to address these issues. The majority of school mental health services are provided by school counselors, psychologists, and social workers, which signals a shortage in trained professionals to provide broad-based mental health supports that span the prevention to intervention continuum. Rones and Hoagwood (2000) wrote, "It is surprising that so little attention has been given to the effectiveness of school programs targeted toward prevention, reduction, or treatment of mental health problems" (p. 223). The majority of school studies infused a scripted social skills curriculum as the intervention method, not an applied instructional strategy.

Research on childhood anxiety remains in the field of clinical psychology and is not extensive in the educational realm. Few studies are available which are specifically focused on students with anxiety and achievement in the school setting. “Development and evaluation of such programs is greatly needed as anxiety disorders are the most common mental health disorder among children and adolescents” (Rones & Hoagwood, 2000, p. 238). Student achievement outcomes as related to school-based mental health services have been omitted from existing research. Longitudinal studies related to childhood anxiety and student success are absent in the literature. “Given the significant role schools play in providing mental health services to children and adolescents, the fragmentation and inconsistencies in the existing literature, the growing numbers of children with unmet needs, and the growing number of programs being used that have no evidence of impact” (Rones & Hoagwood, 2000, p. 224), there is a clear need for further research in application of classroom based cognitive strategies.

Teacher perception data and student self-identifying data was used to show the relationship between the classroom setting and student mental health needs. In general, teachers were found to be aware of anxiety symptoms in students, but were unable to evaluate the degree in which students suffered from symptoms or how anxiety specifically affected school achievement in measurable ways. Studies lacked a design that included previous teacher professional development on anxiety or educational experiences with childhood anxiety.

Research acknowledging the relationship between teacher perception about childhood anxiety (Headley & Campbell, 2011; Headley & Campbell, 2013; Layne, Bernstein, & March, 2006) and the lack of teacher training in recognition of mental

health supports was identified. The evidence of schools playing an increasingly important role in supporting the mental health of children is clearly articulated.

In studies related to children's metacognition and self-regulation of emotions, the findings have shown that the strategy of metacognition has not been applied in elementary settings. One consistent conclusion is learning to regulate emotions is identified as one of the most critical tasks of early childhood. The more proficient children are at regulating their emotions, the more likely they are to enjoy academic success in the long run (Graziano, Reavis, Keane, & Calkins, 2007). Self-regulation is expected of students to manage learning experiences at all grade levels. "Although self-regulation has been shown to be essential to all major dimensions of academic, athletic and health functioning, it remains a largely hidden dimension in most schools" (Zimmerman, 1998, p. 73).

Coordination between the educational field and the clinical field provides the greatest opportunity to understand the relationship between metacognition and its application to support students with anxiety in the context of the classroom environment. Given the need for early intervention and prevention methods for anxiety disorders in children, teachers need to be formally educated to identify children exhibiting internalizing symptoms. Developing teacher confidence in providing strategies to manage student anxiety in the classroom would benefit both teachers and students (Headley & Campbell, 2013).

The school counselor as the sole provider of mental health support is no longer feasible as their roles expand with the growing needs of students (Stephan et al., 2015). As a result of the changes to job duties, counselors will need an enhanced coordination

and collaboration within a school “to provide the type of cohesive approaches necessary to deal with the complex concerns” (Adelman & Taylor, 2002, p. 244). Coordination of staff efforts will involve the incorporation of strategies to be used as a support system to remove barriers to learning. In relation to students with anxiety, metacognition is a purposeful cognitive strategy used to recognize patterns in thinking and to regulate attention toward positive reframing of anxious thoughts. Wells (2009) noted, “Teaching metacognition strategies has large and rapid results” (p. 258). According to Ek and Eriksson (2013), “The best way of improving young people’s psychiatric health is to provide across-the-board knowledge, for both pupils and staff, in dealing with such difficulties” (p. 242). Research studies that detailed children with anxiety were limited in scope, so the applicability of metacognition as a strategy for mental health support is unclear. As Brown (1994) stated, “Cognitive learning theories are only now beginning to have an effect on classroom practice...The vocabulary is slowly changing. The practices lag behind” (p. 6). It is expected that a high impact strategy, like metacognition, has not found its way into the classroom setting to serve the emotional needs of children yet. Brown’s statement gives hope and a purposeful direction for education and psychology professionals to collaborate on what is best for student learning.

The purpose of this study was to examine the relationship between metacognition and its use as a mental health support strategy for elementary school students suffering from anxiety. It would seem appropriate that metacognitive instruction be conceptualized as an integral part of teaching activity (Palincsar & Brown, 1987, p. 73). Chapter Three outlines the methodology of the study and addresses the main question of the study: What is the correlation between teacher utilization of metacognition as an instructional

strategy and the level of teacher confidence in working with students with anxiety?

Details are included on research design, participants, and instrumentation.

Chapter Three: Research Methods

This study was designed to investigate teacher utilization of metacognition as an instructional strategy and its correlation to the level of teacher confidence in working with students with anxiety. Self-regulation has been described as being at the heart of metacognition (Borkowski et al., 2000), so is also considered as one of the variables in the study. The purpose of this study was to examine the relationship between the confidence level of teachers working with students with anxiety and the utilization of a high-yield instructional strategy, metacognition. This chapter is organized into four sections. These sections describe the research design, the participants, instrumentation, and data analysis.

Research Design

A quantitative correlational research design was used for this study. A quantitative design focuses on finding statistically significant effects from data that can be quantifiable (Howell, 2010). The data can be expressed numerically and the results of the analysis are generalizable across the larger population (Creswell, 2005). Quantitative data includes data collected from a survey. A correlational design seeks to find relationships between two or more sets of variables (Creswell, 2005). In this study, the researcher studied the relationship between the consistent use of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety. A separate qualitative analysis of the data was conducted via focus group. A qualitative data analysis is a method for analyzing verbal data (Vogt & Johnson, 2011).

Following the comprehensive needs assessment process conducted by the Steilacoom Historical School District, the lack of a cohesive and preventative approach to

mental health supports as a system became a priority for the district. Review of the comprehensive needs assessment noted that staff self-report the lack of training and experience to effectively identify and respond to students in emotional distress. In response to the needs identified, the Steilacoom Historical School District applied for and was awarded a Department of Defense Education Activity (DoDEA) grant in 2016 to create a mental health support system for the school district. A requirement of the grant, entitled Project Safe and Sound, was to survey staff on current perceptions of mental health and supports for students. The pre-assessment was designed to address all areas of the grant and give baseline data for the staff receiving professional development in mental health supports for students. This ex post facto survey data were used in this study.

Participants

This study included certificated and classified staff from the Steilacoom Historical School District. The population for the study was certificated and classified staff with varied levels of teaching experience and grade levels. It was a convenience sample for the purpose of the research. A total of 171 staff completed the survey in March 2017 at an in-person district training event via paper and pencil. The survey gathered nominal demographic information from respondents. Participants included 81 elementary level staff (47.4%) and 90 secondary level staff (52.6%). The respondents were also asked to report their years of experience in the field of education. Twenty-four respondents had 5 or less years of experience (14%); Forty-four respondents reported between 5 and 10 years of experience (25.7%); Fifty-one respondents reported between 10 and 15 years of

experience (29.8%); Thirty-five respondents had between 15 and 20 years of experience (20.5%); and 17 staff reported more than 20 years of educational experience (9.9%).

Instrumentation

The survey instrument used for the research study was a 5-point Likert-type scale perception survey administered to staff, prior to a professional development opportunity. The professional development was provided as a component of the awarded DoDEA grant. The design of the study is ex post facto. The survey was developed by the school district in collaboration with Brooks Powers Group, an educational consulting group from Seattle, Washington. Brooks Powers Group is a highly trained team of mental health educators, who provide direct services to school districts to ensure skills and systems are developed for sustainability within a school district. The group was contracted as a part of the DoDEA grant to provide professional development and coaching to district staff in the areas of self-regulation strategies and mental health training. The survey was used in the past as a reliable data source for providing perceptual data and considered by DoDEA as an accurate pre-assessment measure.

Surveys serve as a process to provide quantitative data about aspects of a population (Fowler, 2013). Survey data are used as (a) measurement of opinion, (b) measurement of perception, and (c) a way to understand interests and preferences (Fowler, 2013). The survey tool for this study was designed to gauge staff perception in seven areas, which were the areas of concern identified within the DoDEA grant application process. The survey included seven subsections, with a total of 17 questions, and served as a pre-assessment to ascertain staff comfort level in upcoming mental health support training for staff. The benchmark data served as one required component for

grant data monitoring. The survey was administered on March 10, 2017 in paper-and-pencil format and results from selected portions of the survey were utilized for the quantitative component of this study.

The survey, *Self-Assessment/Pre-Training* consists of Part A and B (see Appendix A). Part A of the survey collected staff demographic information, including level of assignment and years of educational experience. Part B of the survey consisted of 17 questions related to staff perceptions regarding skill in providing mental health support to students. There were seven subsections of the survey: Self-Regulation, Mental Health, Instruction and Mental Health (Metacognition), Neurobehavioral and Attention Challenges, Depression, Oppositional Defiance Disorder, and Anxiety. Staff was asked to circle their response on the 5-point Likert-type scale from 1 to 5 (5 = Always, 4 = Mostly, 3 = Sometimes, 2 = Rarely, and 1 = Not at all). Three subsections from the survey are applicable to this study: Self-Regulation, Instruction and Mental Health (Metacognition), and Anxiety.

It was hypothesized that the degree to which teachers report their confidence in working with students with anxiety will positively correlate to the degree in which teachers utilize strategies to support metacognitive thinking with students. In order to test the hypothesis, the survey, which measured various aspects of mental health recognition, metacognition and self-regulation was distributed to all teachers within the sample. The designed survey instrument measured the following predictor variables and the criterion variable:

Predictor Variables – use of metacognition and use of self-regulation

Criterion Variable – confidence in providing mental health supports to students with anxiety

The research question of this study was: What is the correlation between teacher utilization of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety? The null hypothesis was a teacher's use of metacognition has no correlation with confidence level in working to support students with anxiety in the classroom setting.

The two hypotheses and two null hypotheses derive from the research question presented:

H1₀: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are independent.

H1_a: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are not independent.

H2₀: Metacognition and the confidence level in providing support to students with anxiety in the classroom are independent.

H2_a: Metacognition and the confidence level in providing support to students with anxiety in the classroom are not independent.

Data Analysis

Survey data were analyzed to infer staff perception on the confidence level of providing mental health supports to students with anxiety. After an initial data check to ensure the integrity of responses, Statistical Package for the Social Sciences (SPSS) was used to generate descriptive statistics. The data collected were analyzed to determine the instrument's reliability. A frequency analysis was done on all categorical, nominal

responses. Of the seven subsections of the survey: Self-Regulation, Mental Health, Instruction and Mental Health (Metacognition), Neurobehavioral and Attention Challenges, Depression, Oppositional Defiance Disorder, and Anxiety, three subsections were analyzed as applicable to the research question.

Chi-square tests of independence were conducted on the three relevant subsections of the survey data: self-regulation, metacognition, and anxiety. A chi-square test of independence is used to determine if two variables are related (Field, 2009). As a non-parametric measure, the chi-square test requires predictor variables (self-regulation and metacognition) and the criterion variable (confidence in providing mental health supports to students with anxiety) to be categorical. All variables in this study were categorical, therefore the chi-square test of independence is appropriate (Vogt & Johnson, 2011). The Pearson chi-square test for independence explores whether there was a pattern of dependence between the categorical variables, using a cross tabulation table. The null hypothesis assumed there is no relationship between the variables, and the alternative assumes a relationship exists. The individual chi-square tests were utilized to determine if there was a significant relationship between categorical variables: self-regulation and anxiety, and metacognition and anxiety.

The researcher also conducted a follow-up focus group with teachers who had participated in the ex post facto survey to analyze the findings. The focus group consisted of individuals brought together by the researcher to focus specifically on one, narrow topic. Richards and Morse (2012) stated, "Often researchers use focus groups to gain understanding of the research domain" (p. 128). Focus group questions and answers were recorded and transcribed. This phase of the study provided further clarity on teacher

confidence level in working with students with anxiety. The focus group was conducted to “explore in greater depth the relationships suggested by the quantitative analysis” (Wolff, Knodel, & Sittitrai, 1993, p. 119). Survey and focus group data provide “symmetrical but independent observations of the study population” and have been found to strengthen the ability to draw conclusions (Wolff et al., 1993, p. 133). The quantitative and qualitative data, in relation to the hypothesis, were analyzed to determine the relationship, if any, between intentional use of metacognition and confidence in working with students with anxiety.

The results and interpretations of the data analyses for the research question and two hypotheses presented in this study are reported in Chapter Four.

Chapter Four: Results

This chapter presents the results of the data collection methods and the findings from the quantitative and qualitative data analysis. The chapter begins by addressing the original research question: Is there a statistically significant correlation between teacher utilization of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety? The null hypothesis was a teacher's use of metacognition has no correlation with confidence level in working to support students with anxiety in the classroom setting. Chapter Four is divided into three sections. The first section provides a description of the sample collected for the quantitative component of the study. Section one also presents the quantitative data results from the study for the research question and two hypotheses. The two hypotheses and two null hypotheses derive from the research question presented:

H1₀: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are independent.

H1_a: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are not independent.

H2₀: Metacognition and the confidence level in providing support to students with anxiety in the classroom are independent.

H2_a: Metacognition and the confidence level in providing support to students with anxiety in the classroom are not independent.

Section two presents the qualitative data results from the focus group to provide further clarity on teacher confidence level in working with students with anxiety. The

focus group explored the data and relationship between self-regulation, metacognition and anxiety.

The third section includes an overall summary of the data results and an interpretation of the data with the integration of both phases of the study.

Quantitative Analyses

A convenience sample was utilized in this study to include ex post facto survey data, from a survey distributed to staff attending a March 10, 2017 professional development opportunity. Responses from the completed surveys are included in the quantitative data portion of this study. A total of 171 staff ($N = 171$) completed the *Self-Assessment/Pre-Training* survey, which included Part A and Part B. In Part A, nominal demographic information was collected from respondents. Data underwent analysis through the Statistical Package for the Social Sciences (SPSS) software to find the descriptive statistical data. Participants included 81 elementary level staff (47.4%) and 90 secondary level staff (52.6%). The experience level of staff was closely distributed between the two groups (elementary and secondary). The respondents were also asked to report their years of experience in the field of education. Twenty-four respondents had 5 or less years of experience (14%); Forty-four respondents reported between 5 and 10 years of experience (25.7%); Fifty-one respondents reported between 10 and 15 years of experience (29.8%); Thirty-five respondents had between 15 and 20 years of experience (20.5%); and 17 reported more than 20 years of educational experience (9.9%). The frequency data for educational experience ($M = 2.87$) was closely distributed between three groups of respondents (5 to 10 years, 10 to 15 years, and 15 to 20 years), with the

majority of respondents ($n = 51$) falling within the 10 to 15 years of educational experience category (29.8%). Table 1 displays the demographic variables.

Table 1

Description of Respondents

	Demographics	<i>N</i>	<i>n</i>	%
Level		171		
	Elementary		81	47.4
	Secondary		90	52.6
Experience		171		
	5 or less years		24	14.0
	5 to 10 years		44	25.7
	10 to 15 years		51	29.8
	15 to 20 years		35	20.5
	More than 20 years		17	9.9

Part B of the survey consisted of 17 questions related to staff perceptions regarding skill in providing mental health supports to students. There were seven subsections of the survey: Self-Regulation, Mental Health, Instruction and Mental Health (Metacognition), Neurobehavioral and Attention Challenges, Depression, Oppositional Defiance Disorder, and Anxiety. Participants were asked to circle their response on the 5-point Likert-type scale from 1 to 5 (5 = Always, 4 = Mostly, 3 = Sometimes, 2 = Rarely, and 1 = Not at all). Descriptive statistics were calculated for the self-reported frequency data collected for each of the 17 survey questions. Table 2 displays each of the 17 questions with mean, standard deviation values, skewness values, and kurtosis values. Measures of central tendency were computed to summarize the data for each of the responses to the 17 survey questions. The criterion variables of Anxiety1 ($M = 2.89$, $SD = 1.05$) and Anxiety2 ($M = 2.89$, $SD = 1.06$) showed the level of teacher confidence in

working with students with anxiety as lower than the other perceptual items of the survey.

Table 2

Descriptive Statistics for Perception Items

	<i>N</i>	Mean	<i>SD</i>	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SelfReg1	171	3.1696	.97643	.075	.186	-.487	.369
SelfReg2	171	3.0526	1.06419	.191	.186	-.708	.369
SelfReg3	171	3.7602	.99755	-.330	.186	-.645	.369
MentalHealth1	171	4.4152	.85928	-1.366	.186	1.215	.369
MentalHealth2	171	4.3392	.81287	-.964	.186	-.008	.369
MentalHealth3	171	2.7368	1.34855	.316	.186	-1.033	.369
Metacog1	171	3.1930	.90304	-.295	.186	.226	.369
Metacog2	171	4.0994	.80918	-.723	.186	.528	.369
Metacog3	171	2.9766	1.05135	-.014	.186	-.804	.369
Neurobehav1	171	3.3977	.96698	-.279	.186	-.277	.369
Neurobehav2	171	3.4503	1.00096	-.147	.186	-.509	.369
Depression1	171	3.2398	.87840	-.068	.186	.207	.369
Depression2	171	2.8421	1.14465	.076	.186	-.705	.369
ODD1	171	3.1345	.92643	-.272	.186	-.203	.369
ODD2	171	3.9708	.80752	-.760	.186	.824	.369
Anxiety1	171	2.8947	1.04630	.026	.186	-.686	.369
Anxiety2	171	2.8889	1.05966	.134	.186	-.566	.369
Valid <i>N</i> (listwise)	171						

To test reliability of the perceptual survey used in this study, a Cronbach's alpha coefficient was calculated in SPSS. Cronbach's alpha coefficient is used to indicate internal consistency and should ideally be above .7 to be considered acceptable, with .8 being preferable (Field, 2009). Overall, the survey was found to have a high reliability with Cronbach's $\alpha = .886$. The subsections of self-regulation related to anxiety also had a

high reliability with $\alpha = .819$. The subsections of metacognition related to anxiety were slightly lower, but still considered acceptable, with Cronbach's $\alpha = .798$.

Three subsections of the perceptual data related to this study. Self-Regulation, Metacognition and Anxiety were analyzed to determine the correlation between teacher utilization of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety. As shown in Table 3, when asked about self-regulation use in classroom, 67 respondents indicated self-regulation skills are taught some of the time, with only 18% indicating ample time is provided to model and practice self-regulation skills in the classroom. Over half of the respondents indicated their personal use of self-regulation skills throughout the work day, with 22% rarely teaching self-regulation to their students.

Table 3 shows the promotion of metacognitive thinking in classrooms as not being a common instructional skill utilized, with 36% of respondents never or rarely using metacognitive activities in the classroom environment. Survey data showed 72% of staff feeling unequipped to help coach students through feelings of anxiety.

Table 3

Perceptions of Self-Regulation, Metacognition and Anxiety

Item	N	n	%
Self-Regulation 1: I teach self-regulation skills in my classroom by using a variety of strategies	171		
Always		16	9
Mostly		45	26
Sometimes		67	39
Rarely		38	22
Not at All		5	3

Self-Regulation 2: I provide ample time to model and practice self-regulation skills in the classroom	171		
		Always	18 11
		Mostly	39 23
		Sometimes	56 32
		Rarely	50 29
		Not at All	8 5
Self-Regulation 3: I personally use self-regulation skills throughout the day	171		
		Always	48 28
		Mostly	53 31
		Sometimes	53 31
		Rarely	15 9
		Not at All	2 1
Metacognition 1: I can identify the difference between a student's challenging behavior and mental health issue	171		
		Always	10 6
		Mostly	51 30
		Sometimes	80 46
		Rarely	22 13
		Not at All	8 5
Metacognition 2: I try to understand the root of a behavior to better inform my response	171		
		Always	58 34
		Mostly	78 46
		Sometimes	30 18
		Rarely	4 2
		Not at All	1 1
Metacognition 3: I promote metacognitive thinking with daily use of student self-reflection activities	171		
		Always	10 6
		Mostly	50 29
		Sometimes	49 29
		Rarely	50 29
		Not at All	12 7

Anxiety 1: I can identify when students' anxiety is related to a disability	171		
		Always	9 5
		Mostly	43 25
		Sometimes	55 32
		Rarely	49 29
		Not at All	15 9
Anxiety 2: I feel equipped to help coach students through feelings of anxiety	171		
		Always	12 7
		Mostly	36 21
		Sometimes	59 34
		Rarely	49 29
		Not at All	15 9

The researcher combined the Likert responses for the three subsections (Self-Regulation, Metacognition, and Anxiety) into two categories. Respondents who selected Not At All, Rarely and Sometimes were placed in category 1, and respondents who selected Mostly and Always were placed in category 2. This was done in order to meet expected cell counts for chi-square analysis. Prior to combination, more than 20% of the cells had expected cell counts of less than five. These items were designed to determine whether or not respondents agree or disagree with the item's characteristic, which is not impacted by combining the similar levels of the variable. The combination reduced the problem of low cell counts, while maintaining the intended usefulness of the data. Combining levels of categorical variables is acceptable as long as the nature of the hypothesis tested is not impacted (Ott & Longnecker, 2008).

Pearson's chi-square test for independence explored whether there was a pattern of dependence between the categorical variables, using a 2 x 2 cross tabulation table (see Appendix B). The cross-tabulation compared the observed frequencies to expected

frequencies to determine if there is an association between the two variables. The researcher used the cross-tabulation tables to analyze the categorical data and the chi-square test of independence to determine whether the results from the cross-tabulation are statistically significant.

Chi-square tests of independence were conducted to determine whether or not there is a relationship between use of metacognition as an instructional strategy and confidence in working with students with presenting anxiety issues. The chi-square test of independence only assesses associations between categorical variables and does not provide any inferences about causation (Field, 2009). Pearson's chi-square tests show the predictor variables (self-regulation and metacognition) and the criterion variable (confidence in providing mental health supports to students with anxiety) as categorical variables. The significance threshold was set at an alpha level of .05 for all statistical tests. Cramer's V was calculated to test the effect size of the chi-square significance results. A summary of the chi-square tests with Pearson chi-square values and Cramer's V effect size is provided in Table 4.

Table 4

Summary of Chi-Square Tests with Cramer's V

Predictor Variable	Criterion Variable	Pearson Chi-Square Value	V
Self-Regulation 1	Anxiety 1	13.15*	.277
Self-Regulation 1	Anxiety 2	20.93*	.350
Self-Regulation 2	Anxiety 1	9.34*	.234
Self-Regulation 2	Anxiety 2	18.77*	.331
Self-Regulation 3	Anxiety 1	6.07*	.188
Self-Regulation 3	Anxiety 2	11.15*	.255
Metacognition 1	Anxiety 1	40.99*	.490
Metacognition 1	Anxiety 2	27.94*	.404
Metacognition 2	Anxiety 1	3.66	.146
Metacognition 2	Anxiety 2	6.04*	.188
Metacognition 3	Anxiety 1	42.68*	.500
Metacognition 3	Anxiety 2	41.93*	.495

* $p < .05$.

Null and Alternative Hypotheses for Self-Regulation

H₁₀: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are independent.

H_{1a}: Self-Regulation and the confidence level in providing support to students with anxiety in the classroom are not independent.

All chi-square statistical analyses showed the variables of Self-Regulation and Anxiety as related, not independent from one another, which allowed the researcher to reject the null hypotheses. The significant findings indicated support for the hypothesis. Teaching self-regulation skills in the classroom has a relationship with identification of students' anxiety and the two variables are not independent of one another.

The results of the chi-square test in Table 5 showed the relation between variables as significant, ($\chi^2 (1, N = 171) = 13.15, p < .05$). The chi-square test showed an overrepresentation of staff responding Never, Rarely, and Sometimes (87 count; 76.5

expected count). Cramer's V was calculated and showed a small effect size ($V = .277$). Teaching self-regulation skills in the classroom is related to identification of students struggling with anxiety.

Table 5

*Chi-Square Results - Self-Regulation 1 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.151	1	.000
N of Valid Cases	171		

Table 6 shows the relation between variables as significant, ($\chi^2 (1, N = 171) = 20.930, p < .05$) with a moderate association between the two variables ($V = .350$). The cross-tabulation showed an overrepresentation of staff responding Never, Rarely, and Sometimes (92 count; 79.1 expected count). Teaching self-regulation skills in the classroom has a relationship with teacher confidence level in helping students' with anxiety.

Table 6

*Chi-Square Results - Self-Regulation 1 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.930	1	.000
N of Valid Cases	171		

The relationship between the categorical variables shown in Table 7 and Table 8 was found to be statistically significant, ($\chi^2 (1, N = 171) = 9.34, p < .05$); ($\chi^2 (1, N = 171) = 18.77, p < .05$). Both tests showed an overrepresentation of staff responding Never, Rarely, and Sometimes with Table 7 showing a count of 88 and an expected count of 79.3

and Table 8 showing an expected count of 94, with an expected count of 82. While the two variables in Table 7 showed a small association ($V = .234$), the variables correlated in Table 8 showed moderate association ($V = .331$). Providing time to model and practice self-regulation skills in the classroom has a relationship with both identification of students' anxiety and teacher confidence level in helping students' with anxiety.

Table 7

*Chi-Square Results - Self-Regulation 2 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.340	1	.002
N of Valid Cases	171		

Table 8

*Chi-Square Results - Self-Regulation 2 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.768	1	.000
N of Valid Cases	171		

As shown in Tables 9 and 10, there was sufficient evidence to conclude that the variables of self-regulation and anxiety were not independent of one another and were found to be related, ($\chi^2 (1, N = 171) = 6.07, p < .05$); ($\chi^2 (1, N = 171) = 11.15, p < .05$) with small effect sizes ($V = .188$; $V = .255$). 69.6% of total staff responses were Never, Rarely and Sometimes in Table 9, and an underrepresentation of responses of Always and Mostly with 28.1% of the total in Table 10. Teachers who personally use self-regulation skills throughout the day was related to confidence in understanding and responding to students' with anxiety.

Table 9

*Chi-Square Results - Self-Regulation 3 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.068	1	.014
N of Valid Cases	171		

Table 10

*Chi-Square Results - Self-Regulation 3 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.153	1	.001
N of Valid Cases	171		

Null and Alternate Hypotheses for Metacognition

H2₀: Metacognition and the confidence level in providing support to students with anxiety in the classroom are independent.

H2_a: Metacognition and the confidence level in providing support to students with anxiety in the classroom are not independent.

All but one of the chi-square statistical analyses (Tables 11, 12, 14, 15, 16) showed the variables of Metacognition and Anxiety as related. The two variables were found not to be independent from one another, which allowed the researcher to reject the null hypotheses. These significant findings indicated support for the stated hypothesis. One chi-square test of independence (Table 13), did not show a statistical difference ($p = .056$), with Cramer's V indicating a small effect size ($V = .188$). Because the p -value for this test was greater than .05, this test failed to reject the null hypotheses and did not identify a relationship between the variables of metacognition and anxiety. The question

posed on the survey was, “I try to understand the root of a behavior to better inform my responses,” related to identifying when a student’s anxiety is related to a disability.

Overall, metacognition in the classroom has a relationship with identification and support of students’ anxiety as shown by five of the six chi-square tests for independence.

The results of the chi-square test shown in Table 11 showed the relationship between these variables as significant, ($\chi^2 (1, N = 171) = 40.994, p < .05$). The chi-square test showed an overrepresentation of staff responding Never, Rarely, and Sometimes (95 count; 76.5 expected count). There was a high association between the two variables ($V = .490$). Acknowledgement of the difference between a student’s challenging behavior and a mental health issue has a relationship with the identification of students struggling with anxiety.

Table 11

*Chi-Square Results - Metacognition 1 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	40.994	1	.000
N of Valid Cases	171		

As shown in Table 12, the variables of metacognition and anxiety were not independent of one another and were found to be related, ($\chi^2 (1, N = 171) = 27.936, p < .05$), with a medium effect size ($V = .404$). There was an underrepresentation of responses of Always and Mostly (16 count; 30.9 expected count) and an overrepresentation of responses of Never, Rarely and Sometimes (94 count; 79.1 expected count). The ability to identify the difference between a student’s challenging behavior and mental health issue has a relationship with teacher confidence level in helping students with anxiety.

Table 12

*Chi-Square Results - Metacognition 1 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.936	1	.000
N of Valid Cases	171		

Table 13 presents the results from the sole chi-square test of independence that did not show a statistical difference ($p = .056$). The Pearson value for this test was greater than .05, so the null hypotheses could not be rejected in this case since a relationship between the variable of metacognition and anxiety was not found. The question posed on the survey, “I try to understand the root of a behavior to better inform my responses,” was not correlated to the categorical variable of anxiety, specifically, teacher identification of a student’s anxiety being related to a disability. Cramer’s V was calculated to test the effect of the chi-square significance results and showed a small effect size ($V = .146$), which was the smallest effect size found in the study. Evidence in support of a statistically significant association between the two categorical variables was not found.

Table 13

*Chi-Square Results - Metacognition 2 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.660	1	.056
N of Valid Cases	171		

The results of the chi-square test in Table 14 showed a relationship between these variables as significant, ($\chi^2 (1, N = 171) = 6.036, p < .05$) with a small effect size ($V = .188$). The cross-tabulation test showed an overrepresentation of staff responding Never,

Rarely, and Sometimes (31 count; 25.2 expected count) and an overrepresentation of staff responding to Always and Mostly (44 count; 38.2 expected count). Attempts to understand the root cause of a behavior to better inform responses is related to confidence in assisting students struggling with anxiety.

Table 14

*Chi-Square Results - Metacognition 2 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.036	1	.014
N of Valid Cases	171		

The relationship between categorical variables shown in Table 15 and Table 16 was found to be statistically significant, ($\chi^2 (1, N = 171) = 42.675, p < .05$); ($\chi^2 (1, N = 171) = 41.927, p < .05$). There was a strong association between the two variables in both analyses ($V = .500$; $V = .495$). Results in Table 15 showed an underrepresentation of staff responding Always and Mostly with a count of 33.8 and an expected count of 15. The cross-tabulation related to Table 16 showed an overrepresentation of respondents indicating Not At All, Rarely and Sometimes with a count of 98, with an expected count of 79.8. Promoting metacognitive thinking with daily use of student self-reflection activities has a relationship with both identification of students' anxiety and teacher confidence level in helping students with anxiety.

Table 15

*Chi-Square Results - Metacognition 3 * Anxiety 1*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	42.675	1	.000
N of Valid Cases	171		

Table 16

*Chi-Square Results - Metacognition 3 * Anxiety 2*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	41.927	1	.000
N of Valid Cases	171		

Qualitative Analysis

The use of mixed methods for research is acceptable to use when either the qualitative or quantitative data are not sufficient to completely understand the issue (Creswell, 2005). Analysis of the numerical data from the quantitative research is integrated with the narrative of the participants in mixed methods, which gives the study a holistic point of view (Creswell, 2005). The qualitative portion of mixed methods research is used to confirm or justify the results of the quantitative portion of the study (Wolff et al., 1993). To further understand the quantitative results of the survey findings, a focus group was conducted. Focus groups are used when the goal is to find out perceptions of those participating (Wolff et al., 1993). The Institutional Review Board at Seattle Pacific University granted approval for the facilitation of a focus group in October, 2017 (see Appendix C).

Ethical considerations were addressed in accordance with the regulations of the Institutional Review Board, prior to conducting the focus group research. The focus group participants were drawn from the set of teachers who participated in the survey. Four teachers on the district leadership group associated with the DoDEA grant project volunteered to participate in the qualitative session and signed an informed consent form (see Appendix D). The focus group session was designed to gather additional empirical

knowledge using a protocol focused on interpretation of the quantitative findings. The researcher took notes, as well as recorded the focus group session, to ensure accuracy of the statements made in the sessions. All notes and transcriptions of the focus group were confidential, and the audio recording was erased once transcription was completed. Participants were reminded that they were not required to respond to any question and that they could opt out of the focus group at any time. The researcher and a facilitator in a session length of one hour conducted the focus group. Results from the survey were utilized to direct the questions asked during a focus group session, addressing the qualitative portion of the research study. Questions posed in the focus group were designed to probe participants for perceptions around the quantitative data collected for the study. Audio recordings were transcribed within two days of the interview. Transcripts were checked against the audio recording and edited as necessary to ensure accuracy.

Focus group participant names were replaced with pseudonyms. Table 17 reports the demographics of the focus group participants.

Table 17

Focus Group Participant Synopsis

Pseudonym	Personal	Years Experience
Teacher A	Male	26
Teacher B	Male	15
Teacher C	Female	10
Teacher D	Female	18

The guiding questions for the focus group session were based on the results of the quantitative data from the perception survey, specifically, the statistical significance found between Metacognition3 (I promote metacognitive thinking with daily use of

student self-reflection activities), Anxiety1 (I can identify when students' anxiety is related to a disability), and Anxiety2 (I feel equipped to help coach students through feelings of anxiety).

Results for question 1: What techniques and strategies do teachers use that work successfully with students with anxiety? Participants acknowledged students with anxiety in the classroom as a fairly new and complicated issue. Participants stated teachers lack experience and training in student mental health. Supports designed for students are individual in nature and teachers rely upon experts in field for strategies to support students with anxiety. Teacher A expressed concern with fellow teachers' perceptions of students' experiences with extreme anxiety as a form of manipulation and should be ignored. Strategies and techniques shared included: journaling about thinking, reframing thinking by taking a break and going to a different place in the building, fidget tools to distract faulty thinking, and frequent communication with families. Teacher A stated, "Some of the recommendations given to teachers are easier to follow than others in terms of helping kids with anxiety." All focus group participants agreed self-regulation strategies are essential and understanding anxious behaviors and triggers is important so teachers are prepared to help support students.

Results for question 2: What do you notice about the teacher perceptual data related to metacognition and anxiety? Participants commented on the small number of teachers who responded that they are comfortable knowing how to provide support to a student struggling with anxiety. Teachers approach changes with each student case, but the more coaching the teacher has in dealing with students with anxiety, the easier it is to develop a successful plan of action. Teacher A remarked on the

difference between those that can identify when students' anxiety is related to a disability and those that feel equipped to help coach students through feelings of anxiety.

Participants discussed their surprise at the number of "rarely" responses to teachers promoting metacognitive thinking in classrooms. Teacher C recognized the relationship between metacognitive strategies and regulating emotions and behavior in the classroom, but expressed concern over teachers not being trained to respond to mental health issues. Teacher B stated, "I still feel like I struggle with feeling equipped to coach students with anxiety. We need to find ways to educate ourselves." Teacher C suggested the more self-reflection activities that occur in the classroom, the easier it is to incorporate a plan for students with anxiety into classroom activities.

Results for question 3: Is there anything that surprised you about the data?

If yes, please share your thoughts with the group. Students with anxiety seemed to be a common occurrence in recent years and an issue that participants did not deal with five years ago in teaching. It has become one of the most challenging aspects of teaching. Participants recognized the "thinking about thinking" relationship between metacognition data and anxiety data, but were surprised at 7% "always" knowing how to coach students through anxiety. Teacher C mentioned the importance of tying reflective pieces of teaching to support for all students. Teaching self-regulation strategies was recognized as a key to regulating feelings and behaviors in school.

Upon conclusion of the focus groups, recordings were transcribed into written format (see Appendix E) for further analysis. The researcher reviewed the transcript, looking for patterns and trends, and developed a frequency analysis of how many times each

theme was referenced during the focus group session. Table 18 shows the three themes and their definitions as they were used by teachers in the focus group.

Table 18

Focus Group Emerging Themes

Theme	Definition
Strategies	Tools or techniques used to support a student in classroom, working with a team to find ways to help student, and implementing ideas to assist students who are struggling
Self-Regulation	Monitoring behavior and thoughts, reflection, expression of feelings, and coaching thinking
Coaching	Manner in which the teacher assists the student, ability to relate with the student, and prompting thinking

Three themes emerged from the analysis of the focus groups: (a) *strategies*, (b) *self-regulation*, and (c) *coaching*. The themes were ranked according to frequency of responses. The theme of strategies had the highest response frequency (30). Self-regulation had the second highest frequency (16), followed by coaching (14). Table 19 shows the frequency of the three major themes.

Table 19

Focus Group Frequency of Responses

Theme	Frequency
Strategies	30
Self-Regulation	16
Coaching	14

Conclusion

A summary of the findings from this mixed methods study was provided in Chapter Four. The quantitative portion of the study showed a correlation between teacher utilization of metacognition as an instructional strategy and the level of teacher confidence in working with students with anxiety. With the exception of the findings from one chi-square test (Metacognition3 and Anxiety1 variables), all analyses showed a statistically significant relationship between metacognition, self-regulation, and teacher confidence in working with students struggling with anxiety.

The focus group was conducted after the survey results had been analyzed with “an aim to corroborate findings or explore in greater depth the relationships suggested by the quantitative analysis” (Wolff et al., 1993, p. 121). The focus group served as a tool to gather information that addressed the qualitative portion of the research. The data for the formulation of questions asked during the focus groups came from the analysis of the ex post facto perceptual survey data. Three themes emerged from the focus group. The themes were, in order of frequency: (1) strategies, (2) self-regulation, and (3) coaching.

The findings complemented the quantitative portion of the study and strengthened the ability to draw conclusions. The quantitative and qualitative research examined the same relationship between metacognition, self-regulation, and anxiety, but the independent analyses confirmed the findings of the study.

Chapter Five presents the implications, limitations of the study, and suggestions for future research.

Chapter Five: Discussion

This chapter contains a summary and a discussion of the two hypotheses related to the research question presented in this study. Connections between the study's findings and existing research and literature related to metacognition, self-regulation, and supporting students with anxiety are discussed. Study limitations, as well as suggestions for future research are also included in this chapter.

The purpose of this study was to examine the relationship between the confidence level of teachers working with students with anxiety and the utilization of a high-yield instructional strategy, metacognition. Specifically, the researcher examined perceptual data to learn about the relationship between use of metacognition and its impact on teachers providing support to students with anxiety. Promoting metacognitive thinking with daily use of student self-reflection activities has a relationship with both identification of students' anxiety and teacher confidence level in helping students' with anxiety.

The first hypothesis examined if self-regulation, as an essential component of metacognition, and the confidence level in providing support to students with anxiety in the classroom are independent. The second hypothesis examined if the use of metacognition and the confidence level in providing support to students with anxiety in the classroom are independent. Overall, the research found a statistically significant relationship between teacher use of metacognition as an instructional strategy and confidence in supporting the mental health needs of students with anxiety in the classroom. This research supported the research findings of other studies examining the use of metacognition in both the educational and clinical setting. Metacognition as a

strategy enables teachers and students to thoughtfully plan, monitor and assess understanding and progress. In this study, metacognition was analyzed as a strategy to assist learners in being aware of how they think in an effort to better support students with anxiety in the classroom.

Implications

Anxiety is the most common mental health disorder in the United States, affecting nearly one-third of people according to the National Institute of Mental Health. Anxiety is “easy to dismiss or overlook, partially because everyone has it to some degree” (Denizet-Lewis, 2017, p. 41). Teachers need an understanding of anxiety, the consequences of excessive anxiety and how to identify symptoms indicating anxiety and address mental health cognitive barriers, in order for student learning to occur within the classroom. Teachers must be provided with cognitive classroom tools to address the issue and respond to student symptoms.

Research indicates that multiple genetic and environmental factors, interacting over time, lead to the development and persistence of child and youth mental health problems (Merikangas et al., 2010). While educators cannot diagnose an anxiety problem, they play an essential role in supporting students with mental health challenges in the classroom since issues may significantly interfere with a student’s ability to function academically and socially. Because educators spend considerable time with students, they are well placed to distinguish typical age-appropriate behavior from that which interferes with a student’s development and learning.

Anxiety in some situations is typical and may even serve an adaptive function, strengthening the child’s motivation to succeed and helping him or her to perform well

(Petri, 1991). In some cases, anxiety changes from a typical adaptive response into a more exaggerated reaction that can interfere with the student's social, academic, and/or emotional functioning. When anxiety becomes persistent, it can have a paralyzing effect, disrupting the student's engagement in the classroom and academic performance.

Anxiety is one of the most common mental health disorders and is experienced by children, adolescents, and adults (Merikangas et al., 2010). Approximately 6 percent of children and youth have an anxiety disorder that is serious enough to require treatment, and without treatment, some disorders that begin in childhood can last a lifetime (Costello, Egger, & Angold, 2005; Manassis, 2012).

Identification of approaches and strategies to use in the classroom to help reduce anxiety for students is limited, but includes strategies that educators can use to support students who demonstrate different types of anxiety-related behavior. For example, some strategies include creating a learning environment where mistakes are viewed as a natural part of the learning process, providing predictable schedules and routines in the classroom, and encouraging students to take small steps towards accomplishing a feared task (Child and Youth Mental Health Information Network [CYMHIN-MAD], 2011). These strategies are beneficial to all learners, not only students struggling with anxiety.

With competing priorities as educators, teachers cannot be expected to add an additional responsibility of another curriculum or program to assist in the support of students struggling with anxiety in the classroom. Support for children with mental health challenges should include attention to increasing the self-awareness and self-control needed in order to succeed academically. The promotion of good mental health in the classroom and teaching skills to help students develop and maintain good mental health

are important. Focusing on class-wide strategies that impact academic performance, as well as encouragement of social and emotional health could be the key to providing support in an integrated manner within classrooms.

Limitations of the Study

As with any research study, there are several limitations of this investigation that must be acknowledged. These are summarized below.

The quantitative research design was correlational, measuring the relationship between teacher perception of the comfort level in supporting students with anxiety and the use of metacognition as an instructional strategy. Self-regulation was considered as a component of metacognition. Non-experimental research without manipulation of variables cannot be used to determine cause and effect (Gall, Gall, & Borg, 2007). Understanding this particular limitation, the study was designed to find a relationship between variables, rather than predict the outcome of one variable's effect on another variable.

Non-parametric statistics are by nature problematic. Though they are useful for researchers to compute statistical analyses on non-normal data, by ranking Likert scale responses or using dichotomous items, researchers lose some information about the magnitude of differences between scores. Non-parametric procedures are less powerful and able to detect existing difference (Field, 2009).

An additional limitation is that the data were descriptive in nature. The interpretation of self-reported, perceptual data does not provide concrete evidence of actual practices. Gall, Gall, and Borg (2007) indicated that a major limitation in perceptual research is that this type of data relies on the integrity and honesty of the

individual's self-report (Gall et al., 2007). To respond to this particular limitation, a mixed methods research design was utilized.

The sampling method was also a limitation identified in this study. A convenience sampling method was used with a deliberate sample, which limits the generalizability of the results (Gall et al., 2007). Qualitative participants represented a single school within one school district. This presented an additional limitation with participants not representing a general population. Ideally, participants should have been chosen at random from a general pool of teachers. Though random sampling from a larger population is more desirable (Gall et al., 2007, p. 175), random sampling is difficult in educational research. The benefit of convenience sampling is that it allows researchers to select the targeted sample that suits the purpose of the study. If research is to be generalized to a larger population, adequate participation among schools is necessary. Increased participation in future studies might be accomplished if researchers were to analyze DoDEA data across the nation, instead of ex post facto data in one school district.

Recommendations for Future Research

Data from this study show teachers perceive a relationship between the use of metacognition and a greater ability to support students with anxiety in the classroom, even though the level of cognitive monitoring in children with generalized anxiety orders is not fully understood. Further research linking the strategy of metacognition for students suffering from anxiety as a possible school intervention could aid the field of education in serving the social, emotional, and behavioral development of students with anxiety.

Future educational research efforts should center on minimizing the cultural bias around mental health disorders, as this stands as a barrier for providing a structure that helps identify and support students with anxiety. Schools can implement mental health literacy strategies and embed mental health promotion into student learning activities. Working to bridge the gap between the educational field and the clinical field has possibilities to better serve students struggling with anxiety. Data collection to prove the effectiveness of a program of support should include concrete measurements of improvement and viability.

Mental health must be included as a primary component to pre-service teaching programs. Attention to early intervention is a critical piece in school success. Teachers have a profound impact on a child's development and well-being and can become better equipped to protect and promote the mental health of young students. Future research can pinpoint how mental health disorders affect a student's emotional well-being and the ability to learn. By providing training related to youth mental health in teacher training programs, educators are in an ideal position to recognize behavioral or emotional changes, which may be symptomatic of the onset of mental illness.

As with any conceptual model of support for students, further research is needed to align district and school level policies, priorities and resources to support a system for mental health programs. To potentially create a school-based model for classroom cognitive supports, a systems approach to implementation fidelity is critical. If teachers can be trained in metacognitive strategies applicable to the classroom setting, they may have the skills necessary to identify excessive anxiety in children to thus improve the educational, social, and emotional outcomes for all learners.

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Appendix A: Self-Assessment/Pre-Training Survey

Self-Assessment / Pre-Training Steilacoom Historical School District March 10th, 2017	
Name: _____ Date: _____	Rating Scale: 1: Not at all 2: Rarely 3: Sometimes 4: Mostly 5: Always N/A: Not Applicable to my job
School: _____ Certificated or Classified (circle please)	
Years of Experience _____	
1. Self-Regulation	
a) I teach self-regulation skills in my classroom by using a variety of strategies.	1 2 3 4 5 N/A
b) I provide ample time to model and practice self-regulation skills in the classroom.	1 2 3 4 5 N/A
c) I personally use self-regulation skills throughout my day.	1 2 3 4 5 N/A
2. Mental Health	
a) I think mental health training is valuable for me as an educator.	1 2 3 4 5 N/A
b) I observe how mental health issues impact student learning.	1 2 3 4 5 N/A
c) I have received training in providing mental health support to students.	1 2 3 4 5 N/A
3. Instruction and Mental Health - Metacognition	
a) I can identify the difference between a student's challenging behavior and mental health issue.	1 2 3 4 5 N/A
b) I try to understand the root of a behavior to better inform my response.	1 2 3 4 5 N/A
c) I promote metacognitive thinking (thinking about thinking) with daily use of student self-reflection activities.	1 2 3 4 5 N/A
4. Neurobehavioral and Attention Challenges	
a) I help my students learn skills to increase their focus and attention.	1 2 3 4 5 N/A
b) I provide my students with sensory outlets and strategies to increase their focus.	1 2 3 4 5 N/A
5. Depression	
a) I can identify signs of depression in my students.	1 2 3 4 5 N/A
b) I can identify the difference between sad feelings and diagnosable depression.	1 2 3 4 5 N/A
6. Oppositional Defiance Disorder	
a) I can identify when students' oppositional behavior is related to a disability.	1 2 3 4 5 N/A
b) I avoid getting into power struggles with students.	1 2 3 4 5 N/A
7. Anxiety	
a) I can identify when students' anxiety is related to a disability.	1 2 3 4 5 N/A
b) I feel equipped to help coach students through feelings of anxiety.	1 2 3 4 5 N/A

Appendix B: Cross Tabulation Analysis

Cross Tabulation: Self-Regulation Item 1: I teach self-regulation skills in my classroom by using a variety of strategies vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 1	Never Rarely	Count	87	23	110
	Sometimes	Expected Count	76.5	33.5	110
	Always	Count	32	29	61
	Mostly	Expected Count	42.5	18.5	61
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Self-Regulation Item 1: I teach self-regulation skills in my classroom by using a variety of strategies vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 1	Never Rarely	Count	92	18	110
	Sometimes	Expected Count	79.1	30.9	110
	Always	Count	31	30	61
	Mostly	Expected Count	43.9	17.1	61
Total		Count	123	48	171
		Expected Count	123	48	171

Cross Tabulation: Self-Regulation Item 2: I provide ample time to model and practice self-regulation skills in the classroom vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 2	Never Rarely	Count	88	26	114
	Sometimes	Expected Count	79.3	34.7	114
	Always	Count	31	26	57
	Mostly	Expected Count	39.7	17.3	57
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Self-Regulation Item 2: I provide ample time to model and practice self-regulation skills in the classroom vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 2	Never Rarely	Count	94	20	114
	Sometimes	Expected Count	82	32	114
	Always	Count	29	28	57
	Mostly	Expected Count	41	16	57
Total		Count	123	48	171
		Expected Count	123	48	171

Cross Tabulation: Self-Regulation Item 3: I personally use self-regulation skills throughout my day vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 3	Never Rarely	Count	56	14	70
	Sometimes	Expected Count	48.7	21.3	70
	Always	Count	63	38	101
	Mostly	Expected Count	70.3	30.7	101
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Self-Regulation Item 3: I personally use self-regulation skills throughout my day vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Self-Regulation 3	Never Rarely	Count	60	10	70
	Sometimes	Expected Count	50.4	19.6	70
	Always	Count	63	38	101
	Mostly	Expected Count	72.6	28.4	101
Total		Count	123	48	171
		Expected Count	123	48	171

Cross Tabulation: Metacognition Item 1: I can identify the difference between a student's challenging behavior and mental health issue vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 1	Never Rarely	Count	95	15	110
	Sometimes	Expected Count	76.5	33.5	110
	Always	Count	24	37	61
	Mostly	Expected Count	42.5	18.5	61
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Metacognition Item 1: I can identify the difference between a student's challenging behavior and mental health issue vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 1	Never Rarely	Count	94	16	110
	Sometimes	Expected Count	79.1	30.9	110
	Always	Count	29	32	61
	Mostly	Expected Count	43.9	17.1	61
Total		Count	123	48	171
		Expected Count	123	48	171

Cross Tabulation: Metacognition Item 2: I try to understand the root of a behavior to better inform my responses vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 2	Never Rarely	Count	29	6	35
	Sometimes	Expected Count	24.4	10.6	35
	Always	Count	90	46	136
	Mostly	Expected Count	94.6	41.4	136
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Metacognition Item 2: I try to understand the root of a behavior to better inform my responses vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 2	Never Rarely	Count	31	4	35
	Sometimes	Expected Count	25.2	9.8	35
	Always	Count	92	44	136
	Mostly	Expected Count	97.8	38.2	136
Total		Count	123	48	171
		Expected Count	123	48	171

Cross Tabulation: Metacognition Item 3: I promote metacognitive thinking with daily use of student self-reflection activities vs. Anxiety Item 1: I can identify when students' anxiety is related to a disability

			Anxiety Item 1		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 3	Never Rarely	Count	96	15	111
	Sometimes	Expected Count	77.2	33.8	111
	Always	Count	23	37	60
	Mostly	Expected Count	41.8	18.2	60
Total		Count	119	52	171
		Expected Count	119	52	171

Cross Tabulation: Metacognition Item 3: I promote metacognitive thinking with daily use of student self-reflection activities vs. Anxiety Item 2: I feel equipped to help coach students through feelings of anxiety

			Anxiety Item 2		Total
			Never Rarely Sometimes	Always Mostly	
Metacognition 3	Never Rarely	Count	98	13	111
	Sometimes	Expected Count	79.8	31.2	111
	Always	Count	25	35	60
	Mostly	Expected Count	43.2	16.8	60
Total		Count	123	48	171
		Expected Count	123	48	171

Appendix C: Institutional Review Board Approval

From: Wall-Scheffler, Cara [mailto:cwallsch@spu.edu]
Sent: Monday, October 02, 2017 3:28 PM
To: Weight, Kathi
Cc: Bond, John
Subject: RE: IRB Communication

Dear Kathi,

Thank you very much for your email. I am happy to approve your IRB under expedited review. It was approved as it met the following criteria:

45 CFR 46.101(b)(2)

2. Research uses survey or interview procedures or observations (including observations by participants) of public behavior AND at least one of the following conditions exist:
 - a. Human participants cannot be identified directly or through identifiers code or numbers
OR
 - b. The participants¹ responses or the observations recorded, if they became known outside research, cannot reasonably place the participant at risk of criminal or civil liability or be damaging to the participant's financial standing or employment
OR
 - c. The research does not deal with sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior, or use of alcohol

Your study has been assigned IRB number **171801005**; it will expire Oct 2, 2018.

Please note:

1. The study number and expiration date should be included on all documents relating to your study, including any electronic recruitment material such as emails.
2. I have stamped a copy of your consent form and will send it to John Bond through campus mail. If you need another copy of this sent somewhere else, please let me know. Please use this official, stamped version in your study.

Please contact me when you have completed collecting data for your study so that I can close your file.

Please use your study number (**171801005**) in any further communication regarding this study.

This is the only documentation that you will receive regarding your study's approval. Please print it out and add to your study's documentation.

Best Wishes in the Completion of your Research.

C.M. Wall-Scheffler, PhD
Professor and IRB Chair
Department of Biology
Seattle Pacific University
cwallsch@spu.edu

Appendix D: Focus Group Consent Form



INFORMED CONSENT

Metacognition as a Mental Health Support Strategy for
Elementary Students with Anxiety

Investigator: Kathi Weight, kweight@steilacoom.k12.wa.us

Co-investigator: Dr. John Bond, bondj@spu.edu

PURPOSE

You are invited to take part in a research study. The purpose of this study is look at and interpret teacher perception data collected regarding mental health supports in schools. You have been invited to take part in this study because you have served in a teacher leader role in the mental health supports professional development for the 2016-17 school year. The number of people that will be part of this data analysis research is 6.

PROCEDURES

If you agree to take part in this study, you will be asked to review teacher perceptual data collected prior to a mental health supports professional development opportunity provided in March of 2017. The focus group will participate in answering four questions regarding the teacher perceptual data to better understand the results.

- You will participate in a discussion with 5 other teachers.
- The discussion will last approximately 60 minutes.
- A facilitator will ask questions about your thoughts on the teacher perceptual data.
- You can ask for clarification at any time.
- You can ask questions of your own at any time.
- You may skip any question you feel uncomfortable answering.
- You do not have to participate in the focus-group if you do not want to.
- You can choose to answer only some of the questions.
- You can leave the focus-group at any time.

RISKS and DISCOMFORTS

Please be advised that although the researcher will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the focus group to others.

- Participants will not be identified in any report or publication about this study.
- No audio-recording will be made of the focus group, only handwritten notes.
- Any identifying information noted during the discussion will be deleted.
- All handwritten notes will be kept in a locked office.
- All electronic documents created from the notes will be password protected.

BENEFITS

We do not anticipate direct benefits; however, this study will contribute to the body of knowledge regarding mental health supports in schools.

PARTICIPATION AND ALTERNATIVES TO PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime

without penalty and without loss of benefits to which you are otherwise entitled. Taking part in this research is not a part of your teaching duties, and refusing to participate will not affect your job. You will not be offered or receive any special job-related consideration if you take part in this research.

CONFIDENTIALITY

The information in the study records will be kept confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports that could link you to the study.

Your de-identified data may be used in future research, presentations or for teaching purposes by the Principal Investigator listed above.

COMPENSATION

You will not receive any compensation for taking part in this study.

SUBJECT RIGHTS

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the Principal Investigator, Kathi Weight, at 511 Chambers St., Steilacoom, WA. 98388 and 253-983-2215. If you have questions about your rights as a participant, contact the SPU Institutional Review Board Chair at 206-281-2201 or IRB@SPU.edu.

CONSENT

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in this research project and agree to participate in this study. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities.

I have read the above information and agree to participate in this study. I have received a copy of this form.

Participant's name (print) _____	Researcher's name (print) _____
Participant's signature _____	Researcher's signature _____
Date _____	Date _____

Copies to: Participant Principal Investigator



Appendix E: Focus Group Response Transcript

- Facilitator: Thanks everybody for being here today. Um, if we could just kick off and start out by going around the table today and introducing ourselves.
- Introduce yourself, and how many years educational experience you have for the table, that would be fantastic. A, why don't you start. We will start with you.
- Teacher A: Sure, I'm A.C. Year 26.
- Teacher B: I'm B and this is my 18th year I think.
- Teacher C: I am C and this is my 10th year in education.
- Teacher D: I am D and 15 years.
- Facilitator: Ok so there is really no rule to this focus group session. I am just going to ask you some questions and you do not have to raise your hand or anything. But if you have a response to the question, we will kind of take turns and give us your answers and we would love your feedback on the questions I ask you. We will start with this one.
- Facilitator: What are some techniques and strategies you see from teachers that work successfully with students with anxiety? If anyone wants to start us off and jump in.
- Teacher D: Trying to think aloud here.
- Facilitator: Would you like me to repeat the question?
- Teacher A: Well, each one of these situations. It is so individual to the student so in our experience, what students we have that struggle with anxiety and what teachers have done to assist with self-regulation and strategies to support

that students and each one of those things is difficult because situations are individual to the student and what we have implemented to support those students vary. I have seen and how it works within the school I have seen lots of conversations with families. Lots of communication and through that strategies with recommendations from different providers. We have had to do things as simply as ignoring behaviors. We have had to do tough love. We have had to physically move different students to different locations in the classroom and in the building. Um that is what I have seen as a level of what we have had to implement for strategies. Um lots of different tools into place to become successful in the classroom. Strategies and tools in place so students feel safe and can work way back to classroom if it is out of the classroom. Lots of communication and strategies so it instills in the kid the sense of mom or dad is an email away or a phone call away so it helps alleviate some of that anxiety. Those are some examples I can think of.

Teacher C: I think we also use a variety of fidget type tools as a strategy for kids with anxiety, something distracting to students, they have access to a variety of strategies to allow them to self-regulate to distract them from things that are making them anxious. Self-regulate themselves is key. What is the feature of the anxiety?

Teacher B: I am thinking of a student. She and I have talked about strategies she can use when feeling anxious and um I know that I go to someone really great and creative about helping the kids with the strategy. Whatever strategy to

self-regulate like taking a break, walking to the fish tank. Kind of regrouping and refocusing and then coming back to class. Right now, the counselor is a source of support for the student and he suggested the student keep a notebook to keep track of strategies working. She writes down things that are causing her anxiety and it seems to be working to regulate her some of the time as well. You know, just being able to talk to her about the strategies she is using when she is thinking. The tools in your box to help get where you need to be – something I did not have to do with helping students coping with anxiety. What can you use to help yourself to get you where you need to be is what I think know when I work with kids. It feels like recently, especially in the last few years I have had to think about and figure out you know different ways to help my students with strategies you know they are kind of coping with. With the anxiety.

Facilitator: A, you had mentioned working with providers – in terms of communication – have they given the school any tools to work with anxiety or strategies to help. C, you may have some experience with that as well. Um, have those providers given the school any tools and strategies to work with students in terms of strategies and the language to use with them?

Teacher C: I think it is across the board from my experience that some providers want, some recently, want the school to create the laddering effect with strategies and be the expert in what strategies to help kids self-regulated

with anxiety. Some, the more effective ones, the ones where they create the plan with the student. They create the plan with the family. They have counseling. Individual counseling on the side, outside of school to work and they work with school to provide the method, the means in working with the students. So everything is very clear and also more clinical. It seems to me that this is the very best and effective model we have seen here at school.

Teacher A: I think on some levels, some of the recommendations we were given, some are easier said than done. I think it was like tough love, that one you have got to make the student go to class, you have got to make her go. That one is easier said than done because we are not the people that can pick her up and bring her into the school and keep her down there. I think that one of the other things to jump on was things to think of as well was one of the tool kits, its jumping on other things we can think of, like the student self-reflection and regulation things we do. It is the how am I feeling right now and strategies. I think of the Zones stuff and the Zones language toolkit that we do because each kid is different. You know, one in particular kid can say, I am in the red zone, which shows he is self-regulating emotion and he needs to get out of it. And I think that is directly related to the anxiety he has in school. So it is important in the strategies we are giving the kids.

Teacher C: Well, you also mentioned the feeling of can they go someplace safe and what does safe look like? For each student that can be different but for

some they need a little touchstone and can they exit the classroom? Or sometimes they need to check-in with a person they have rapport with and check-ins. I have one that likes to check in with me each morning and this is a strategy for anxiety to self-regulate and is his own strategy that works. Just to use and get a fidget toy to help distract.

Teacher B: Right, it takes an adult that cares about them and can have rapport and ideas for a strategy. And I think, I know wanting her to be successful. Tools at school to help.

Teacher C: Right, it isn't really the fidget but it is the knowing I am here.

Teacher D: Right.

Teacher A: I think one other thing that comes to my mind is because like what C said. These are more and more common, and coming more frequently, it is that we are finding ways to educate ourselves in determining the manipulation versus the disorder or the problem, which is super hard. Some teachers think kids are just making it up and shouldn't be treated different. Like anxiety isn't a real thing. Because each one of these kids is different and each one of their brains is different. Anxious behaviors are different and that is where we struggle to try to make sure we are doing the right thing with strategies to help these kids.

Facilitator: Anything else on that question? Ok, let's move on. What do you notice about the teacher perception data related to metacognition and anxiety?

Teacher A: Seems to be very similar all the way done. The largest numbers of responses. Well, except for the metacognition. The bottom two on anxiety,

the largest number of responses are in the middle with the same numbers reporting sometimes and not at all. It seems that more teachers promote metacognition than feel they are comfortable dealing with students' anxiety. The smallest number of teachers feel equipped to coach students through feelings of anxiety.

Teacher C: It is kind of a bell curve.

Teacher B: Well, you know I guess my thought is, I am wondering where would I have put myself in this data? Given being a teacher, where would I have put myself on these questions. The data, where as I know it has been more of a recent trend. It is more of a trend I guess you can say but I now have a student who has trouble with self-regulation and anxiety. There are lots more students with anxiety in our classrooms. But I still feel like I struggle with this. I struggle with that so. We need to find ways to educate ourselves. I like that there is a very small percentage in always and not at all because I think as teachers we are not always going to know how to deal with these situations and what to do. Um, uh, honestly I think that this, the mostly, sometimes and rarely, I think that that is where most people would find themselves. Because, you know, I think there is this bell curve thing going on and you fit you know somewhere on that and some days maybe you are going to say, yes, I always know what to do and other days I am going to say wow, I really failed that kid today. I did not deal with that appropriately because I think it changes every day to be

honest, is how I feel. Um thinking about it, your approach with students. Your approach changes with each student too, so...

Teacher D: And I think sometimes when plan is a good plan and you feel comfortable with the knowledge of the plan, you are more likely to say oh, I know what to do –because either A you have rehearsed it or B seen it work. Because you have more experience instead of just creating it on the fly. It is a little easier for cases that you say, yes, always I know how to help this student is because I have had better coaching on how to help this student. The ones I struggle with are the ones I don't know the strategies that have worked to try. And I don't know immediately how to help the person.

Teacher A: It is interesting between the two anxieties, looking at the bottom two, rarely or not at all, it is the same number and that you took away some of always and mostly and dropped them into sometimes so it just between the two. So, of more people can identify anxiety related to a disability but not can coach that and I think it is becoming more and more common. And each one being different, it is difficult to be equipped for all different situations and cases.

Teacher C: When you are in isolation and in a classroom sometimes that can also be a challenge. If I were to think about, I am feeling equipped to help coach students through feelings of anxiety. I think on my own, I would probably rank myself in the sometimes category, but if I had the support from and with a team, the option in which I work with a team, do I kind of figure out how to coach students through feelings of anxiety, I would probably

put myself up into the in the mostly category. Um, for me personally, when I have been able to talk it through with like a consultation or one on one, I feel like, more often than not, I am more equipped if I had coaching to help coach the student. Especially if some coaching has happened with strategies. So then I can coach the student if coaching has come to me.

Facilitator: Any other noticings or wonderings? Ok, is there anything that surprised you about the data?

Teacher A: Ya. There are a lot of always people. I don't think I could ever be an always person. That always category. I don't think I could even be in the mostly category. At least most of the time. I think this is one of the current and most challenging things in schools right now. It is challenging because it is becoming more and more common. It is really challenging. Even five years ago, we did not see this. See it as much, um. So we have some experts here.

Teacher B: Ya. I would like to know where they are.

Teacher C: You know a quarter of the people. 28% are almost always able to deal with students with anxiety. That is surprising to me.

Teacher D: It is nice to see that there is a percentage of people that can identify related to a disability versus a game or a I just don't want to be here or...

Facilitator: Anything else surprising?

Teacher C: No.

Facilitator: Um, how do you think metacognition and working with students with anxiety. In terms of thinking of metacognition as a strategy?

Teacher A: Well, I think that loosely ties to that reflection piece in my mind, but I could totally be off base. That reflection and regulation piece of thinking about where you are at and at the moment identifying what is going on and what is happening and be able to either verbalize that or put that in words. So that you are thinking about what is happening at the moment. That is what I am thinking. Is the questions, how important it is or?

Facilitator: Well, how is metacognition applicable to working with students with anxiety?

Teacher C: I think if you go down two different paths. If a student thinks about their anxiety, it can make it worse. So thinking about that, it is different than you are noticing how you are feeling and then you have the skills to turn on to use to manage the anxiety. So, if not used properly, it could hurt the situation. And when it is supported properly, it could help the situation. It is the recognition of this feeling and know what to do to alleviate it, as opposed to, I am feeling this feeling and I don't know what to do and not making it worse.

Teacher A: Do you think certain individuals can work through certain stages of anxiety at different stages of their life. To self-regulate and use strategy to get through it. It can be helpful to learn how to support yourself through feelings of anxiety in order to process that versus. At first we had to initially use a lot of distraction so the thought was not what was happening, but as you move through and are able to beginning to be able to identify and cope with anxiety the, those type of reflective strategies

and more helpful than hurtful. If that makes sense. Is it a continuum that at the first stages of anxiety you tell me what you are thinking and where it is going. For some kids in that first stages can make it worse so we employ lots of distraction techniques so let's get our mind off that and into something else. But I think as we move on, that can be a tool that helps.

Teacher C: It can be a matter of are you new to the thinking about thinking as opposed to you have already been there and have seen, felt the worse of that and know you know you are just a little more experienced with it and can use it to your advantage. Reflection of thinking is good for all learners not just anxiety kids.

Teacher B: So you are saying like, let them experience the anxiety and then so they can kind of feel what it feels like in the moment and then from there can use self-regulation strategies to work through it and cope with it? Is that what I am hearing?

Teacher A: I think that can be a process that works for some kids if it is all individualized. You know, some of those kids and if you say one word it can put them into that state of panic. To even process past and sometimes the only thing that worked at that point was distraction. Getting them to think of something different and move on but I think what you are saying is down the line, understand if that is a toolkit I can use so that I think can work. I can access that thinking strategy and see if it works so that it is something that kids can use.

Teacher C: We have had some mixed results lately with kids, there are lots of factors in play. Are meds correct? There are so many factors at what could be involved. He would slip into, when you think about it more, he would practice at knowing what to do, it didn't seem to bring him further in regulating himself and that was it. But we had another situation with many more successes at yes, I am feeling this right now and know it will pass and over time you can still feel that anxiety but could seem to think about it and use her strategies – keep from going into the red zone. So at the beginning, could not see past it and get any closer but over time could still feel that anxiety but reframe the metacognition and thinking that went with the anxiety and she seemed to cope with it better. Even thinking about turning on her strategies to regulate. It never overwhelmed her at that point. Stay more away from the red zone in regulating emotions.

Facilitator: Any other thoughts? Ok, I would like to thank you guys for your time. This was a great discussion and that wraps it up.