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SUPPORTING K-12 STUDENTS WITH ANXIETY:  
THE TEACHER'S ROLE,  
INTERVENTIONS AND METHODS TO REDUCE ANXIETY

A MASTER'S THESIS

SUBMITTED TO THE FACULTY  
OF BETHEL UNIVERSITY

JOHN J. DOUGLAS

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

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SUPPORTING K-12 STUDENTS WITH ANXIETY:  
THE TEACHER'S ROLE,  
INTERVENTIONS AND METHODS TO REDUCE ANXIETY

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APPROVED

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### **Abstract**

This thesis is a literature review of evidence-based practices that support K-12 students with anxiety. Three areas addressing evidence-based practices for students with anxiety include the role of the teacher, interventions, and methods to reduce test anxiety. Literature revealed the significance of the teacher's role in building positive relationships to support students with anxiety and mental health issues. Common interventions and methods for test anxiety included mindfulness, breathing exercises, and muscle relaxation techniques. Small sample sizes and few clinically diagnosed anxiety disorders caused limitations in research. Further research should focus specifically on methods that support students with a diagnosed anxiety disorder and effective targeted interventions.

*Keywords:* anxiety, anxiety disorder, interventions, mental health, test anxiety

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## CHAPTER I: INTRODUCTION

Anxiety disorders are the most common mental disorders in the United States (Bandelow & Michaelis, 2015). According to the World Health Organization (WHO), anxiety disorders refer to disorders that are classified as feelings of anxiety or fear. The most prominent disorders include generalized anxiety disorder, panic disorder, phobias, social anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (WHO, 2022). Evidence-based treatment options administered by mental health professionals include antidepressant medications and cognitive-behavioral therapy (Giacobbe & Flint, 2018). In a study conducted by Wolgensinger (2015) group cognitive-behavioral therapy was identified as being beneficial for kindergarten through twelfth grade students with anxiety disorders who were primarily supported by school counselors and psychologists. Increasing mental health concerns and worldwide events like the COVID-19 pandemic emphasize a teacher's role in supporting students with anxiety disorders.

According to the Centers for Disease Control and Prevention (CDC), 9.4% of children aged 3-17 years (5.8 million) had diagnosed anxiety in 2016-2019. Although these numbers have not been updated since the COVID-19 pandemic, recent research has examined the impact of the pandemic on the mental health of students. In a literature review and meta-analysis of 104 studies, Naff et al. (2022) examined what researchers around the world have discovered about mental health outcomes of youth due to the COVID-19 pandemic. One theme emerged from the review that the COVID-19 pandemic broadly increased stress, anxiety, and depression levels in PK-12 students with and without preexisting mental disorders. The pandemic was a traumatic event for youth and many lived in a state of fear for themselves and for loved ones

(Naff et al., 2022). This collective trauma experienced by youth around the world impacted education. In a study in Quebec, Lane et al. (2022) examined mental health survey results completed by seventh and eighth grade students. The surveys revealed that not all students were negatively impacted by the pandemic but overall there was a general trend of increased generalized anxiety and test anxiety. These studies were conducted in countries all around the world and identified a need for increased support and interventions for students following the COVID-19 pandemic specially for managing increased anxiety levels.

There are existing protocols in place in schools across the United States to support students with anxiety. Hanie & Stanard (2009) identified a school counselor as pivotal in early detection of student anxiety. Counselors helped educate school staff on referring students to counseling if they see or hear certain symptoms. In the study, the majority of students were not diagnosed at early ages and many students were often referred to mental health professionals based on recognized symptoms. Teachers also had an opportunity in the classroom to cultivate a safe and inclusive environment for students.

In accordance with the Minnesota Department of Education, students with Emotional or Behavioral Disorders such as anxiety may qualify for special educational services. Students with an anxiety disorder often have an Individualized Education Program (IEP) or 504 Plan (Green et al., 2017). IEP's typically are written based on feedback from teachers, parents, and medical professionals. The IEP provides accommodations and support in general education or special education classrooms which include access to an educational assistant, preferential seating near the instructor, scheduled breaks, use of fidgets, alternative testing location, and additional time to complete tests and assignments. Counselors often draft 504 Plans based on



the requests of parents or notes from doctors. With increased anxiety levels, there is a need for teachers to be educated on best practices and current research and methods that can be used in the classroom for students with the condition. Results from the 2022 Minnesota Student Survey conducted by the Minnesota Department of Health concluded 29 percent of students experienced greater struggles with long term conditions such as depression and anxiety following the pandemic.

Social anxiety disorder (SAD), also known as social phobia, is most common in students. SAD has an early onset at age 11 and continues into adulthood (Stein & Stein, 2008). Research shows there is a link between SAD and academic underachievement (Vilaplana-Pérez et al., 2021). Vilaplana-Perez looked at SAD across the lifespan of the student and individuals diagnosed with SAD were more likely to underachieve at all levels of education and complete college. Another study found a correlation between SAD and failing academically or not graduating from high school (Van Ameringen et al., 2003). These findings do not take into account additional factors such as socioeconomic status or level of parent involvement in the students' education. Additionally, this does not account for students receiving medical treatment such as antidepressants to manage anxiety. Trends highlight the importance of supporting students in school with caring adults. Teachers are not able to control the outside influences on the student's life but are able to set the tone in their classroom. Teachers have the unique task of establishing a learning community that is conscientious of students with various backgrounds to help them succeed.

Due to a small sample size and lack of young children diagnosed with anxiety disorders, there has not been much research on a teacher's involvement implementing best practices for

students who experience anxiety disorders. Cavanaugh & Buehler (2016) addressed the importance of cumulative support by parents, peers, and teachers to decrease social anxiety disorders. These cumulative supports showed the greatest decrease in anxiety for sixth grade boys compared to girls. A school-based program called Skills for Academic and Social Success (SASS), and an assessment called Social Anxiety Scale for Children (SASC) allowed educators to understand the level of anxiety experienced by students (Fisher et al., 2004; La Greca et al., 1988). Cavanaugh & Buehler (2016) noted that teachers provide a significant role in reducing anxiety by incorporating their personal teaching style and designing their classroom environment.

Many factors contribute to anxiety in the classroom that include academic and test performance and relationships. Testing is a standard method used to assess student knowledge and comprehension but can often be a source of anxiety for students. The pressure to perform well can increase fears and worries for students with anxiety disorders. If educators are trained in recognizing the symptoms of anxiety, they are able to facilitate learning that is best suited to their students' needs.

In the past, there was a stigma surrounding mental health disorders but today there is a greater understanding of mental health disorders with many services available. The pandemic has had an impact on students' long term mental health causing learning loss and added stress. Educators around the world must be equipped to recognize anxiety symptoms and adapt their teaching, communication, and student interactions to ensure success.

The guiding research question for this thesis is how teachers can support K-12 students with anxiety. Three areas addressing evidence-based practices for students with anxiety include

the role of the teacher, interventions, and methods to reduce test anxiety. The goal of this research is to equip teachers with academic, social, and emotional evidence-based practices to support students with anxiety disorders.

## CHAPTER II: LITERATURE REVIEW

### Literature Search and Selection Procedures

The literature used in this thesis was found by conducting searches of Academic Search Premier and ERIC published from 2000 - 2022. The key words used in these searches included “supporting students with anxiety disorders,” “supporting students’ mental health”, “supporting students with anxiety,” “supporting students with anxiety in the classroom,” “supporting elementary students with anxiety,” “supporting secondary students with anxiety,” “the teacher’s role in supporting students with anxiety,” “supporting students with test anxiety,” “interventions for students with anxiety,” “interventions to reduce student anxiety,” “ways teachers can reduce test anxiety,” “strategies for teachers to reduce student anxiety,” “strategies for teachers to reduce test anxiety,” additional key words used in combination to search for journal articles “manag\* or support or techniques or methods.” The criteria used for selection of the literature included: 1) study was published between 2000 - 2022, 2) study was published in English, 3) study included K-12 students with anxiety, 4) study included qualitative or quantitative methods.

Based on the criteria, Chapter II literature review focused on the role of teachers supporting students with anxiety, interventions for students with anxiety, and methods to reduce student test anxiety. Teachers supported students with anxiety by focusing on connections with the student first rather than the content. Interventions teachers used to support students with anxiety included regular check-ins with the student and continued progress monitoring. Breathing, visualization, and self-talk were methods students used to reduce test anxiety.

### **The Role of Teachers in Supporting Students with Anxiety**

The role of a teacher is important when supporting students with anxiety disorders. In a qualitative study conducted at a primary school in Sydney, Australia, Cross & Currie (2018) investigated a teacher's role and barriers in ways to support students with anxiety disorders. Cross & Currie (2018) addressed two research questions: 1) what are the perceptions and subjective experiences teachers participate in to support children with anxiety disorders? and 2) what barriers, if any, exist that prevent teachers from being able to support children with anxiety disorders? The authors conducted interviews of six elementary school teachers and three school psychologists (Cross & Currie, 2018). The findings identified four ways that teachers and psychologists supported students with anxiety behaviors which included: tracking behavior, communicating with parents, referring students for additional support and providing accommodations (Cross & Currie, 2018). All participants in this study mentioned building relationships as a positive strategy; whereas a barrier was lack of teacher training to support students with anxiety (Cross & Currie, 2018).

Professional development training makes teachers more efficient in meeting the needs of the students. In a 2022 study, Maclean & Law looked at the role of a teacher in supporting student mental health that included identification of mental health, equipping teachers with adequate knowledge, skill and training, and identifying support barriers. Participants include 179 primary school teachers in Scotland. Teachers were from 30 different council areas. 98.9 percent of the participants were female; ranging from one to 42 years of experience with an average of 13.3 years. Maclean & Law chose Facebook to administer the survey. In early 2020, they posted a link to the online survey on a Facebook page called Scottish Primary Teachers that

had 25,000 members. The survey was voluntary and anonymous and teachers completed the survey in an average of ten minutes. The survey contained a total of 43 questions that assessed the perception of teachers' role to support student mental health as well as barriers. The survey was divided into subsections and used a five point Likert scale allowing the teachers to show how strongly they agree or disagree but also allowing them to have a neutral response.

Maclean & Law identified anxiety problems as the second most identified area of concern. The number one area of concern was disruptive behaviors/calling out. The participants identified seven roles teachers have in supporting student mental health. The top three roles were to implement behavioral interventions, teach social-emotional skills, and to monitor student progress. Survey results identified the top five barriers that included 1) insufficient number of school mental health professionals, 2) lack of funding for school-based mental health services, 3) lack of adequate training to deal with children's mental health services, 4) lack of coordinated services between schools and community, and 5) lack of referral options in the community. (Maclean & Law, 2022).

Multiple barriers impact a teacher's ability to help students with mental health issues. A staff's perception of his/her role also is impacting. Dimitropoulos et al. (2022) study aimed to understand the perception of a school staff's role in promoting student mental health and wellness along with determining what resources are needed to support their role. A total of 48 staff were recruited from two schools in southern Alberta, Canada. The two schools were diverse with a combined population of 1,683 students. The study was qualitative in nature and six research assistants conducted school staff interviews from June 2017 to March 2018. The assistants asked the school staff open-ended questions to gather descriptions of their

perceptions on mental health problems. Interviews lasted approximately 45 to 60 minutes and were audio recorded and transcribed. Researchers used thematic analysis in order to identify key viewpoints among staff. After careful data analysis, four themes were revealed. The first theme showed relationships matter. Establishing and maintaining strong relationships with students, their caregivers, and other staff supports students struggling with mental health. The second theme revealed the significance of communication. Empathetic and receptive communication are an antidote to the stigma of mental illness. The third theme identified the importance of connecting students to the right person who can facilitate, connect, and navigate students to internal and external mental health resources. The fourth theme of the study indicated how facilitators face barriers when supporting students with mental health concerns (Dimitropoulos et al., 2022).

Relationships, communication and connection are critical in addressing mental health issues. Willis et al. (2021) qualitative study in Australia investigated a teacher's role in mitigating student stress. This study determined ways teachers managed student concerns, academic pressures, and stress. The study evaluated the causes of stress among students and the available support for teachers and students. Twenty-two primary, secondary, and specialist teachers participated in the study all of whom held five years of experience from either non-government or government school. Teacher interviews were conducted via video, telephone, and email. Teachers were asked questions about academic performance and student wellbeing. All the teachers agreed that the wellbeing of the student was priority over academic instruction. Strategies that included uplifting messages, extra attention and time given to complete assignments, perspective-giving, and storytelling (Willis et al., 2021).

The well being of a student begins with relationship building. Luthar et al.'s (2020) studied the teacher's role in addressing mental health issues in high achieving schools. The study explored the teacher's response to different types of mental health issues, collaborative work among stakeholders that included community service providers, and ways institutions fostered resiliency in adapting to student mental health needs (Luthar et al., 2020). The rate of mental health symptoms among high achieving schools was evaluated. Researchers collected self-reported clinical data on nine schools from different parts of the United States and each school's responsiveness fostering wellness. A total of 7,798 ninth-twelve grade students were assessed from 2015 to 2019. Parents were informed of the questionnaire and students were given the option to opt-out of this study. The results of this study concluded students from high achieving schools had elevated levels of anxious-depressed and withdrawn-depressed problems compared to national norms (Luthar et al., 2020). The study also evaluated the involvement of stakeholders in high achieving schools. Seventy-five participants completed questionnaires. Results of this study showed service providers rated parents of high-income as being most capable in following recommendations for treatment and professional help for their child, however, having negative and defensive attitudes. Parents of middle-low income were rated likely to neglect their child's treatment needs because of other commitments. Overall, the study emphasized the increased need for improved relationships with teachers, stakeholders, and parents to reduce the risk of anxiety and depression for students in high achieving schools (Luthar et al., 2020).

Anxiety rating scales are tools teachers use to build relationships. Ginsburg et al. (2022) examined teachers' knowledge and use of anxiety reduction strategies in the classroom. The



research predicted a teacher with modest knowledge of anxiety reducing strategies compared to a teacher with a greater knowledge of anxiety reducing strategies would use anxiety reduction skills in the classroom less; and a lower burnout, greater school support, and higher teacher self-efficacy were expected to be positively associated with a teacher's knowledge of anxiety reduction skills. The study included 51 school teachers from 12 public school districts in the northeast United States. Age of teachers ranged from 23 to 63 and their years of experience ranged from 0.5 to 33 years. The majority of participants had limited training in anxiety reduction. There were six different measures the researchers used to collect data in their study which included: Teacher Background Form, Teacher Knowledge of Anxiety Assessment, Classroom Strategies Questionnaire, Teacher Efficacy Beliefs Scale, Maslach Burnout Inventory for Educators, and Organizational Readiness Questionnaire. The data was collected for the study as a baseline of the Teacher Anxiety Program for Elementary Students (TAPES) which was a three-year study funded by the Department of Education.

Data analysis was conducted to see if a teacher's knowledge of anxiety reducing strategies influenced teacher behavior. Researchers discovered that a teacher's knowledge of these strategies was not correlated to using anxiety reduction strategies. The average score of the Teacher Knowledge of Anxiety Assessment was 57% aligning with the researchers hypothesis of a teacher having modest knowledge about anxiety reducing strategies. The main predictor of the use of anxiety reduction strategies was a teacher's sense of accomplishment at work. These teachers reported higher levels of self-efficacy. Ginsburg et al. (2022) recommended that teachers receive more training on anxiety; specifically recognizing the signs

of anxiety using the School Anxiety Scale or the Screen for Child Anxiety and Related Emotional Disorders.

Anxiety rating scales provide teachers with the necessary tools to respond appropriately to student victimization. Troop-Gordon et al. (2021) researched a student's expectations of how teachers handle peer victimization with socioemotional development. The study was conducted in the upper midwest of the United States. The participants included three-hundred and sixty-six students and twenty-four teachers of third and fourth grade at five public elementary schools. Students took a questionnaire during the 2005-2006 and 2006-2007 school years. Student questionnaires were completed that included how a student perceives a teacher's response to peer victimization, aggression, prosocial behavior, depression and anxiety. A second student survey determined how teachers respond to peer victimization. A third student survey determined a student's social emotional state dependent on the teacher's response. The results of the study found a student's perception of the teacher's involvement with peer victimization had an impact on the student's socioemotional state. Males showed less depression and females showed less anxiety when they viewed their teacher taking an active role versus a passive role when handling peer victimization. Teachers who took an active role punished aggressors, contacted parents, and separated students that were involved (Troop-Gordon et al., 2021).

Belcher et al. (2022) studied the teacher/student relationship using fear appeals, psychological distress, and self-efficacy. Fear appeals are messages that persuade people of potential harm if they do not accept the messages' recommendations. Researchers tested their hypotheses that included students with lower academic self-efficacy and fear appeals reporting

greater psychological distress (stress, anxiety, and depression), teachers with lower self-efficacy using fear appeals experienced higher symptoms of psychological distress (depression, anxiety, stress) and emotional exhaustion, and teachers with less years of experience more susceptible to using fear appeals and experiencing a high level of psychological distress. The study took place in the Greater Sydney Area in New South Wales, Australia. Participants were selected from seven high schools including single sex, co-ed, public and private and Catholic schools. Some of the data from students comes from a larger study as a baseline on student stress. 367 students and 91 teachers were involved in this study. The students were in their final year of high school and teachers taught year 12. Both the students and teachers completed surveys during the middle of the first term of 2018.

Students and teachers were given similar surveys to assess anxiety, depression, stress, self-efficacy, and fear appeals. Researchers examined students using tools that included Spence Children's Anxiety Scale (SCAS), Depression Anxiety Stress Scale - 21 (DASS-21), Self-Efficacy Questionnaire for Children (SEQ-C), Teacher's Use of Fear Appeals Questionnaire (TUFAQ). Researchers examined teachers using the following tools: Abbreviated Maslach Burnout Inventory (aMBI), Ohio State Teacher Efficacy Scale-short form (OSTES), Teachers' Use of Fear Appeals Questionnaire - Teacher (TUFAQ-T) and DASS-21. The results of the surveys revealed a teacher's use of fear appeals was associated with students' distress affecting low self-efficacy students, in particular. The use of fear appeals was associated with a teacher having higher rates of anxiety and low self-efficacy (Belcher et al., 2022).

### **Interventions for Students with Anxiety**

Extra attention in relationship building and trust is essential when a teacher works with children who are shy. Nyborg et al., (2022) conducted a study in Norway that focused on enhancing engagement of shy students in oral activities. The purpose of the study was to understand how teachers engaged with shy students in oral activities as well as ways to minimize anxiety. Research questions addressed the impact of shyness in oral activities at school, a teacher's response to address shyness, and learning opportunities for children who are shy. Elementary teachers recruited for this study were successful in working with shy students and were recommended by the Educational Psychological Counseling Service (Nyborg et al., 2022).

Nyborg et al., (2022) study involved video recordings of the interaction between teacher and students and follow-up interviews. Teachers focused on several areas to engage shy students when giving presentations, working in groups and learning pairs, and during teacher-student interactions. Based on the findings, more emphasis on the delivery of academic instruction than social inclusion was recommended for children who were shy. Strategies used by teachers included careful feedback, frequent movement around the room, creative activities to help students reduce frustration and monitoring student success and failure (Nyborg et al., 2022).

Teachers support shy students through academic instruction along with monitoring student success and failure using a Check-In/Check-Out (CICO) strategy. A study conducted by Mitchell et al. (2021) took place at an elementary school located in the midwest United States that implemented Tier I behavior supports. The study examined how an intervention technique called Check-In/Check Out (CICO) impacted children who were at risk of experiencing internal

problems of anxiety. The research study examined changes in academic engagement time and the facilitator, parent, and student change in ratings after student participation in CICO. Three students in kindergarten-second grade participated in the study and were selected based on several criteria including: elevated scores on behavior screening, parental consent, teacher rating of student anxiety, and students not receiving special education support (Mitchell et al., 2021).

Direct teacher observation determined the baseline for each student's academic engaged time (AET). Data was plotted to measure change over time. At the beginning of each day, students checked in with a CICO facilitator to receive a daily progress report. The students' teachers communicated with the student at the end of each class about their behavior. At the end of the day, students checked out with the same CICO facilitator. Concluding the intervention, each participant was given a questionnaire. Students indicated on their questionnaire that participating in CICO improved their behavior (Mitchell et al., 2021). Teacher data presented a positive trend for students who were able to deal with their anxiety. In addition, data showed an increase in academic engaged time (AET) and reduction of anxiety for all students in the study.

Check-in/Check-out is a strategy that reduces anxiety along with yoga. Stapp & Lambert (2020) researched the impact of a mindfulness-based yoga intervention with students experiencing anxiety and stress addressing mindfulness-based yoga intervention's impact on anxiety and stress levels experienced by fifth-grade students in a mathematics classroom and teacher perceptions of mindfulness-based yoga interventions. The study took place for three months in three fifth-grade math classes at an intermediate school in Northwest Mississippi. A

total of 58 students ages 10-12 participated in the study and were placed in math classes based on three levels of ability (Stapp & Lambert, 2020).

Stapp & Lambert (2020) collected data using the design of mixed methods. Quantitative data was collected from students in a pre and post-questionnaire survey. A teacher interview was used to supplement the findings. At the beginning of every class, a teacher guided the math class through a series of breathing exercises for 5 minutes. Typically, the yoga exercises consisted of students breathing in and slowly breathing out while counting to a designated number. The three months of intervention showed an increase of 1.9% in total perceived anxiety levels. Males saw a decrease of 2.22% as compared to females who saw an increase of 5%. Out of all the ability levels, males in the remedial math class showed the greatest decrease in perceived anxiety (Stapp & Lambert, 2020).

Mindfulness-based yoga and school-based mindfulness interventions are intended to reduce internalizing symptoms of anxiety. Phillips & Mychailyszyn (2022) conducted a meta-analysis on internalized symptoms of anxiety and school-based mindfulness interventions effectiveness. Phillips & Mychailyszyn (2022) hypothesized that school-based mindfulness interventions would reduce symptoms of anxiety and depression with results not differing by the age but by the targeted approach to intervention by a mental health professional. Articles in the study evaluated mindfulness intervention with participants in grades preschool through twelve using standardized pre and post-intervention measurements calculating effect size. Phillips & Mychailyszyn found articles using online database searches. Articles published from January 1, 2000 to July 2020 were considered. A total of 36 articles were included in the final meta-analysis. 7,869 students participated in these studies ranging from age eight to eighteen.

Some of the studies reported exclusively on anxiety symptoms and others on depressive symptoms. Characteristics of the studies included individual or group intervention, targeted or universal approach, and non-school staff or school staff who implemented the intervention.

Twenty-seven of the studies investigated the effect of school-based mindfulness interventions on anxiety symptoms. The pre-post effect size was significant. The findings did show small reductions in anxiety and depressive symptoms in youth. The authors mentioned, however, that more research was needed to determine a broad evidence-based mindfulness intervention with aspects that cause changes when symptoms of anxiety and depression are internalized .

School-based mindfulness interventions, therapies, and techniques reduce anxiety and depression. Gaesser & Karan (2017) compared the efficacy of Emotional Freedom Techniques (EFT) with Cognitive-Behavioral Therapy (CBT) in reducing student anxiety. Gaesser & Karan (2017) conducted the study in two northeastern states in the United States. A total of 63 students participated in the study from ten different schools. Four schools were high schools and six were middle schools. The students were aged ten to eighteen and were selected based on scores of moderate to high anxiety on the Revised Children's Manifest Anxiety Scale-2 (RCMAS-2). Gaesser & Karan (2017) randomly assigned students to CBT, EFT or the waitlist control intervention group with 21 students comprising each group. CBT and EFT groups received three sessions from graduate students in counseling, psychology and social work from a northeastern research university. RCMAS-2 was used to measure anxiety levels pre and post-intervention.

Students in the Emotional Freedom Techniques group showed a significant reduction in anxiety compared to the waitlist group. Students in the Cognitive-Behavioral Therapy group reduced anxiety with no differentiation between the control group and EFT group. EFT was an efficacious intervention significantly reducing anxiety among high-ability students. This intervention used awareness building, and reframing of interpretation. This intervention was useful in a clinical and school setting. (Gaesser & Karan, 2017).

Techniques and therapies reduce student anxiety. The Lambert et al.'s (2022) study examined the effectiveness of Emotional Freedom Techniques (EFT) (tapping) to reduce anxiety in primary school classrooms as well as improve student wellbeing. Researchers wanted to see how effective EFT would be in a school setting since positive effects were seen in the clinical setting. The study was conducted in four primary schools in northern Australia located in areas with different socio-economic backgrounds. 138 students participated in The Tapping Project which included 76 girls and 62 boys in Year 5 and Year 6. Nine teachers participated in the study, two males and seven females. The study used mixed methods with both quantitative and qualitative measures. Two quantitative measures were used to measure anxiety levels before and after the intervention. The first was the Subjective Units of Wellbeing Score (SUWS) and the second was the Revised Children's Manifest Anxiety Scale -second edition (RCMAS-2). Several qualitative measures included interviews with students from each class, focus group interviews with teachers and staff, comments from students, stories reported from students, and personal observations. Stage one of the study occurred over a four-week period. Students first assessed their wellbeing and feelings, then participated in a tapping session and finally re-assessed their



wellbeing. This was repeated again in stage two. RCMAS-2 was administered once during stage one, stage two and then ten weeks after stage two to see how anxiety levels compared.

Lambert et al. (2022) determined through analysis that RCMAS-2 scores decreased over time. The most significant decrease in RCMAS-2 scores was ten weeks after stage two. Researchers discovered students with the lowest levels of anxiety benefited the most from tapping. Through qualitative results it was seen that when students were at a high level of anxiety the tapping did not always help, but students with lower levels of anxiety reported it did help reduce their anxiety. The study demonstrated the positive effect tapping has on reducing anxiety in students and their wellbeing. Following the study, three schools continued to implement tapping with their students, continued the conversation about tapping in the classroom, and suggested that it was not only a clinical treatment option.

Emotional Freedom Techniques (EFT) and tier two interventions support anxiety reduction. Eklund et al. (2021) pilot study explored the results of the Resilience Education Program (REP) Tier 2 intervention involving a small group Cognitive Behavioral Instruction (CBI) and a check in/check out system. This study was conducted in a suburban elementary school in the central United States. Three students with concerning behaviors were selected by three different teachers to participate in the study. Student participants were withdrawn, displayed negative behavior, and showed emotional distress. Each teacher was sent an email reminding them to rate the student's behavior each day using a survey system that allowed the teacher to track the time these behaviors were expressed.

After completion of the Resilience Education Program (REP), the study found that there was a statistical significance for decrease in withdrawal and negative feedback but only a slight

reduction in crying with the intervention. The mean rating for the student with withdrawn behavior decreased from 1.60 at baseline to 0.55 during intervention. The student with negative behavior's mean rating decreased from 3.88 at baseline to 0.70 during intervention. The emotional distressed student's mean rating decreased crying from 0.56 at baseline to 0.31 during intervention. Teachers agreed that the Resilience Education Program (REP) was a feasible school-based intervention for students to internalize concerns. This study's data may have created a positive bias because only teacher ratings were tabulated and feedback was not obtained from others working with students (Eklund et al., 2021).

Resilience Education Program (REP) and TRIPLE R: Robust, Resilient, Ready to Go are school-based interventions to reduce anxiety. Dove & Costello (2017) investigated the efficacy of a six week mindfulness intervention program called TRIPLE R: Robust, Resilient, Ready to Go in Melbourne, Australia in three government primary schools. The goal of this program is to teach mindfulness skills and reduce negative emotional symptoms in school. Researchers expected that children's self reported mindfulness skills would be higher and self reported negative emotional symptoms would be lower after the intervention was implemented. Researchers anticipated there would be an inverse relationship between the change in self-reported mindfulness skills and emotional symptoms over time. TRIPLE R was delivered to 72 students in fifth grade. Data from 57 students was included in the study; 37 males and 20 females. At one of the schools the TRIPLE R program was delivered to an entire class and at the other two schools students were screened for participation based on criteria identified by teachers and parents such as anxious or depressive symptoms. Intervention was delivered during the school term in one hour sessions once a week for a total of six weeks. Session theme

topics included body, feelings, mind, and relationships. There were also mindfulness group activities that sometimes were in groups of three to five students. Researchers used the Child and Adolescent Mindfulness Measure (CAMM) to measure student mindfulness. Mental health symptoms were measured using the Revised Children's Anxiety and Depression Scale (RCADS).

Following careful analysis, the results of the study revealed a statistically significant increase in self-reported mindfulness skills following the TRIPLE R intervention. The study also revealed increased mindfulness skills were significantly associated with decreased emotional symptoms. The symptoms most notable were social phobia, separation anxiety, and generalized anxiety. T-tests were used to evaluate the mindfulness intervention on emotional symptoms measured using RCADS. There was a decline in negative emotional symptoms but they were not statistically significant (Dove & Costello, 2017).

Triple R Intervention and The Robust, Resilient, Ready-to-Go program provide multiple ways to intervene for students dealing with anxiety. In a 2019 study, Etherington & Costello compared a universal approach and a targeted approach of an intervention called The Robust, Resilient, Ready-to-Go program for students with anxiety. Researchers predicted similar decreases in anxiety with students in the universal delivered program compared to students in the targeted group program. The participants of this study included 66 elementary school students in grade five and six who were aged nine to twelve at two schools in Melbourne, Australia with 39 students being male and 27 being female. Students participating in the universal approach at the first school numbered 46 and students participating in the target approach at the second school numbered 66 students. The students in the targeted approach were referred by their teachers based on risk factors and their difficulties with anxiety.

Etherington & Costello used mixed-methods and collected both quantitative data in phase one and qualitative data in phase two of the study. The Revised Children Anxiety Depression Scale (RCADS) was used to collect data on student anxiety levels pre-program and post-program.

Three students were selected from the universal and targeted group for interviews.

The Robust, Resilient, Ready-to-Go program was implemented in each school for a total of 16 weeks with one-hour sessions. The intervention was delivered during school hours by mental health professionals. Following the intervention, a comparative data analysis was conducted on the universal and targeted group. Results of the analysis partially supported the hypothesis. There was a significant decrease in anxiety levels (RCADS) in the targeted group following the intervention, but no significant decrease in the universal group. The researchers mentioned that the universal group was made up largely of students with typical levels of anxiety whereas the targeted group had peers mainly with higher levels of anxiety. The results reported highly anxious students in the universal group had a greater decrease in anxiety compared to the targeted group. This study suggests that the universal approach may be appropriate for low and highly anxious students. The interviews also revealed both groups of students benefiting from the program with tools to foster reliance and manage adversity in the future (Etherington & Costello, 2019).

Another important support for students to reduce anxiety is through scaffolding of curriculum programs. Maggin & Johnson (2014) study reviewed the effectiveness of the FRIENDS program at preventing anxiety disorders in students at low and high risk. This study was conducted through a meta-analysis, which included four areas: 1) program characteristics of 2) methodological strengths and weaknesses. 3) effectiveness of the program for high and

low risk, 4) and outcome of students in control group versus treatment group. The findings of the study showed that low risk students had a small decrease in anxiety and high-risk students showed no difference in anxiety (Maggin & Johnson, 2014). The FRIENDS program offers some short-term effects for low-risk students.

The FRIENDS program used a meta-analysis whereas Weight & Bond (2022) investigated the relationship between metacognition to find a correlation between utilization of metacognition and teacher confidence working with students with anxiety. The hypothesis would determine whether self-regulation, as an essential component of metacognition, independently provides confidence to students with anxiety. Researchers predicted a positive correlation between these two variables. The participants in this study were selected from an in person training event at a suburban district in the United States. 171 staff including 81 elementary staff and 90 secondary staff completed a survey with paper and pencil. The study used a quantitative correlation research design. Weight & Bond used a 5-point Likert-type scale survey to determine staff perception concerning self regulation, metacognition, and anxiety. Chi-square tests were used to determine if there were significant relationships between variables.

After careful analysis, researchers found a statistically significant relationship between the two variables. It was determined there was a positive correlation between a teacher's use of metacognition and confidence in supporting students with anxiety. The results supported other findings from previous studies in the clinical setting and confirmed the need for further research in the classroom setting. In this study, the emphasis was placed on metacognition being a way for students to understand the way they think as a strategy for supporting students with

anxiety. Benefits of this strategy include planning, monitoring, understanding, and observing personal progress (Weight & Bond, 2022).

When anxiety becomes excessive or persistent, it can interfere with learning and affect the brain's functioning. In the 2020 study, Beloe & Derakshan explored the effects of adaptive working memory (WM) training on anxiety and depression in adolescents. The researchers predicted that adaptive training would lead to a significant reduction in anxiety following the intervention at a one month follow up. Anxiety levels were measured using the Revised Children Anxiety Depression Scale (RCADS). This study included students from two secondary schools in southeast England. There were a total of 254 students with 141 boys and 113 girls from ages 10 to 18 years old. There was a control group with 126 students and an *n*-back training group with 128 students. Students completed questionnaires and received training during half-hour sessions. Students went through the training intervention five days a week for four weeks for a total of 20 training days. At the first session students received a unique URL where they took the questionnaire and the RCADS.

After careful analysis, the results revealed the *n*-back WM training intervention reduced self-reported anxiety and depression symptoms in adolescence. In addition, there was a reduction at the one-month follow up which suggests that the training has lasting effects. The findings were in agreement with the researchers hypothesis (Beloe & Derakshan, 2020). Anxiety can interfere with working memory by overloading memory capacity, making it difficult to process and retain new information effectively. Techniques to reduce anxiety, particularly in a testing situation, are discussed.

### **Methods to Reduce Student Test Anxiety**

Larson et al. (2010) study examined the impact of relaxation techniques on reducing test anxiety in third-grade students. This study had three hypotheses. Will the pre-and post-test differences for the experimental group show a significant decrease in anxiety level? Will the pre-and post-test differences for the control group show no significant decrease in anxiety levels? Will there be a significant post-test difference in anxiety levels between the experimental and control groups? The study included 177 third-grade students, aged eight to ten years old that attended two Midwestern public elementary schools in the United States. All students completed the Westside Test Anxiety Scale (WTAS) pre-test and a demographic questionnaire. One school's students served as the control group and the other school's students served as the experimental group. The experimental group was taught relaxation techniques while the control group was not taught relaxation techniques. Researchers taught the experimental group deep breathing and muscle relaxation two days a week, for five weeks, in classrooms or other locations in the building. Researchers played relaxing music in the background during these training sessions. Following the five weeks the control group and experimental group took the WTAS (Larson et al., 2020). The researchers used *t* test analysis to compare the differences between the control and experimental groups with results supporting the first and second hypothesis but not the third hypothesis. Relaxation techniques had a significant effect on reducing test anxiety in elementary students with no significant post-test difference found between the control and experimental groups (Larson et al., 2020).

Along with relaxation techniques, McLeod & Boyes (2021) studied the effectiveness of reducing test anxiety through Social Emotional Learning (SEL), study skills, and mindful breathing with biofeedback. The participants of this study included one hundred and five

students from a rural public school near an Alberta City in Canada in grades 9-12; ages 14-17. A control group of seventy students in psychology and science classes and an experimental group of thirty five students in a psychology class made up the study using mixed methods and quantitative and qualitative data. Students anxiety surveys, opinion surveys and reading comprehension tests were administered. Students in the experimental group wore HeartMath sensors that provided biofeedback on heart rate variability in response to heart-focused breathing. Students self-reported their heart rate variability metrics using the Inner Balance app connected to their device. Researchers had students complete interviews to gather student perspectives and identify themes from their experiences within a determined focus group of students (McCleod & Boyes, 2021).

The student anxiety surveys revealed differences between the control group and experimental group with greatest significance in the area of self-efficacy. The experimental group increased by 5.3% and the control group decreased by 8.4%. The experimental group results decreased and the control group results increased due to learned coping strategies . A negative perception of completing tests showed no difference between the experimental and control groups, student opinion survey results were all moderate, and a slight increase in positive affect for the experimental group following the intervention was determined. Reading comprehension test scores improved from September to December for both groups with the experimental group increasing test scores by 32% and the control group increasing test scores by 18%. Many students in the experimental group mastered the heart-focused breathing technique according to the Inner Balance app data. Student interview feedback and the focus group struggled with test anxiety but heart focused breathing and study skills allowed these



students to handle test taking with great confidence. Many students agreed that they continued to disliked taking tests but their perception had changed as a result of new strategies such as self-efficacy and self-awareness (McCleod & Boyes, 2021).

Social Emotional Learning (SEL), study skills, mindful breathing with biofeedback and a cognitive behavioral approach reduce anxiety. Research by The Türk & Katmer (2019) examined how a program for coping based on a cognitive behavioral approach impacted test anxiety for eighth grade students. The researchers considered students' irrational thoughts, coping levels, and academic self-efficacy perceptions. This experimental study was completed in 2018-2019 with an experimental group and a control group of eight grade students from a public secondary school in Kilis City in Turkey and used the Test Anxiety Scale for Children, Academic Self-Efficacy Scale, Individual Thoughts Scale, and Adolescent Coping Scale to collect student data. Researchers applied the Test Anxiety Scale for Children to 120 students to determine experimental and control groups. Sixteen students were randomly assigned to each group based on scores. The program for coping with test anxiety was only used for the experimental group. Following the intervention, a post-test was given to both experimental and control groups.

The cognitive-behavioral intervention for anxiety significantly decreased pre- and post-test scores for the experimental group using the Individual Thoughts Scale and Test Anxiety Scale. No significant difference was shown for the experimental and control groups using The Adolescent Coping Scale and the Academic Self-Efficacy Scale . Overall, the study found this program effective in decreasing student test anxiety but not effective in reducing negative coping skills and academic self-efficacy (Türk & Katmer, 2019).

Besides using interventions to reduce anxiety, coloring activities reduce anxiety for elementary students. Coloring activities used to reduce test anxiety was studied by Carsley and Heath (2019). The study addressed whether mindfulness-based coloring activities compared to free drawing coloring activities were effective in reducing test anxiety in children and if gender contributed to changes in test anxiety. Carsley & Heath (2019) study hypothesized mindfulness-based coloring activities would reduce test anxiety. The participants in this study included 154 students in grades fourth, fifth, and sixth from a public elementary school in Montreal, Canada. Students were randomly assigned to an intervention group or control group and received a closed envelope that contained all of the measures of the study and either a structured mandala or a blank piece of paper. To evoke test anxiety, students were told the results of their spelling test would be shared with their parents. Before and after the intervention, students completed the Spielberger's State-Trait Anxiety Inventory for Children (STAI-C) and the Mindfulness Attention Awareness Scale state version (state MAAS). The intervention group used colored pencils on structured mandala and the control group colored on blank paper for 15 minutes then the groups completed a spelling test. After completion of the spelling test, students completed the Child and Adolescent Mindfulness Measure (CAMM) which was a self-reported measure of mindfulness. At the conclusion of the study, the school and parents were provided a summary of the results revealing a significant decrease in test anxiety scores and increase in mindfulness scores with no significant identified gender difference. Structured drawings are commonly recognized as being helpful in reducing test anxiety so authors of this study suggested educators incorporate more free drawing coloring

activities and structured drawing activities prior to taking tests as a way of reducing test anxiety (Carsley & Heath, 2019).

When dealing with test anxiety, implementing interventions can be helpful in managing stress and promoting a more positive test-taking experience. In a quasi-experimental, mixed method study, Brown et al. (2022) studied the effectiveness of Every Little Helps (ELH) to improve test anxiety among General Certificates of Secondary Education (GCSE) students to understand the student views and experiences of the intervention. ELH used a multimodal approach that included academic skill building, Cognitive Behavioral Therapy (CBT) informed activities, and relaxation techniques. The study addressed the usefulness of ELH in ameliorating the effects of test anxiety and the aspects of ELH being helpful for GCSE students. The study occurred in two secondary schools in northwest England. Schools identified test anxiety as an area of need for 11 students who were 15 years of age who were identified by staff and invited to participate with parental consent. Prior to the intervention, test anxiety levels were measured using the Revised Test Anxiety Scale (RTA). The intervention was delivered through six hour sessions once a week for the spring term. As part of the study, students participated in semi-structured interviews to collect qualitative data on the helpfulness of the intervention.

The finding from the data revealed that 10 of the 15 students had a reduction in self-reported test anxiety levels following the intervention, one student showed no change, and four students had an increase in test anxiety. Even though their test anxiety increased they rated the intervention as helpful with an average helpfulness rating. The highest helpfulness rating was seen for CBT-informed activities. All participants rated at least one element of the intervention with an average helpfulness rating. The interviews revealed that participants felt in

control of their emotions allowing for a more helpful way of processing emotions. This intervention reduces test anxiety and may enhance overall well-being and improve quality of life (Brown et al., 2022).

The relationship between self-efficacy and test anxiety is important to understand as it can significantly impact an individual's performance and overall well-being. Lei et al. (2021) examined the relationship between self-efficacy, test anxiety, and factors such as academic buoyancy and peer support. Researchers had three hypotheses as follows. Academic self-efficacy is negatively associated with test anxiety among high school students. Academic self-efficacy predicts test anxiety through the indirect effect of academic buoyancy in high school students. Lastly, high school peer support will be stronger in the relationships between not only academic self-efficacy and academic buoyancy and weaker in academic self-efficacy and test anxiety. The participants in this study included 560 students between the ages of 15 and 18 years from four high schools in Shanxi Province, China. Only 552 questionnaires were analyzed with eight questionnaires invalid. The researchers collected data using several tools that included the Test Anxiety Scale, Academic Self-Efficacy Scale, Peer Social Support Scale, and Academic Buoyancy Scale.

Through analysis, Lei et al. (2021) study discovered that academic self-efficacy was negatively correlated with test anxiety. The results of this study suggest students with low academic self-efficacy but high academic buoyancy are not likely to experience high test anxiety. Results of the study partially supported the third hypothesis in which students with high levels of peer support were likely to report high academic self-efficacy. The study suggested

educators pay attention to peer relationships and encourage students to seek support from friends when encountering difficulties or setbacks (Lei et al., 2021).

Students with high test anxiety may respond differently to fear appeals compared to those with lower levels of anxiety. The intention is to motivate individuals to take action to prevent or reduce the feared outcomes. Putwain & Best (2012) examined whether students with high-test anxiety would respond differentially to fear appeals. The study's hypotheses expected all students to report higher anxiety when exposed to fear appeals along with hypothesizing high-test anxious students would respond with differentially higher anxiety than low-test anxious students. 39 students participated in the study (22 male and 17 female) who attended a primary school in England. The researchers selected students from four cohort years aged seven to 11. The study used mixed methods with low vs. high trait anxiety students and low fear appeals vs high fear appeals with data collected over a two-week period. At the end of each week, students were given a mathematics test. At the beginning and the end of the lesson, students in the high fear appeals were reminded that tests were important, hard work was required to avoid failure, and that test results would be seen by parents and the head teacher. Students in the low fear appeals condition were told they had to complete a test but there was no mention of the test's importance, failure, or any consequences. Fear appeals were measured using the Teachers' Use of Fear Appeals Questionnaire (TUFAQ), trait test anxiety was measured using the Children's Test Anxiety Questionnaire (CTAS), and state test anxiety was measured using State-Trait Anxiety Inventory for Children (STAIC) (Putwain & Best, 2012).

The study evidenced fear appeals can cause test-related anxiety. Students in the high fear appeals group identified their teachers making common fear appeals and considered them

threatening. Students with high trait anxiety in the high fear appeals reported more frequent and threatening fear appeals than students with low trait anxiety. At the end of the week, the performance of students was worse on the mathematics test and the students reported higher state anxiety with high fear appeals (Putwain & Best, 2012).

Teachers play a crucial role as positive motivators in moderating test anxiety and learned helplessness among students. By adopting specific strategies and approaches, educators can create a supportive learning environment that fosters confidence, resilience and a growth mindset. In Raufelder et al. (2018) study, researchers looked at the role of teachers being positive motivators as a way to moderate test anxiety and learned helplessness. The purpose of the study was to determine the role of teachers being positive motivators (TPM) and a buffer between test anxiety and learned helplessness. Researchers hypothesized a student's perception of TPM, test anxiety, and learned helplessness will be significantly associated and a student's perception of TPM will function as a moderator in the association between test anxiety and helplessness in school. This study was conducted in secondary schools in Germany including 845 students aged 13-17 from 22 schools in Brandenburg. Students were selected according to low levels of motivation and answers to three questionnaires in the spring semester of 2013 on two consecutive days. The German Test Anxiety Inventory, the Relationship and Motivation instrument, and the Helplessness in school scale were used to collect student data.

Researchers used a model to analyze the different variables in the study. In the final model there were significant covariances between worry and emotionality, worry and TPM, and emotionality and TPM. The model also revealed that TPM did not serve as a buffer to decrease

anxiety and helplessness in school. This was in contrast to the researchers' hypothesis. The analysis revealed that helplessness was highest when there was high emotionality and high motivational support from teachers. This confirms previous research that students who are dependent on their teachers tend to experience lower academic achievement because of feared failure and effort to meet teacher expectations. TPM does not decrease test anxiety and helplessness in school. Further research could be used to explore the student's motivations and self-concept and other variables that impact test anxiety. The researchers suggested studying other age groups in further studies and well as differences in gender.

There is a positive relationship between procrastination and test anxiety. As the levels of procrastination increase, so does test anxiety among high school students. Wang's (2021) study examined the relationship between procrastination and test anxiety in high school students. The hypothesis challenged whether there is a significant relationship between academic procrastination and test anxiety. The study included 264 students in grades 10 and 11 in Changsha City, Hunan Province, China. The average age of students was 16.7 years with a range of 15 to 18 years. Students completed two questionnaires during the 2018 school year at T1 (winter semester) and T2 (end of semester) two months later. Questionnaires were completed anonymously and collected during class. The surveys included the Aitken Procrastination Inventory (API) and the Test Anxiety Scale (TAS).

The findings revealed a causal relationship between procrastination and test anxiety in Chinese high school students indicating procrastination not as a result of but as a cause of test anxiety. The results identified a positive correlation between procrastination and test anxiety. Students who experienced procrastination were more likely to experience test anxiety.

However, test anxiety did not predict future procrastination. This partially supported the hypotheses. This study suggested students experience an initial sense of relief when they procrastinate but once the deadline approaches, stress and task or work-related anxiety occurs. The researcher believes this study gave a basic understanding of the relationship between procrastination and test anxiety. Early intervention is important for students with academic procrastination to prevent future test anxiety leading to poor academic performance.

It is important to understand how students' previous academic performance in elementary school relates to their levels of test anxiety when they enter secondary school. Plante et al. (2022) study investigated the relationship between prior school performance and later test anxiety during the transition from elementary to secondary school. Researchers recruited students from 11 schools in rural and suburban areas in the Montreal region of Quebec, Canada from various socio-economic backgrounds. 576 students were recruited from elementary school and 440 were tracked following their transition to secondary school. Participating schools gave researchers a copy of report cards to use as a measure of academic achievement. Report cards were provided at the end of sixth grade (prior to transition) and the end of the first trimester of seventh grade (following transition) and score percentages were reported for math and language arts. Students were surveyed two times once at the beginning and once at the end of the first year of secondary school. Using the Test Anxiety Inventory (TAI-5) reported their gender and completed a five-item short version in order for researchers to measure their anxiety.

The main finding of Plante et al. (2022) study was that the relationship between prior grades and later test anxiety is curvilinear. It appeared students were more susceptible to test



anxiety based on subject and gender. The analysis identified those for high test anxiety in elementary mathematics; to be moderately low achievers and those that are very high achievers. It was similar in secondary mathematics, with girls but for boys the relationship appeared more linear. In contrast, language arts achievement in elementary school did not appear to predict test anxiety later. As for language arts in secondary school, low-achieving boys and average-achieving girls were at risk for test anxiety. The researchers identify this distinction to be most interesting because it appears high-achieving boys and girls in mathematics can predict test anxiety later. The study did also discover that girls have higher test anxiety at the beginning and end of the first year of secondary school than boys and this may be an area of future study. (Plante et al., 2022).

The relationships between prior school performance and later test anxiety during the transition from elementary to secondary school is an important area of research. This transition period can be a significant milestone for students as they face new academic challenges, increased workload, and higher expectations. Bas (2016) investigated the mediating effect of test anxiety on the relationship of teaching-learning conceptions and student academic achievement levels. Bas questioned if there are any significant relationships among teaching-learning conceptions, academic achievement, and test anxiety and does test anxiety mediate the relationship between instruction of learning conceptions and student academic achievement. The participants in this study included 526 students and 108 volunteering teachers from five high schools in the province of Nigde in Turkey. Students ranged from 13 to 18 years between ninth and 12th grade. Researchers collected data using the Teaching-Learning Conceptions Scale, Westside Test Anxiety Scale, and Grade Point Average Determination Form.

The Teaching-Learning Conceptions Scale was used to examine the teacher-learning conceptions of the teachers. The Westside Test Anxiety Scale was used to determine the test anxiety levels of students and the Grade Point Average Determine Form was used to determine achievement levels.

A statistically significant analysis showed test anxiety mediated the relationship between teaching-learning conceptions and academic achievement. The findings revealed traditional and constructivist teaching-learning conceptions were a predictor of academic achievement, with constructivist being the more significant. The authors emphasized the differences between the two styles in terms of student evaluation. In traditional classrooms, students are evaluated using formal exams whereas in constructivist classrooms, students are evaluated with projects, presentations, portfolios and several kinds of assessments. The authors reported teachers using constructivist teaching-learning conceptions had students with lower test anxiety compared to traditional teaching-learning conceptions (Bas, 2016).

The literature highlights a vast array of tools available to teachers to support students with anxiety in the classroom. In collaboration with mental health professionals, teachers can be trained to recognize anxiety symptoms in their students. Districts and schools can implement interventions and reduction strategies through targeted approaches to reach anxious students.

## CHAPTER III: DISCUSSION AND CONCLUSION

### Summary

The literature on test anxiety provides valuable insights into various methods and approaches that have been used to address this common issue among students. The studies covered elementary to high school students. Building relationships was one of the most recognized roles teachers do to support students with anxiety. Students who feel connected to their teacher have a significant influence on anxiety management. A friendly, caring, and connected teacher sets the tone for the classroom. As a result many teachers create a warm and welcoming environment as a strategy to help students with anxiety.

There are many interventions for anxiety in the literature, several show success while others are not statistically significant. Further research is needed to address the efficacy of these interventions in the classroom. Originally, many of these interventions were designed or implemented in a clinical setting and the challenge is if these interventions can be implemented with the same level of fidelity in school settings. All of the studies occurred in a school setting and the teacher was present while trained professionals delivered the intervention or worked alongside the teacher. Trained professionals assisting the teachers was a common theme throughout the literature.

With high stakes testing and assessments in general, students are bombarded with stress and pressure to perform at a high level. Students with test anxiety want to please parents, teachers and themselves. A student with anxiety has a fear of failure and high expectations in desire to excel. Many methods in the literature address test anxiety.

One of the main methods to address anxiety is mindfulness activities. Mindfulness activities include breathing and meditation and are promising in reducing test anxiety (Carsley & Heath, 2019; Dove & Costello, 2017; Phillips & Mychailyszyn, 2022; Stapp & Lambert, 2020). These techniques help students cultivate present-moment awareness, regulate emotions, and reduce rumination, thereby promoting a calmer state of mind during tests.

Another method to reduce anxiety is relaxation techniques such as deep breathing exercises, progressive muscle relaxation, and guided imagery (Brown et al., 2022; Larson et al., 2020; McCleod & Boyes, 2021). These techniques are effective in reducing anxiety and helping students manage their physiological responses to stress promoting a sense of calmness and relaxation.

A third method to reduce anxiety is creating a supportive and non-threatening learning environment. Teachers can promote open communication, provide constructive feedback, and foster a growth mindset that emphasizes effort, progress, and learning from mistakes. This supportive environment helps alleviate pressure and anxiety associated with tests. (Raufelder et al., 2018).

It is important to note that the effectiveness of these methods may vary among individuals, and a combination of approaches tailored to each student's needs may yield the best results. Additionally, creating a comprehensive approach that involves collaboration between teachers, parents and students can further enhance the effectiveness of these methods in addressing test anxiety.

### **Professional Application**

Anxiety is a prevalent issue that impacts students globally at all academic levels. Whether in elementary or secondary school, students from various cultural backgrounds and educational systems can experience anxiety related to their academic pursuits. Students with different skill levels and socioeconomic backgrounds appear to experience anxiety. The majority of the research is being conducted in Europe and Australia along with the United States and Canada. The newest research is taking place in Europe and Australia where more attention is focused on mental health in the public school systems. The United States has many interventions that have been implemented and programs that districts have implemented, however, there are no studies that specifically completed in Minnesota.

It is crucial for educational institutions, policymakers, and society as a whole to recognize the impact of anxiety on a student's academic journeys. Providing support systems, implementing preventive measures, and promoting mental health awareness can help mitigate the negative effects of anxiety, foster healthy learning environments, and support students in their academic pursuits. Mindfulness is a great starting point for teachers to integrate into their classrooms. Mindfulness, meditation, deep breathing exercises and relaxation techniques can be used as a quick transition activity or incorporated into everyday classroom routines. Some districts may implement official targeted interventions. Some of these initiatives may involve the assistance of mental health professionals. Students who do not have anxiety disorders can also participate in these activities. It allows students to learn how to mitigate stress and anxiety.

### **Limitations of the Research**

Although findings were statistically significant in many anxiety studies, there are several limitations. One of the main limitations is sample size. The majority of the studies in the

literature have small sample sizes. Many of the students included in these studies have not been clinically diagnosed with an anxiety disorder. The studies that did have students with official anxiety disorders were mainly at the college level. However, these studies could not be included in this literature review due to the P-12 requirement. Most of the students considered to have anxiety in the studies were either screened by teachers, school counselors, and psychologists or have self-reported anxiety symptoms. Today most treatments for anxiety are administered in clinical settings or prescribed medication; therefore there is a limitation within a school setting with less official diagnoses and screening protocols. Furthermore, cooperation is required from guardians for diagnoses and labels that are often used to identify students in need of additional support in the classroom.

Another limitation is the lack of teacher training on anxiety. Many studies addressed the need for additional training to recognize anxiety symptoms. Not all school districts provide these necessary training to ensure their staff are fluent in the terminology or protocols associated with mental health support. Much of this training helps teachers detect early symptoms and refer them to counseling for additional support. Many of the studies are only possible because students have already been identified with anxiety and researchers can work with teachers and students accordingly.

As the reviewer of the literature, I expected to find more research on the specific interventions teachers have tried and are doing to reduce anxiety, but instead the reviews focused mainly on interventions and methods to reduce anxiety rather than a teacher's individual effort to help the anxiety of students. More research is needed on the role of the

teacher in the classroom setting having multiple tools and interventions available to support students with anxiety.

### **Implications for Future Research**

A larger sample size and inclusion of students with official anxiety disorder diagnoses are beneficial to future research in helping students with anxiety disorders. While existing research provides valuable insights into anxiety in educational settings, expanding the sample sizes and ensuring that participants meet the criteria for anxiety disorders can enhance the significance of the findings. Further research needs to be conducted at the post-secondary level because more students are likely to be officially diagnosed with anxiety disorders by the time they are in college. This will allow studies to determine if methods of teacher support and intervention are effective not only for students with anxiety but for those with a diagnosed condition of anxiety disorder.

Another area of study could address interventions for students as an alternative to medication or as a recommendation from mental health professionals as a valuable and relevant area of research. Exploring non-pharmacological interventions can provide insights into effective strategies for managing anxiety in students. In addition,

Studying the social interactions that may lead to increased anxiety in school is a third important area of research. Social interactions play a significant role in the lives of students, and understanding how these interactions contribute to anxiety can inform interventions and support systems. The teacher can definitely play a role but if the entire student body is educated on mental health. Everyone at a school can be a support and be able to recognize fellow classmates who struggle allowing for more understanding and supportiveness. When

everyone knows more about anxiety, it allows everyone to be a support. A student with anxiety can share their condition if they are comfortable with others knowing and share experiences with peers to begin a conversation. With mental health increasing in focus within society and the classroom, real opportunities for students and teachers can unify to create safe, welcoming, and supportive classrooms for all learners, including those with anxiety.

### **Conclusion**

Educators have a critical duty and responsibility to address and support the needs of students experiencing anxiety in school. Recognizing the impact of anxiety on students' well-being and academic performance, educators play a vital role in creating a supportive and inclusive learning environment, and building positive relationships (Cross & Currie, 2018; Maclean & Law, 2022; Raufelder et al., 2018). Anxiety disorders include feelings of fear and worry (WHO, 2022). Therefore, if teachers can limit language or circumstances that trigger these feelings in students it can have a profound impact. Test anxiety can be diminished greatly by eliminating the use of fear appeals or mentioning negative consequences of test scores or performance (Belcher et al., 2022; Putwain & Best, 2012). Mindfulness activities such as breathing and meditation are evidence-based practices that can be implemented to support K-12 students with anxiety disorders (Carsley & Heath, 2019; Dove & Costello, 2017; Phillips & Mychailyszyn, 2022; Stapp & Lambert, 2020). In addition, relaxation techniques are another evidence-based practice that can be used in the classroom to support students (Brown et al., 2022; Larson et al., 2020; McCleod & Boyes, 2021).

In some cases, schools have to decide if professional development opportunities are necessary to equip and train staff about mental health. In addition, there is also a question of



whether certain interventions for anxiety should be implemented across districts, states and even countries. One fascinating trend that was noted in the literature is that many of the studies are outside of the United States. A large portion of them are in Europe and Australia which suggests there may be a greater focus on anxiety in these continents. The mental health of students is vital and with academic success as a goal, there is even more a reason to support students to reach their full potential. The guiding research question for this thesis was how can teachers support students with anxiety. The three areas addressed within the question were the role of the teacher, implementing interventions, and methods to reduce test anxiety.

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Appendix A

