EFFECTS OF ACADEMIC ANXIETY ON THE PERFORMANCE OF STUDENTS WITH AND WITHOUT LEARNING DISABLITIES AND HOW STUDENTS CAN COPE WITH ANXIETY AT SCHOOL

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Abstract

This research paper explores the relationship between anxiety, student achievement, self-concept, and self-efficacy for students with and without disabilities. Anxiety can have negative effects on all students. Students with anxiety problems tend to show lower levels of academic achievement, self-efficacy, and self-concept. Anxiety reduction requires the work of students, teachers, and parents. Mindfulness Meditation, metacognition, coping, teacher involvement, and test question order are anxiety reduction strategies explored. Problem based learning is a teaching method proven to increase students' levels of positive metacognition. Ideas for further research involving anxiety and students with learning disabilities are explored.

Chapter 1: Introduction

All students are entitled to an education in a positive environment. Free Appropriate Public Education (FAPE) is part of the Individuals with Disabilities Act (IDEA) that assures students with disabilities receive an appropriate and individualized education (U.S. Department of Education, 2004). FAPE also assures that students with disabilities participate in the general education classroom. Students with and without disabilities can suffer from anxiety when faced with certain academic tasks. It is important for teachers to be aware of the signs of anxiety, and what can be done to ease students' anxiety.

Background

Anxiety is a normal reaction to certain situations. A small level of anxiety is normal, but severe anxiety can be a serious problem. Academic anxiety can become more detrimental over time. As a student's academic performance suffers, the anxiety level related to certain academic tasks increases (Huberty, 2012). Most teachers will have students with social anxiety and/or academic anxiety. Social anxiety can also affect a student's academic performance. If a student has social anxiety, the student might not be able to complete group tasks or might not feel comfortable asking for help in class. Social anxiety can go along with or even lead to academic anxiety. Teaching students self-regulation can reduce anxiety and increase academic performance (Ader & Erktin, 2010).

Statement of the Problem

Many students suffer from anxiety when facing difficult academic tasks. Students with learning disabilities often face more anxiety than general education students (Nelson & Harwood, 2011). Different students respond differently to anxiety.

Teaching self-regulation in early childhood is important to reduce the development of school related anxiety at an early age (Zelazo & Lyons, 2012). Anxiety can have a negative effect on the information processing system. People with anxiety have difficulty storing and retrieving information (Nelson & Harwood, 2011). Some students are very difficult to formally or informally assess because of anxiety. Not all teachers understand the signs of anxiety and the effects on their students. If teachers can recognize the signs, they can help the students cope with academic anxiety. Because all students are different, understanding multiple methods for coping with anxiety can be beneficial for more students.

Theoretical Framework or Model

According to the Attribution theory, students need to feel in control over the outcome of an academic task. Students who feel more in control over the outcome will have more motivation to successfully complete that task (Lim, 2007). To feel in control, students need to understand why a certain outcome happens. For example, a student who never studies for a spelling test and fails each week might not understand the reason for the poor performance. If the student understands that studying is important for on the spelling tests, the student will be more motivated to study and do well on the test.

Causes of success or failure can be external or internal, stable or unstable, and controllable or uncontrollable. Internal reasons are something that the student did. Someone or something else controls external reasons. Stable causes are expected to occur again, and unstable causes are changeable. Controllable causes are something a student can change, but uncontrollable causes are believed to be unchangeable (Vockell, n.d.). Males tend to focus more on ability and other internal factors while females tend to focus on effort and external factors (McClure, Meyer, Garisch, Fischer, Weir, & Walkey, 2011).

Attribution Theory focuses on two types of goals, learning goals and performance goals. Students who have learning goals are students who want to learn more and work hard to succeed. Students who have learning goals can see failure as a motivator. For students with performance goals, failure is anti-motivation. Students are focused on performance and outcomes. Students do not want to try if failure is at all possible (Vockell, n.d).

The Attribution Theory suggests a relationship between students' sense of control over the outcome of an academic task and motivation to succeed. Students can also develop self-handicapping (Vockell, n.d.). Students who self-handicap are convinced that success will not happen and will not do anything to try for success. Self-handicapping hampers motivation. The theory and the relationship with motivation and anxiety propose the following research questions.

Research Questions

To what extent does anxiety effect students' performance and experience in school?

What are some methods of reducing anxiety, and how effective are they for increasing students' academic achievement?

Definition of Terms

The following terms are found throughout the literature review. Some of the terms were not defined in the journal articles so the definitions are from the dictionary. Coping, mindfulness, and self-regulation are important to define because each is a strategy use to deal with academic anxiety. Helping students understand learning by using metacognition is an important part of teaching students to control their learning.

Coping is the different responses a person uses to get through a stressful situation (Ader & Erkin, 2010)

Metacognition is "the self-regulation of cognition" (Ader & Erkin, 2010. p 315). Students using metacognition think about the learning process.

Mindfulness is a technique of being aware of your physical and mental states. Mindfulness is similar to keeping an on-going mental log of a person's mental and physical activities (Zelazo & Lyons, 2012). Students using mindfulness are more likely to understand when they are experiencing anxiety.

Anxiety is defined as "a painful or apprehensive uneasiness of mind usually over an impending or anticipated ill" (Merriam-Webster, 2012). Students experiencing academic anxiety feel apprehensive over academic tasks. Students can feel anxiety related to every academic task. Some may only feel anxiety related to test taking or other specific tasks. Anxiety is not always negative. Some students can be motivated by anxiety.

Stress is how a person mentally and physically reacts to circumstances that are considered difficult or challenging (Beckner, 2004).

Self-regulation is "the self-control of thought, action, and emotion" (Zelazo & Lyons, 2012, p 154).

Summary

Social and academic anxiety can have a negative effect on a student's academic performance. Teachers and parents can learn to recognize the signs of anxiety in students. If teachers and parents help students learn to control anxiety early on, more serious academic problems related to anxiety can be avoided.

Chapter 2: Literature Review

Many students suffer from school related anxiety. Contemporary research is supportive of the negative effects of anxiety and stress on academic performance in students of all ages. Anxiety can also negatively affect classroom behavior. Not all data are in support of the negative effects of anxiety. Low self-concept and lack of motivation have been linked to higher levels of anxiety. Metacognition may help students learn to cope with anxiety and use self-regulation of emotions to combat academic anxiety.

Anxiety and Student Performance

Student anxiety has long been a topic of discussion amongst researchers. Some research from the 1950s indicates a negative correlation between anxiety and academic performance and other research that did not support that correlation. The researcher worked with students at Brigham Young University to test the hypothesis that honors students with high academic ability have less anxiety than honors students with lower academic ability (Robinson, 1966).

The academic ability of students was measured using the College Ability Test. To measure anxiety, students took the Minnesota Multiphasic Personality Inventory scales (MMPI) and Welsh's Anxiety Index (AI). All three of the assessments were given during college orientation. The scores of students who achieved a GPA of 3.5 or higher during their first freshman semester were used.

Students with a GPA of 3.5 or higher during the first freshman semester were first divided into two groups based on GPA. The high honors group consisted of students with a GPA of 3.8 or higher. The honors group consisted of students with a GPA of 3.5 to 3.8. The high honors and honors groups were further divided into three additional groups of high, middle, and low abilities based on scores from the College Ability Test with students from the high and low

groups being used for the study. After reviewing some of the data, the groups were divided again based on gender because of a significant difference between anxiety levels of male and female students.

Two of the scales of the MMPI measured anxiety, and several of the other scales measured emotional disturbance. However, the reported AI scores had the most significant difference between low and high achieving students with the results supporting the hypothesis. Low ability honors students' scores indicated a higher level of anxiety than high ability honor students. However, the data did not show a significant difference between the mean MMPI scores of honors students and the rest of the freshman population.

The results were not necessarily conclusive when comparing honors students to the general population. The differences between the MMPI score means were up and down depending on the scale, and few scores were statistically significant (Robinson, 1966).

Huberty (2009) wrote an article about test and performance anxiety. At the time of the article, Huberty was a professor and the director of Indiana University's School Psychology program. The article is very informative and lists characteristics, causes, and types of anxiety. Huberty also discusses interventions for school employees and parents. Characteristics of anxiety can affect students behaviorally, cognitively, and physiologically. High stakes testing can be very difficult for students with anxiety. Students with anxiety are likely to also suffer from depression. Teachers and parents can work together to help students learn to cope with anxiety.

Swan and Howell (1996) conducted a study to determine how test anxiety affects students with learning disabilities and behavior disorders. In this study, researchers worked with 82 students in eighth through twelfth grade. All students in the study had learning disabilities; 61 also had behavior disorders, and 39 also had attention deficit disorder. Researchers measured the

relationship between the Stanford Achievement Test (SAT), anxiety, internal dialogue, self-concept, and study habits.

A positive correlation (r = .580) was found between test anxiety and internal dialogue scores. Students who thought about unrelated subjects during a test had higher levels of anxiety. Anxiety and study habits had a negative correlation (r = -.378). As students' levels of academic achievement increased their levels of anxiety decreased. The same was true for self-concept. Students with higher levels of anxiety had lower self-concepts. The SAT was the test used to stimulate students' levels of test anxiety. Teachers read the questions to measure test anxiety, self-concept, internal dialogue, and study habits so all students with low reading levels were not at a disadvantage. Researchers found that test anxiety is a significant problem for students with learning disabilities.

Grills-Taquechel, Fletcher, Vaughn, & Stuebing (2012) conducted a quantitative, non-experimental study to determine the relationship between reading difficulties and anxiety in students. The researchers analyzed the anxiety levels and achievement test scores of 153 average or at-risk general education first grade students. Students completed the *Multidimensional Anxiety Scale for Children*. Students rated themselves on questions. Because the scale is normally used for children who are at least eight years old, the questions were read to the students. The Word Attack and Letter-Word Identification portions of the *Woodcock Johnson Test Battery-III* were administered to the participants. At the beginning and at the end of the study, the oral reading fluency levels of the students were monitored using the *Continuous Monitoring of Early Reading Skills* program.

Students who had lower reading scores at the beginning of the study tended to decrease their harm avoidance tendencies at the end of the study. A decrease in harm avoidance

tendencies means the students were not as concerned with reading correctly. Those same students tended to increase their separation anxiety tendencies at the end of the study. The students did not necessarily worry about their reading skills, but they were more likely to avoid going to school. When using anxiety at the beginning of the study as a predictor of fluency at the end of the study, researchers found that students with higher levels of harm avoidance at the beginning of the study showed increases in reading skills at the end of the study. This trend was more evident in girls than boys. Anxiety turned out to be a motivating influence for some students.

Nelson and Harwood (2010) performed a study comparing research on learning disabilities and anxiety to determine the connection between the two. Researchers analyzed 58 studies, which included 3,336 students. Researchers used a computer program to analyze the data from the studies. The effect sizes, means, and standard deviations were computed for each study. The results of the effect size computations were used to determine whether or not students with learning disabilities experienced higher levels of anxiety than students without learning disabilities. The higher the effect size, the stronger the relationship between learning disabilities and anxiety. Negative effect sizes means that a relationship was not found between learning disabilities and anxiety levels. Researchers found a positive effect size value for 95% of the studies with an average of 0.61 and a range of -0.21 to 1.83. Researchers determined that students with learning disabilities are significantly more likely to suffer from academic anxiety.

Anxiety has been linked to poor academic performance. High levels of academic anxiety can negatively affect working memory (Owens, Stevenson, Hadwin, & Norgate, 2012). Anxiety is also associated with high levels of worry that can affect academic performance.

Researchers tested the relationship between anxiety, academic performance, and working memory. Two groups of 12-13- year old students completed self-report questionnaires about anxiety. Parents and students each had to sign consent forms for the students to participate in the studies.

To measure anxiety, researchers used the Spielberger Trait Anxiety Form (STAF). Depression was measured using the Major Depressive Disorder subscale of the Revised Child and Anxiety and Depression Scale (MDD). To measure worry about tests, researchers used the Worry subscale of the Children's Test Anxiety Scale (CTAS). Researchers used the raw scores from the math, English, and science subtests of the National Curriculum Standard Assessment Tests (SATs) to measure academic performance.

Results of the self-report questionnaires indicated a negative correlation between anxiety, depression, and worry, and academic performance with $r = -0.43$ for anxiety and depression, and $r = -0.42$ for worry. As students' levels of anxiety, depression, and worry increased, academic performance decreased. High levels of anxiety and depression also contributed to higher levels of worry in students.

Students' working memory was assessed using the automated working memory assessment (AWMA). Students were tested on forwards and backwards digit recall and spatial span. The Cambridge neuropsychological test automated battery (CANTAB) was also used to measure working memory. To measure academic performance, the SATs raw scores were used as well as the spelling and math subtests from the Wide Range Achievement Test 4 (WRAT 4).

There was a negative correlation between anxiety, depression, and worry, and working memory. Higher levels of anxiety related to poorer working memory with $r = -0.40$. Higher levels of anxiety led to more worry with $r = 0.50$.

Anxiety and depression lead to higher levels of worry in regards to academic tasks. Higher levels of anxiety, depression, and worry can lead to lower academic performance and poorer working memory function. School tasks that involve more working memory are greatly affected by anxiety and depression (Owens et al., 2012). Students benefit from lowering the levels of anxiety in school to support healthy working memory.

Lower self-efficacy of students can lead to higher levels of anxiety (Ahmed, Minnaert, Kuyper, & van der Werf, 2011). In this quantitative, non-experimental study, researchers had 495 seventh grade students complete questionnaires about math self-concept and math anxiety. The results indicated that higher self-concept correlated with lower levels of anxiety. Researchers were unable to determine whether lower self-concept leads to higher levels of anxiety or if higher levels of anxiety lead to lower levels of self-concept. The situation is different for different students. However, when comparing the data using a chi-square difference test, data suggest that low self-concept is a strong cause of anxiety more than anxiety is a cause of low self-concept.

Average students and students with learning disabilities are not alone in suffering from academic anxiety. Gifted students can also suffer from anxiety. Fletcher and Speirs (2012) conducted research on how perfectionism and achievement motivation can affect gifted students. Perfectionist students can suffer from academic anxiety because of unrealistic expectations set by themselves or others. Perfectionism is not limited to gifted students. There is some disagreement in research as to whether perfectionism is harmful or helpful because not all students react to pressure in the same ways, and research generally focuses on either the good or bad results of perfectionism. Some research that focuses on different types of perfectionism. Self-prescribed perfectionism is when students have high expectations for themselves. Self-prescribed

perfectionism can be beneficial to students as long as students are not too hard on themselves. Socially-prescribed perfectionism is when others imposed their high expectations on students. Socially-prescribed perfectionism tends to be more harmful to students. Students may develop anxiety problems because they are very worried about fulfilling others expectations. Researchers did not fully explore the connection between perfectionism and anxiety.

McClue, Meyer, Garisch, Fischer, Weir, and Walkey (2011) conducted a study about the relationship between success attributions and motivation in students. The study explored students' attributions for success and failure at school. Researchers studied ability, effort, task difficulty, and luck attributions. Ability-based and effort-based are two types of attributions that researchers related to anxiety levels in students. This study also focuses on how students view attributions--as personal or social. For this study, researchers used a stratified national sample of 5333 students representing the demographics of public schools in New Zealand. The students were 14 and 15 year olds from 19 public schools throughout the country. Researchers used the students' scores on the National Certificate of Educational Achievement (NCEA), which is a national standardized test in New Zealand. At the end of the school year, students completed the Motivation Survey. The Motivation Survey was created for the purpose of this study. Students rated the influence of different reasons for their good and bad performances on tests. The survey used a scale of 1 to 4 with 1 meaning *no influence* and 4 meaning *big influence*. Students also rated their levels of motivation. Do they go above and beyond what is needed to pass, or do they just do the minimum?

Researchers analyzed the results of the Motivation Survey and NCEA using a mixed-design ANOVA. Results varied based on gender. Female students were more likely than males to believe their good grades were because of effort, but poorer grades were because of ability.

Females were more likely than males to relate the reason for a grade to the difficulty of the test. Students attribute their academic performance to ability tend to have higher levels of anxiety. Students who attribute their academic performance to the effort they put forth tend to have higher levels of anxiety. The results of the Motivation Survey suggest that anxiety levels are higher in female students than male students. The results of this study would probably be different in other cultures because of "Tall Poppy Syndrome". Often in New Zealand, students who perform very well in school are not always given recognition or praise. Attributions in cultures where high achievement is desired could be different.

The importance of helping students before failure was evident. Low math self-concept at an early age can lead to increased math anxiety when older. Students who failed had a higher levels of anxiety and lower levels of self-concept. The study was limited because of time. Researchers would have liked to track the students' math self-concept and math anxiety over many years and different settings (Ahmed et al, 2011).

Overall anxiety levels can vary based on culture. A study by Lee (2009) explored the relationship between math self-concept, math self-efficacy, and math anxiety. The differences between levels in different countries was explored as well. Researchers analyzed data from 41 different countries for differences in the relationship between math self-concept, self-efficacy, and anxiety. Researchers also wanted to find out the overall differences between levels of self-concept, self-efficacy, and anxiety. Data from the Program for International Student Assessment (PISA) in 2003 was anazlyed for this study. The sample size was quite large. 250,000 students participated in PISA. All students were 15 years old. Participants in the study used a scale-response to answer questions about math self-concept, self-efficacy, and anxiety.

Results were varied in different countries. In North America and Western Europe, students who scored well in math tended to have higher math self-concept and lower math anxiety. In several Asian countries, students who scored well in math tended to have low math-concept and higher math anxiety. Results of the PISA math assessment show an overall high negative correlation between math scores and math anxiety (-0.65). Students who score well tend to have lower levels of math anxiety. Overall, there is a positive correlation between math scores and math self-concept and math scores and math self-efficacy. Students who do well in math tend to feel better about their abilities in math.

Anxiety Reduction Strategies

Students with high levels of anxiety may also have more difficulty when learning a new language than students with lower levels of anxiety. Anxiety can also lead to problems with reading comprehension. Some students are so worried about failing an assignment or test that the students cannot retrieve information or store new information. Bensoussan (2012) found that teachers' willingness to work with their students to repair poor test scores has a positive effect on reducing test anxiety.

In a quantitative study of 265 students learning English as a second language, researchers found when students were given the choice of different repair behaviors, students rated all choices higher than not changing anything. For the purpose of the study, repair behavior refers to what students would like to do to make themselves feel better after receiving a low grade on a test. Students rated the following choices (listed from highest rated to lowest rated): correct incorrect responses to improve grade, answer extra credit questions, take a different test, any of the listed choices, have a one-on-one discussion with the teacher, discuss the test as a class,

nothing, and correct incorrect responses without improving the grade. The data show that students put the highest preference on improving their grades.

In addition to rating the repair behaviors, researchers asked students to give suggestions about what would help their overall feels about testing. The results show that students did not mind doing extra work if it meant improving their grades. When students felt they were getting the attention and support of their teachers, they felt less anxiety. Many students suffer from test anxiety because of a lack of study skills. Teaching test taking skills and study skills address the issues before becoming big problems. Discussing the test with students can also help. Researchers found that students felt less anxiety about testing when a class discussion was held about the test. Additionally, students felt better about testing when given the opportunity for extra credit, such as bonus questions. The results of this study indicated that the emotional aspects of anxiety should be addressed along with the cognitive aspects (Bensoussan, 2012).

In a quantitative study, Kim, Oh, Chiaburu, and Brown (2012) explored the relationship between core self-evaluations and learning motivation. Core self-evaluations (CSEs) are indicative of how students learn. CSEs involve a student's self-concept, self-efficacy, sense of self-worth, and other ways in which students measure themselves. Positive CSEs have been linked to higher levels of academic motivation. Researchers found that students who have positive CSEs were more likely to use coping strategies to deal with negative emotions such as stress and anxiety.

Researchers wanted to determine whether CSEs were more important indicators of academic motivation than general mental ability or conscientiousness. They hypothesized that CSEs are better indicators of academic motivation than general mental ability and

conscientiousness. Researchers also hypothesized that academic motivation is an important indicator of academic performance.

Using a sample of convenience, 631 students in two different sections of a university class participated in the study. Students answered questions to measure their CSEs. Researchers compared the CSEs to questions based on self-efficacy, self-esteem, locus of control, and emotional stability. Data showed that the questions measuring CSE and questions measuring the other areas showed similar results. The results of the CSE surveys were compared to the results of tools measuring the students' course-specific self-efficacy, students' goals for the course, the students' commitment to achieving their goals, academic motivation, academic performance, general mental ability, and conscientiousness. The data show a positive correlation between CSEs and academic motivation and academic performance. Students with positive CSEs were also more likely to have higher levels of course-specific self-efficacy, course goals, commitment to those goals, academic motivation and performance, general mental ability, and conscientiousness. Students who demonstrated higher levels of academic motivation were more likely to demonstrate higher levels of performance independent of general mental ability. The data showed the importance of positive self-evaluations on students' motivation and performance (Kim et al, 2012).

Marszał-Wiśniewska, Goryńska, & Strelau (2011) found motivation to be an important factor in reducing test anxiety and increasing motivation. Students feel positive and negative emotions before, during, and after a test. Students who practiced motivational strategies had higher levels of emotional functioning when faced with stress or anxiety during a test. In a quantitative, non-experimental study, 135 college students participated in a personality assessment and mood measurement before and after a test. The participants answered questions

regarding their moods. They rated each question on a scale using the Mood Adjective Check List.

Students with high emotional reactivity did not show a significant increase in hedonic tone (pleasure) after completing an exam. Students with low emotional reactivity showed a significant increase of hedonic tone after completing an exam. Students with high emotional reactivity reported higher levels of anxiety than students with low emotional reactivity.

Coping as a way to control anxiety is a form of emotional self-regulation (Ader & Erktin, 2010). Coping has a direct effect on anxiety levels, and anxiety levels have a negative effect on math achievement levels. “Non-productive” coping strategies, which focus on the emotional aspects of academic anxiety, were the most successful when dealing with anxiety. Students benefit from learning stress reducing techniques and relaxation techniques to improve coping skills. Researchers measured the effects of emotional self-regulation on math and test anxiety in a quantitative, non-experimental study. The study consisted of 751 people. Most of the students were in their last year of high school, with an average age of 18.1 years. The participants were students in a class preparing them for a college entrance exam.

Researchers used several different types of scales with the students. The scales used were the *Coping with Mathematics Scale, Metacognitive Skills Inventory, Achievement Motivation Scale, Generalized Self-Efficacy Scale, Test Anxiety Inventory*, and the *Math Anxiety Scale*. Students rated their reactions and feelings about themselves on these scales. Researchers also used the answers from a test to measure mathematical background and the math portion of the University Entrance Examination to determine the mathematical abilities of the participants. While data show that scores on the mathematical background test have the most on math scores on the University Entrance Exam, test anxiety and math anxiety have the second highest

influence on the scores. Students with high scores on the mathematical background test had higher scores on the entrance exam. Students with high levels of anxiety had lower scores on the entrance exam. Coping skills did not have a direct effect on the entrance exam scores, but they had an indirect effect because of their effects on anxiety.

Metacognition is related to anxiety. People can have positive or negative metacognitive beliefs. Students with more positive metacognitive beliefs are better at coping with anxiety. Students with more negative metacognitive beliefs reported higher levels of anxiety in an Iranian study (Tajrishi, Mohammadkhani, & Jadidi, 2011). Students in the study completed two questionnaires, the Metacognitions Questionnaire 30 (MCQ-30) and the Hospital Anxiety and Depression Scale (HADS). High scores on the MCQ-30 meant high levels of negative metacognitions. High scores on the HADS meant high levels of anxiety and depression. MCQ-30 scores and HADS scores had a strong positive correlation.

Problem-based learning (PBL) is a teaching method that has been shown to improve metacognition skills in students. Two groups of students in Hong Kong participated in a study about the effects of PBL. One group received PBL instruction while the other group received traditional lecture based instruction. Metacognition levels were measured at the beginning and end of the study using the Learning and Study Strategies Inventory (LSSI). The students in the PBL group had significant increases in LSSI scores at the end of the study. The increase was much more significant than students in the traditional instruction group (Downing, Ning, & Shin, 2011).

Mindfulness is another method of combating academic anxiety. Mindfulness meditation is a form of meditating where a person focuses on the present and looks at emotions they are feeling. The focus is on being aware of emotions, and understanding how to work with the

emotions. Beauchemin, Hutchins, & Patterson (2008) conducted a pilot study to determine the effects of mindfulness meditation on students with learning disabilities. Thirty-four students with learning disabilities participated in the study. The average age of the students was 16.61 years old. The *Social Skills Rating System* was use to assess the students. Parents, teachers, and students were used for the rating system. Researchers administered the *State-Trait Anxiety Inventory* to the students to measure state and trait anxiety. After learning and using mindfulness meditation, students rated themselves on focus, their feelings about mindfulness meditation, and whether or not they would keep using the meditation. They also answered open ended questions about their experiences in the study. Students and the two participating teachers participated in training to learn the mindfulness meditation techniques. The students and teachers practiced mindfulness meditation for five weeks during each class.

The students responded positively to the mindfulness meditation study. Average scores for state and trait anxiety decreased from 42.86 at the beginning of the study to 39.68 at the end for trait anxiety, and 38.21 to 32.59 for state anxiety. Scores on the *Social Skills Rating System* showed a significant change from the beginning of the study to the end of the study. Students rated their skills much higher at the end than at the beginning (from an average percentile rank of 31 to 43.5). Teachers also reported a significant increase in the social skills score for students at the end of the study. Scores for problem behaviors decreased at the end of the study. Teachers' ratings of students' academic skills increased significantly as well. Most of the students reported they enjoyed the mindfulness meditation and would continue using the techniques learned.

Mindfulness based cognitive therapy involves sessions with a therapist, but teachers can use aspects of mindfulness in the classroom. Semple, Lee, Rosa, & Miller (2010) conducted a quantitative, experimental study involving 25 children between the ages of 9 and 13.

Mindfulness basked cognitive therapy for children (MBCT-C) requires 12 sessions of group therapy over 12 weeks. Students were required to attend at least eight of the sessions in order to complete the study. Twenty students completed the study. Parents were required to complete the *Child Behavior Checklist* to give researchers information on the participants behaviors and any problems they might have. Students were required to complete the *Multidimensional Anxiety Scale for Children* and the *State-Trait Anxiety Inventory for Children*. Students rated themselves for both surveys.

Students attended 12 weekly MBCT-C sessions. For each 90-minute session, students were divided in groups of eight students. Therapists led students through breathing and meditation exercises during the sessions. MCBT-C focuses on sensory experiences and encourages students to be aware of their feelings and what is going on around them. Therapists taught breathing exercises, meditation, and mindful movements to the students.

MCBT-C was effective for reducing anxiety in students with the highest levels of anxiety, but no significant reduction was shown for students with lower levels of anxiety. At the beginning of the study, six students reported high levels on anxiety. At the end of the study, only three students reported high levels of anxiety. Students reported a significant decrease in attention problems after completion of the MBCT-C sessions. Parents reported a decrease in students' behavior problems from the beginning to the end of the study. More research needs to be done, but researchers found that MBCT-C has benefits for children with attention, anxiety, and behavior problems.

Zelazo and Lyons (2012) researched the benefits of mindfulness training in early childhood. Because early childhood is a very important time for development, and young students are very impressionable, it is important to help students develop self-regulation skills.

Mindfulness involves being very aware of one's actions and thought processes. Because students concentrate on their actions and thoughts, they are less likely to react negatively in difficult situations. Self-regulations can help control negative reactions. Mindfulness training often focuses on meditation exercises. Mindfulness encourages thinking before reacting. Because mindfulness encourages self-regulation and thinking before reacting, it should help students avoid feelings of anxiety.

Chen (2012) conducted a study on the relationship between test question order and anxiety. Using a sample of convenience, 250 college students in China, who were majoring in English and enrolled in an English-speaking course, were used. The students were from three different semesters of classes. One hundred students from semester one were used to determine the difficulty level of the test questions. Seventy-two students from semester two participated in the first study, and seventy-eight students from the third semester participated in study two.

Students were divided into three groups based on their scores on the Test Anxiety Inventory (TAI). Group A contained students with the highest levels of anxiety, Group B contained students with a medium level of anxiety, and Group C contained students with the lowest levels of anxiety. Students completed a 60-question computerized examination with questions in a fixed order. The groups were divided into two subgroups. The rest of the 240 test questions were answered by groups A1, B1, and C1 in easy to hard order. Groups A2, B2, and C2 answered the same questions in hard to easy order.

For Groups A1 and A2 as well as B1 and B2, the differences in mean test scores between the easy to hard and hard to easy tests were significant. For Group A, the t-test *p* value was .014. Group B's t-test *p* value was .039. For Groups C1 and C2, the difference in mean test score was not significantly significant with a *p* value of .12. The order is important for students with

medium and high levels of anxiety. Students higher levels of anxiety benefit the most from tests with the easy to hard question order.

The 78 students who participated in the second study also took the TAI. Like the first study, students were divided into three groups based on their levels of anxiety: Groups, D, E, and F. The three groups also took the same 60-question test as the students in the first study. Researchers picked out the 32 difficult questions and used the scores to divide the groups into subgroups D1, D2, E1, E2, F1, and F2. Each subgroup consists of students of equal academic ability. Students in groups D1, E1, and F1 took a computerized adaptive test containing 128 questions. If a student answered a question correctly, the next question was more difficult. If a student answered a question incorrectly, the next question was easier. Groups D2, E2, and F2 took the same test, but in the hard to easy order.

The results of the second study were significantly different for all three groups. Students in Groups D1, E1, and F1 performed better on the adaptive tests than the students in Groups D2, E2, and F2 who took the fixed order, hard to easy tests. The t-test *p* value for Group D was, .009, Group E was .024, and Group F was .043 (Chen, 2012).

Test question order is important to student performance. Students with higher levels of anxiety benefit more from easy to hard question order or adaptive question order than students with low levels of anxiety. Teachers can use results of the study to help relieve test anxiety in students.

Many different factors influence anxiety levels in students. The effects of anxiety are different for different students. Low levels of anxiety can be beneficial for some students, but high levels of anxiety can be detrimental. Techniques for reducing anxiety involve making

students aware of emotion and cognition. Students also benefit from relaxation and being more involved in the learning process. Teachers can do a lot to combat anxiety in students

Chapter 3: Results and Analysis Relative to Problem

There is a large amount of research on academic anxiety. Much of the research focuses on self-concept and self-efficacy as well. There is not a lot of research that deals with the effects of anxiety on elementary. One would assume this is because the measures of anxiety generally are self-report surveys. Younger students can complete self-report surveys, but they often need the survey questions read to them. The surveys can be customized for children to ensure the questions are appropriate and make sense to them (Grills-Taquechel et al., 2012).

Several studies address the negative effects of anxiety. Anxiety affects students with and without learning, but researchers found that anxiety is a big problem for students with learning disabilities. Students who spend more time preparing for exams tend to have lower levels of test anxiety. By teaching students good test preparation skills, teachers can help students combat test anxiety. Low reading achievement increased separation anxiety in first grade students. They did not report feeling nervous about reading, but they did not want to leave home to go to school. Their anxiety caused them to want to avoid putting themselves in a situation that required reading. The low achieving students were not concerned about doing better while at school, but they wanted to avoid the situation. Anxiety is not limited to low reading achievement. Low math achievement scores are also linked to high anxiety (Bensoussan, 2012; Grills-Taquechel et al., 2012; Lee, 2009; Swan & Howell, 1996).

Several studies found that students with learning disabilities are significantly more likely to suffer from academic anxiety than students without disabilities (Grills-Traquechel et al., 2012; Nelson & Harwood, 2012; Swan & Howell, 1996). Because anxiety negatively affects memory and academic performance, students with learning disabilities are at more of a disadvantage (Owens, et al, 2012). Anxiety has a negative correlation with working memory. Students with

learning disabilities often have memory problems, and the higher occurrence of anxiety can make memory problems worse.

Self-efficacy and self-concept are very important in the study of academic anxiety. Students with high levels of self-efficacy and self-concept tend to have lower levels of academic anxiety. Students who are higher achievers tend to have higher levels of self-efficacy and self-concept. When students do well academically, they tend to feel better about themselves (Ahmed et al., 2012; Lee, 2009; Kim et al., 2012).

Few studies indicated a significant difference in anxiety based on gender. The studies did not agree about who showed more anxiety (Grills-Traquechel et al, 2012; Robinson, 1966). Robinson (1966) found that male students were significantly more likely to suffer from anxiety. Grills-Traquechel et al (2012) found higher levels of anxiety in female students. One study found that more females were more likely to attribute their grades to the effort they put in to a test or assignment. The same study found that students to attribute academic performance to effort are more likely to suffer from anxiety. Therefore, females in the study were more likely to suffer from anxiety related to school work (McClure et al., 2011). Teachers can use this information to be more aware of signs of anxiety, especially in female students.

Perfectionism and anxiety can be positive for some students. Some students with higher levels of anxiety increased test scores in reading compared with students who showed low levels of anxiety. Students in Asian countries tend to have high math achievement scores and higher levels of anxiety. Anxiety can be a motivator for some students. High levels of anxiety are often harmful, but low levels can be helpful (Grills-Taquechel, 2012; Lee, 2009).

Students can learn to cope with anxiety to reduce any negative effects. Teaching students to cope with anxiety can help them feel more confident in their abilities. Students tend to feel

less anxiety when they feel the support and care of their teachers. Teachers can teach students test preparation skills to help boost confidence. (Bensoussan, 2012; Kim et al., 2012; Swan & Howell, 1996)

Several studies endorsed forms of emotional regulation for alleviating anxiety symptoms in students. Coping, metacognition and Mindfulness Meditation (MM) are anxiety reduction strategies discussed in this review. Non-productive coping skills address the emotional aspects of anxiety and include stress-reducing techniques. MM requires training sessions with a therapist, but teachers can learn techniques and teach their students. MM teaches people to be very aware of their actions and thought processes. People use breathing techniques during MM. Metacognition can be increased with MM since metacognition is when people understand how they learn. Problem based learning can increase metacognition because students are in charge of learning. More research is needed to explore how problem based learning and MM together can reduce anxiety (Ader & Erktin, 2010; Beauchemin et al., 2008; Downing et al., 2011; Semple et al., 2010; Tajrishi et al., 2011; Zelazo & Lyons, 2012).

Another way to reduce anxiety has to do with test question order. Students with high levels of anxiety benefit from tests with questions in order from easy to hard. Students with higher levels of anxiety also performed better on tests with adaptive questions. If a student gets a question wrong, the next question is easier (Chen, 2012). Students will feel more confident with both types of testing. Students can build confidence by starting with easier questions. Confidence means higher levels of self-efficacy and self-concept, which as discussed above, means lower anxiety levels and higher student achievement (Ahmed et al., 2012; Lee, 2009; Kim et al., 2012).

While anxiety can be motivating for some students, it is harmful to most students. Reducing anxiety levels not only helps increase students' self-efficacy and self-concept, it can

help students with school performance. Teachers and parents are instrumental in helping students with high anxiety levels. Students can learn coping mechanisms to help reduce anxiety levels and increase student performance.

Chapter IV - Recommendations and Conclusion

Recommendations

Test anxiety can be minimized if addressed at an early age. Students need to have good study skills and test taking skills (Bensoussan, 2012). More research is needed to show teachers how they can help students combat anxiety every day in the classroom. By working closely with parents, teachers can assure that parents understand the effects of test preparation on academic achievement and levels of anxiety. Reducing anxiety levels in students is important for helping to increase academic achievement.

Anxiety can be a big problem for students with disabilities. Students with disabilities cannot change the fact that they have a disability, and according to the Attribution Theory, it is something they feel they cannot change and will not succeed. As a teacher of elementary students with learning disabilities, I see students who are so frustrated because they are not performing as well as their general education peers. They are scared to try anything because they do not want others to see them struggle. Several of my students freeze up when doing timed assessments. These students feel much more comfortable if they are not being timed, but certain school wide assessment tools require timing. The scores are not valid if the assessment is not timed. Teachers can try to accommodate the students and stretch the rules as much as possible, but it is not always an option. Teachers can teach students to use methods such as mindfulness meditation, but training is required. Many schools do not have the extra funds to bring in a trainer or send teachers out for training.

Areas for Further Research

There is not a lot of research on anxiety and elementary students with learning disabilities. Most of the research focuses on middle school, high school, and college students. Younger children are not as self-aware, and might self-report measures would be more difficult to administer. A study focusing on how anxiety affects younger students would have to involve observations from parents and teachers. Self-report measures would need to be appropriate for the age of the students. Another problem with elementary students is a lack of self-awareness. Young children do not always know how to explain what they are feeling and why. Questionnaires for parents and teachers would need to be developed as well.

More information is needed on the effects of pullout resource room instruction on academic anxiety. A quasi-experimental study would be most useful if done over several years. Researchers could use self-report surveys, assessment data, teacher and parental input to determine if the resource room model has a positive or negative effect on student anxiety and achievement. It would be interesting to learn about the effects of resource room education on anxiety for different age groups. Students might be more sensitive about be spending time apart from their general education peers at different ages.

If I were to conduct a study on anxiety and students with learning disabilities, it would be a quantitative study on the effects of resource rooms on anxiety levels. I would measure anxiety levels of students before they start receiving intervention in a resource room setting. I would like to follow the students for about five years, measuring anxiety levels at the beginning, middle, and end of each school year. Anxiety levels would be measured using self-reporting surveys, parent and teacher observations. Academic achievement would be measured using resource room progress monitoring assessment data. I would find correlations between anxiety and time spent in

the resource room, anxiety and age, anxiety and academic achievement, self-concept and time spent in the resource room, and self-concept and anxiety. The information would need to be analyzed to determine the positive and negative effects of resource room interventions.

Summary and Conclusion

Academic anxiety is not limited to students with disabilities. Students of all academic achievement levels suffer from academic anxiety. Even students who do well on classwork and homework can suffer from test anxiety and do poorly on tests (Bensoussan, 2012). Frequent poor academic performance can increase anxiety levels. Gifted students who are perfectionists can suffer from high levels of anxiety, however, perfectionists are not necessarily gifted. Even if perfectionist students are high achievers, perfectionists can still suffer from a fear of failure that can cause high levels of stress (Fletcher & Speirs, & Neumeister, 2012).

Anxiety can negatively affect academic performance (Owens et al., 2012). Students who report higher levels of anxiety show lower levels of academic achievement. However, not all levels of anxiety are bad. Low levels of anxiety may be helpful to some students.

According to the Attribution Theory, students need to feel in control over the outcome of academic tasks (Lim, 2007). Students will not feel that success and change is possible without a feeling of control over the causes, whether internal or external (Vockell, n.d.). Problem based learning, discussing test procedures with students, and teaching study and test taking skills are methods to help students feel more in control of the outcome of academic tasks. Teachers and parents can teach students the skills they need to feel in control of learning. By helping students understand the learning process and how they can control it, parents and teachers will help students control their anxiety.

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