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Mindfulness and test anxiety in college students

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MINDFULNESS AND TEST ANXIETY IN COLLEGE STUDENTS

being

A Thesis Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Master of Science

by

Jamey Brannon

B. A., University of Kansas

Date _____

Approved _____
Major Professor

Approved _____
Chair, Graduate Council

The research described in this thesis utilized human subjects. The thesis prospectus was therefore examined by the Human Subjects Research Committee of the Psychology Department, Fort Hays State University, and found to comply with Title 45, Subtitle A – Department of Health, Education and Welfare, General Administration; Part 46 – Protection of Human Subjects.

Date

Ethics Committee Chairman

ABSTRACT

This study is designed to look at the relationship between test anxiety and mindfulness. This study consists of three surveys designed to look at different aspects of mindfulness and test anxiety. The Test Anxiety Inventory (TAI) is designed to determine to what degree a student has test anxiety. The Five Facet Mindfulness Questionnaire (FFMQ) is designed to measure an individual's level of mindfulness in five different facets. The White Bear Suppression Inventory (WBSI) is designed to measure how much individuals suppress their thoughts.

A Pearson Correlation was used to look for significant relationships between the TAI, the FFMQ, and the WBSI with results being considered significant at the .05 level. The first hypothesis predicted there would be a negative relationship between the Test Anxiety Inventory and the Five Facet Mindfulness Questionnaire. A significant relationship was found between them ($r = -.347$, $p = .033$). The second hypothesis predicted there would be a positive relationship between the Test Anxiety Inventory's Emotionality component and the White Bear Suppression Inventory. There was no significant relationship found.

The third hypothesis predicted there would be a negative relationship between the Test Anxiety Inventory's Worry component and the Five Facet Mindfulness Questionnaire's Nonjudging of Inner Experience and Nonreactivity of Inner Experience. A significant relationship found at the .05 level ($r = -.368$, $p = .023$) for the Nonjudging of Inner experience. There was no significant relationship found between the Test Anxiety Inventory's Worry component and the Five Facet Mindfulness Questionnaire's

Nonreactivity of Inner Experience. The results show a possible new direction on research to help students with test anxiety.

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INTRODUCTION

Anxiety has been researched at length through the years. A subtopic of anxiety, test anxiety, has also been extensively researched as to its causes and effects on individuals. A great deal of research has been completed on ways to help individuals who suffer from moderate to severe test anxiety. One aspect that has been neglected by previous studies is whether individuals with moderate to high levels of test anxiety are able to be in the moment and lead a mindful life. The following will address, in detail, different theories of test anxiety, what has been done in the past, and why mindfulness could be important in lowering an individual's levels of test anxiety.

Anxiety and Test Anxiety

Anxiety can be defined as euphoric and/or apprehensive feelings that are related to the anticipation of future activities (American Psychiatric Association, 2000). According to Huberty and Dick (2006), anxiety can manifest in three ways. Behaviorally, an individual may begin to feel fidgety, become irritable, avoid the situation causing the anxiety, or fail to complete the activity. Physiological responses can include rapid heartbeat, flushing of the skin, headaches, or nausea. Cognitive responses can include problems with concentration, perfectionism, oversensitivity and cognitive dysfunction (Huberty & Dick, 2006).

Individuals may have to contend with trait anxiety, state anxiety or both (Huberty & Dick, 2006). Trait anxiety is when an individual has high levels of anxiety that occurs during different situations and for long period of times. State anxiety is when the individual has anxiety during specific situations; for example, while they are taking a test. Individuals who show high levels of state anxiety do not necessarily have high levels of

trait anxiety, but those with high levels of trait anxiety are more likely to view different situations as stressful and become anxious (Huberty & Dick, 2006). The individual with trait anxiety is predisposed to feeling anxiety in different situations. With state anxiety, the individual's anxiety is likely to be triggered by a situation that is seen as a threat.

For those who suffer from test anxiety, the examination is the threat. It has been estimated that as many as 20% of all college students suffer from test anxiety that severely impacts their academic achievement (Test Anxiety, 2004; UT Learning Center, 2006). While small amounts of anxiety can help some individuals work harder and achieve more; anxiety can become so severe for others that they suffer emotional, behavioral, cognitive and physical effects (Bodas & Ollendick, 2005; UT Learning Center, 2006). Which are related to poor test performance and academic achievement (Bodas & Ollendick, 2005; Test Anxiety, 2004). In general, test anxiety tends to increase as an individual progresses through school (Huberty & Dick, 2006).

Distortions and deficiencies are two types of cognitive dysfunction that appear to be particularly relevant to individuals who suffer from test anxiety (Huberty & Dick, 2006). Cognitive distortions are characterized by misinterpretations and beliefs that the situation is worse than imagined. For example, individuals with test anxiety may believe that failing one pop quiz will prevent them from getting their dream job after college. Cognitive deficiencies such as a learning disability or lack of study skills may also play a role in test anxiety (Huberty & Dick, 2006).

Components of Test Anxiety

Test anxiety can affect students in several ways. The emotional effects of test anxiety include excessive feelings of fear, disappointment, anger, depression,

uncontrollable crying or laughing, feelings of helplessness, and just feeling emotionally drained (Spielberger & Vagg, 1995; UT Learning Center, 2006). Behavioral effects can include fidgeting, pacing, substance abuse, and avoidance (UT Learning Center, 2006). Cognitively, individuals may experience racing thoughts, sudden forgetfulness, difficulty concentrating, negative self-talk, and feelings of dread. The individual may frequently compare themselves to others, and have difficulty organizing their thoughts (Sarason, 1984; UT Learning Center, 2006). Anxiety levels can become so high during an exam that the individual becomes distracted. Individuals may then experience difficulty in comprehending simple instructions or may cause difficulty in organizing and recalling information (Zeidner, 1998). Some individuals may experience anxiety blocks (Huberty & Dick, 2006) which is knowing the information before taking the test, but at test time they are not able to recall the information. Test anxiety can also manifest itself physically as headaches, nausea or diarrhea, extreme body temperature changes, excessive sweating, shortness of breath, light-headedness, fainting, rapid heart beat, and/or dry mouth (Bodas & Ollendick, 2005; UT Learning Center, 2006).

Factors Contributing to Test Anxiety

Researchers have been looking at test anxiety to determine the factors contributing to an individual's anxiety level and low performance on tests. As research has progressed, researchers have moved from anxiety being the main cause of poor test performance to anxiety being influenced and combined with internal and external contributing factors. Theories have been developed and progressed through the years showing the advancement and understanding of test anxiety and the contributing factors.

Interference Model

The interference model proposes that test anxiety inhibits the student's ability to retrieve previously learned material (Bodas & Ollendick, 2005). Thus, rather than recalling information in a productive fashion, they experience the emotional, behavioral, cognitive and physical symptoms of test anxiety. They may then become preoccupied with negative thoughts and worries. By contrast, individuals who have low levels of test anxiety are able to stay focused on the task at hand (Zeidner, 1998).

Learning Deficits Model

The learning deficits model explains that test anxiety is the result of not being prepared for the test (Bodas & Ollendick, 2005). This inadequate preparation could be caused by inability to learn, possibly because of an undiagnosed learning disorder, and/or poor study habits. Students who lack efficient study strategies are not able to adequately prepare for the test and therefore may be prone to an increase of anxiety.

Study Skill Deficits

Study skills are important as they are related to many aspects of the ability to learn new information. Study skills can specifically affect acquiring, recording, organizing, synthesizing, remembering, and using components of the learning process (Gettinger & Ball, 2006). Learning and appropriately using study skills can give an individual a better chance at getting a good grade on a test.

In order for students to be effective at studying there are some key aspects that they need to master (Gettinger & Ball, 2006). First, the individual needs to be able to select the appropriate strategy for learning the material, then the individual needs to be able to use the skill in a way that is beneficial. Second, the act of studying needs to be deliberate and

a conscious decision by the individual. Learning requires effort and concentration on behalf of the individual. Lastly, individuals need to be able to self-regulate their studying (Gettinger & Ball, 2006). By self-regulating, individuals should be able to evaluate their studying in order to see how well the skills they chose are working.

An individual needs to understand the differences between a study tactic and a study strategy. A study tactic can be defined as a specific technique used to study (Gettinger & Ball, 2006). Some examples would be note taking, self-questioning, flash cards or summarizing. A study strategy, on the other hand, is how the individual chooses and uses the specific study tactics for the specific material that needs to be learned (Gettinger & Ball, 2006). For example, the individual who needs to learn definitions for a biology quiz may choose flash cards as the study tactic. The act of choosing to use flash cards and putting the tactic in effect is the study strategy.

There can be different reasons why individuals do not learn how to be good studiers. One reason is that students may not receive instructions on how to use good study strategies. Many times teachers will teach study tactics to students, but neglect to teach the best ways to use the tactics. The individual may have a fairly big arsenal of tactics, but if the individual does not know when to use them, the effectiveness of the tactics drops (Gettinger & Ball, 2006). Outside influences can also interfere with time the individual should be studying. These outside influences can be friends, TV, extracurricular activities, or a job. Some of these individuals may have associated negative feelings with studying, so when given the opportunity to do something besides studying, they will (Gettinger & Ball, 2006).

Preiss, Gayle, and Allen (2006) were interested to see how test anxiety and study skills correlate. They completed a meta-analysis on 18 studies and found a negative correlation between test anxiety and academic study skills. Students with better study skills experience less test anxiety. Specifically, students who were able to organize materials, manage their time adequately, and have a study routine had lower test anxiety.

Information Processing Model

The information-processing model of test anxiety was developed by Naveh-Benjamin, McKeachie, Lin, and Holinger (1981). This model combines the interference and deficits models by suggesting that students with high test anxiety could have a number of cognitive deficits at all stages of information processing. Anxiety can affect individuals at different stages, including encoding, organization, retrieval, and storage of information (Huberty & Dick, 2006). This explanation is more comprehensive and because of this some researchers accept this model as the best theoretical model for understanding test anxiety.

Expectations

Expectations of test performance can come from internal or external factors. Individuals can develop a certain belief about how they will perform on a test; this belief may affect their level of anxiety. Individuals can also be bombarded by external factors that can raise their anxiety level. Researchers have looked at how internal and external influences can affect an individual's anxiety level at test time.

Self-Expectations

Self-expectations or self-efficacy is a belief about the ability to perform on any given task. These beliefs are learned from different situations in life (Bandura, 1994). The

self-expectation beliefs influence how people think, feel, and react to different situations. To look at how self expectations are related to test anxiety, 251 fifth grade students were given a survey developed by the Association for Supervision and Development. The researchers found that students with a higher level of self-efficacy had lower levels of test anxiety (Mulverson, Stegman, and Ritter, 2005).

Preiss et al. (2006) completed a meta-analysis on 18 studies investigating self-efficacy and test anxiety. The researchers found a negative correlation between test anxiety and self-efficacy. This indicates that individuals with low self-efficacy tend to have higher levels of test anxiety. These individuals stated that they felt they didn't have personal control over academic problems and as a result had no confidence in their ability to do well academically.

Individuals who repeatedly fail tests often feel ashamed and humiliated and as a result can lead the individual to become anxious of future tests (Huberty & Dick, 2006). Students who are rarely successful at taking exams may begin using negative self talk. Negative self talk is when an individual has beliefs or statements that are negative about who they are or what they are going to do. An example would be the belief an individual has that no matter how much they study they will never be able to pass a test. This belief can preoccupy the individuals mind to the point any material studied will not stick in the brain (Huberty & Dick, 2006).

Burns (2004) conducted a study to look at the relationships between test anxiety and performance expectations. In this study 378 college students were given the General Anxiety Scale at the beginning of the course and again before the final to measure level of anxiety. The researcher found that whereas grade expectations at the beginning of a course

were not associated with anxiety, grade expectations at the time of the test were associated with higher levels of anxiety. Students with higher expectations reported higher levels of anxiety. In addition, he also observed that students who did well on previous examinations tended to have higher levels of test anxiety perhaps because of pressure to do as well on the current exam, compared to students who did poorly on the first exam.

Expectations of Others

Mulverson et al. (2005) looked at how pressure from parents and teachers affected test anxiety. In this study, 251 fifth grade students and parents, 141 teachers, seven principals and eight counselors returned a survey developed by the Association for Supervision and Development. The researchers found that the parents and teachers who were extremely involved (pushed the children to study more, stressed the importance of tests) increased the students' self-reported test anxiety. This was particularly true when students were of Asian and Indian cultural backgrounds. These cultures tend to view individual actions as a reflection on the family and therefore, if the student performs poorly academically it could possibly be viewed as a disgrace to the family. This could explain the higher rates of test anxiety among students of Asian and Indian cultures (Bodas & Ollendick, 2005; Mulverson et al., 2005).

Pathology and Test Anxiety

Beidel and Turner (1988) conducted a study to find out if test anxiety is co morbid with other anxiety disorders. Fifty elementary age children were tested for test anxiety and put into either a high test anxiety group or a low test anxiety group. Sixty percent of the children in the high test anxiety group also met criteria for other anxiety disorders. The researchers also found that children in the high text anxiety group were more worried in

general about grades, popularity, and friends than were children in the low test anxiety group.

Researchers have also found that many highly test anxious students endorse criteria for psychopathology (Bodas & Ollendick, 2005; King, Mietz, Tinney, & Ollendick, 1955; Lufi, Okasha, & Cohen, 2004). Lufi et al. (2004) compared the results on the Test Anxiety Scale to the results on Minnesota Multiphasic Personality Inventory-2 (MMPI-2). The researchers found that college students who suffered from high test anxiety and a learning disorder scored high on Scales 7 (Psychasthenia), 2 (Depression), 8 (Schizophrenia), and 0 (Social) of the MMPI-2 (Lufi et al., 2004). Individuals who score high on scale 7 (Psychasthenia) may appear tense, rigid, and anxious. These individuals may also suffer from obsessive thoughts and compulsive behaviors. Individuals who score high on scale 2 (Depression) tend to be unhappy, depressed, and pessimistic. These individuals can also have low self-esteem and be insecure. Individuals who score high on scale 8 (Schizophrenia) tend to be withdrawn and can experience distortions of reality. Individuals who score high on scale 0 (Social) may be shy and inhibited. Highly anxious students also scored high on the measure of College Maladjustment. Students who score high on this measure tend to be pessimistic, anxious, worried, and they tend to procrastinate and feel that life is a strain much of the time. Individuals who score lower tend to be more optimistic and feel they have emotional control (Lufi et al., 2004).

Relationship between Test Anxiety and Academic Performance

Test anxiety can affect an individual's ability to perform and earn high grades on tests. Academic performance is likely to drop as test anxiety continues to affect an

individual's test taking ability. Researchers have theorized that two components are likely to feed anxiety as an individual's academic career progresses.

Transactional Process Model

The most recent and accepted model of test anxiety is the Transactional Process Model that states test anxiety is a situation-specific process with two components, emotionality and worry, which feed back into the anxiety, possibly making it worse (Spielberger & Vagg, 1995). According to this theory, as a student gets ready to begin an examination that is perceived as threatening, his or her anxiety level begins to rise. The rising anxiety level will trigger an emotional response and physiological arousal. This is known as the emotionality component. The emotional response and physiological arousal will then trigger the worry component, which is a cognitive self-centered response characterized by test-irrelevant thoughts. Test-irrelevant thoughts are any thoughts that do not pertain to the test; examples would include how other students are doing and what the weather is doing outside. The worry component can also be looked at as an increase in negative thoughts, decrease in positive thoughts and an increase in off task thoughts. These two components continue working together to increase the student's anxiety (Bodas & Ollendick, 2005; Spielberger & Vagg, 1995).

Schutz, Davis, and Schwanenflugel (2002) conducted a study looking at how test conditions are viewed by individuals experiencing different levels of test anxiety. They found students who reported low or moderate levels of test anxiety were able to separate different tasks during an examination and label them as either pleasant or unpleasant. This implies that whereas some examination tasks are unpleasant and can increase anxiety, students with low test anxiety are able to counteract some of the anxiety with the tasks

viewed as pleasant, giving them more control over their anxiety. On the other hand, students who reported high levels of test anxiety did not recognize the difference between pleasant and unpleasant tasks associated with examinations. These students appeared to be more focused on the unpleasant emotions and disregarded any pleasant emotions they may have felt (Schutz et al., 2002). These unpleasant emotions then trigger the worry component and the student's anxiety over taking the test then increases.

While the emotionality component may trigger the worry component, it is the worry component that has the greatest impact on performance (Bodas & Ollendick, 2005; Hodapp, Glanzmann, & Laux, 1995; Sarason, 1984). As students worry about what parents and peers may think or how their grade may be affected by the performance, they are more likely to concentrate less on actually taking the test.

According to the Transactional Process Model, test anxiety has a worry component that interferes with the student's ability to do well on tests. The worry component causes the student to have increasing thoughts of doing poorly on exams or thoughts that do not pertain to the exam at all. Thus, if students could learn to control and cope effectively with these negative thoughts then the negative thoughts might have less effect on performance.

Treatments for Test Anxiety

Cognitive-Behavioral Therapy is a combination of both cognitive and behavioral theories. The cognitive side looks at how people think and put meaning to the different situations they come across in life. The Behavioral side tends to look at how people respond to different situations (Grazebrook, Garland, & British Association of Behavioral and Cognitive Psychotherapies (BABCP), 2005). Cognitive-Behavioral therapy targets the cognitions and behaviors that cause symptoms. The idea behind this is that individuals are

able to change their response to demanding situations at times when they are not able to change the situation itself by re-evaluating the situation and using cognitive-behavioral skills (Grazebrook et al., 2005; NACBT, 2007).

Powell (2004) conducted a study to see if behavioral techniques helped in reducing test anxiety on 72 medical students who had failed their first try on the medical exam. The behavioral techniques used were a combination of progressive muscle relaxation, systemic desensitization, behavioral rehearsal, and psychoeducational techniques. The most common technique used was systemic desensitization. After treatment 93% of participants passed the medical boards on the next try. One advantage to behavioral techniques is that individuals are able to continue using them once the therapy session has ended; this is helpful when individuals need to take future tests (Powell, 2004).

Ergene (2003) conducted a meta-analysis involving 53 studies to see how different interventions help in reducing test anxiety. He found that when cognitive-behavioral therapy was combined with skills training there was a significant reduction in test anxiety with a large effect size. Also, he found that systematic desensitization significantly helped in reducing test anxiety and had a large effect size. Relaxation training and hypnotherapy helped to reduce stress anxiety with a medium effect size.

With relaxation training the individual is taught to relax individual muscle groups in his or her body. This can help to release the physical tension that builds up in the body and helps the individual to feel more relaxed (Antony & Roemer, 2003). Once the individual has practiced and become comfortable with relaxation the therapist may begin to teach the individual to relax the muscles by just thinking about the relaxation technique.

This helps the individual to be able to use this technique in everyday situations (Antony & Roemer, 2003).

Systematic desensitization has two components. The first, the individual is taught relaxation techniques (Antony & Roemer, 2003). The relaxation technique is important in systematic desensitization because the individual will use this technique to stay calm when faced with the anxiety provoking situation. Once the individual feels comfortable with the relaxation techniques the individual is then exposed to different aspects of the situation causing him or her anxiety. For example, an individual with test anxiety may be asked to imagine walking to the test room, as the individual's anxiety rises they are instructed to use the relaxation techniques. This is repeated for various stages of the situation causing the individual anxiety until the individual is able to imagine the situation without or with a manageable amount of anxiety (Antony & Roemer, 2003).

Mindfulness

When an individual becomes aware of the current situation without distorting or judging the experience; the individual is practicing mindfulness (About Mindfulness, 2006; Bondolfi, 2005; Linehan, 1993a; Linehan, 1993b; Orsillo, Roemer, & Barlow, 2003; Stewart, 2004). A mindful individual allows him or herself to become fully aware of everything that is going on around him or her (Orsillo et al., 2003; Stewart, 2004). This awareness includes the thoughts, feelings and sensations both inside and out of the body and is without judgment or self criticism (About Mindfulness, 2006). Some people are able to be mindful without training, while others need to be taught and continually practice the skills. Mindfulness skills are a combination of Buddhist meditation techniques and

current knowledge of psychology and biology used to calm the mind and body (About Mindfulness, 2006).

The object of mindfulness is for the individual to be able to accept emotions, adjust negative mood states and be aware of physical states. Stewart (2004) states that emotions are misunderstood by many people and this can lead to destructive behaviors, causing more problems for the individual in the long run. Through what is known as a “mindful-emotive” state, Stewart (2004) states that emotions can be observed and described objectively. This helps with controlling impulsivity and distress caused by misunderstood emotions. As individuals practice mindfulness they are able to see connections between situations, thoughts and emotions. They then learn to observe incoming information and not react right away. By not reacting they are able to step back from the situation and determine the best way to handle it (Stewart, 2004). Stewart (2004) also believes that incoming biased thoughts can be integrated with negative mood states and observing and not judging these biased thoughts could lead to a reduction of negative mood states.

The Center for Mindfulness Research and Practice (About Mindfulness, 2006) states that people tend to get caught up by everyday thoughts, feelings, worries and responsibilities. Many times when people get caught up with life’s troubles they tend to not pay attention to what their body is telling them. Mindfulness can improve the quality of life for some people by allowing them to focus and find solutions to take care of physical problems (About Mindfulness, 2006). Mindfulness can also be used to help with physical and psychological conditions related to chronic pain, fibromyalgia, binge eating, and skin related diseases (Ramel, Goldin, Carmona, McQuaid, 2004). Sagula and Rice (2004) conducted a study with 49 participants in the treatment group and 22 participants in

the control group to see if mindfulness therapy can help reduce pain felt by chronic pain sufferers. Participants were given the short form of the Response to Loss Scale, Beck Depression Inventory, and State-trait Anxiety Inventory before and after treatment. Treatment consisted of weekly 90 minute sessions. During this time participants were taught mindfulness and also asked to practice mindfulness outside of therapy for 20 minutes a day. Participants reported feeling less pain by the end of the study. One way mindfulness seems to help for chronic pain sufferers is they are able to observe they are in pain without labeling it as bad or severe or the worst they have ever had; they are no longer fighting or resisting the pain (Sagula & Rice, 2004). These individuals are acknowledging they are in pain but not becoming obsessed with the added thoughts and feelings that could lead to intensifying the pain (Ramel et al., 2004).

Mindfulness can also be used to combat against rumination. Individuals who ruminate tend to passively focus their attention on a negative mood state and continually think about the causes, meanings, and consequences of that state (Nolen-Hoeksema, 1991). An individual's ruminating thoughts can affect how the individual views or handles other content in the mind. This content could be thoughts, feelings or really anything negative or positive. Mindfulness helps by allowing the individual to acknowledge the content and move on with their day to day tasks (Ramel et al., 2004). Research conducted by Ramel et al. (2004) found that the more mindfulness meditation was practiced the less rumination the participants reported during follow-up assessments.

Shapiro, Schwartz, and Bonner (1998) found that participants in their mindfulness-based stress reduction intervention were able to effectively reduce psychological distress, state and trait anxiety, and increase overall empathy levels as compared to the control

group. The researchers randomly assigned 78 medical students to either a 7-week mindfulness-based stress reduction intervention or a wait list control group. The researchers' main target was to reduce trait anxiety by using a mindfulness-based stress reduction program. They found that as trait anxiety decreased so did depression and state anxiety.

Cognitive-Behavioral and Mindfulness Differences

Cognitive-Behavioral therapy targets the cognitions and behaviors that are causing trauma for the individual. Participants in cognitive-behavioral therapy are taught to change their response to demanding situations by re-evaluating the situation and changing negative/maladaptive thoughts to make positive and adaptive thoughts (Grazebrook et al., 2005; NACBT, 2007). Mindfulness differs from other cognitive-behavioral techniques because it does not try to change thoughts viewed as maladaptive into thoughts that are more productive and positive (Sagula & Rice, 2004). Instead of trying to change these thoughts, individuals are taught to view the thoughts neutrally and accept them as they are (Stewart, 2004). These thoughts and experiences are not labeled negative or positive, worthy or unworthy, or judged in anyway. Mindfulness's purpose in therapy is to (a) identify, at an early stage, destructive thoughts and patterns, (b) process the destructive thoughts and patterns nonjudgmentally, and (c) use learned coping skills to manage destructive thoughts and patterns (Ramel et al., 2004; Orsillo et al., 2003).

Summary

Test anxiety is a form of state anxiety where an individual becomes anxious when taking a test (Huberty & Dick, 2006). Individuals who suffer from moderate to severe test anxiety tend to do poorly on tests, which in turn can impact the individual's academic

performance (Test Anxiety, 2004; UT Learning Center, 2006). Test anxiety can affect students emotionally, behaviorally, and cognitively. The emotional effects can lead an individual to feel fear, anger, and/or depression before and during a test. The behavioral effects can lead an individual to fidget, pace, or avoid the test. While the cognitive effects can lead to difficulty concentrating, experiencing racing thoughts, and negative self talk (Sarason, 1984; Spielberger & Vagg, 1995; UT Learning Center, 2006).

The Transactional Process Model is currently the most accepted model of test anxiety. According to this model, there are two specific components to test anxiety, emotionality and worry. The emotionality component consists of an emotional and physiological response. During this time the individual may begin feeling fear about the test; this fear may then begin raising their heart rate and the individual may begin taking shallow breaths. The worry component is then triggered which can produce test-irrelevant thoughts. These thoughts may be used to distract the individual from the stress produced during the testing situation. These two components tend to work together and feed back into and increase anxiety (Bodas & Ollendick, 2005; Spielberger & Vagg, 1995).

Several treatments have been utilized in an attempt to reduce test anxiety. With cognitive behavioral therapy the therapist helps the individual confront the cognitions and behaviors that are causing problems for the individual. Individuals are taught to re-evaluate situations in order to change how they respond. This treatment is helpful for many individuals who have both emotional and physiological effects of test anxiety (Grazebrook et al., 2005; NACBT, 2007).

Relaxation training is used to help the individual reduce physiological and cognitive components of test anxiety. This training helps to teach an individual to release

the tension to the body and use deep breathing to increase oxygen to the brain and muscles. This can enable an individual to feel more relaxed and calm when taking on a stressful situation, such as taking a test (Antony & Roemer, 2003). With systematic desensitization the individual is first taught relaxation techniques to help control anxiety. Then the individual will be lead through different aspects of the anxiety provoking situation (i.e. test taking) as the therapist urges them to use the relaxation techniques as anxiety increases. This technique is repeated until the individual is able to imagine the situation with little or no anxiety (Antony & Roemer, 2003).

Skills training works on the assumption the individual does not possess the appropriate skills needed to effectively study for a test. During skills training, the individual may work with a tutor or mentor to use different study tactics to develop a study strategy that will aid in learning and retrieving different material. Skills training is helpful with individuals who lack the appropriate skills needed to effectively study (Gettinger & Ball, 2006). When combined with other treatments, skills training techniques are likely to increase the effect of different treatment (Ergene, 2003).

Mindfulness is the ability for an individual to be aware of a current situation and not distort or judge the experience. This individual is then able to become fully aware of his or her thoughts, feeling and sensations coming from both inside and outside of the body without being judgmental or self critical. According to the study completed by Shapiro et al. (1998) mindfulness-based stress reduction techniques reduced the amount of trait and state anxiety. An individual would be diagnosed with state anxiety when they experience anxiety in specific situations. An example of state anxiety would be an individual who suffers from text anxiety.

The idea is that an individuals who suffer from test anxiety will be able to learn mindfulness skills to help them accept and understand the feelings that develop around test taking (About Mindfulness, 2006; Bondolfi, 2005; Linehan, 1993a; Linehan, 1993b; Orsillo et al., 2003; Stewart, 2004). For example, an individual who becomes anxious while studying for a test may begin to dwell on thoughts of doing poorly and their time allocated to studying may be consumed by ruminating on negative outcomes of the test. If the individual is able to become aware of the feelings and accept the feelings as they are without becoming judgmental, he or she may be able to spend more time studying and less time dwelling on doing poorly. For the purpose of this study it is believed that individuals who suffer from little or no test anxiety are more likely to be mindful, whereas individuals who suffer from moderate to high levels of test anxiety will be less likely to be mindful.

Hypothesis

Hypothesis 1: Scores on the Five Facet Mindfulness Questionnaire (FFMQ) will be negatively correlated with scores on the Test Anxiety Inventory (TAI).

Hypothesis 2: Scores on the Test Anxiety Inventory's Emotionality component (TAI/E) will be positively correlated with scores on the White Bear Suppression Inventory (WBSI).

Hypothesis 3: Scores on the Test Anxiety Inventory's Worry Component (TAI/W) will be negatively correlated with scores on the Five Facet Mindfulness Questionnaire Nonjudging on inner experience (FFMQ/NJ) and Nonreactivity to inner experience (FFMQ/NR).

METHOD

Participants

Students enrolled in introductory psychology courses were asked to participate in this study. Thirty-eight students participated and received extra credit for their participation. Of the thirty-eight students fifteen were male and twenty three were female. The majority of the students ($N = 34$) self reported they were white (non-Hispanic), the remaining participants identified as being Asian or Pacific Islander ($N = 2$), Hispanic/Latin American ($N = 1$), and Black/African American ($N = 1$).

Students mostly reported being freshman ($N = 22$). The remaining students reported being Sophomores ($N = 5$), Juniors ($N = 6$), Seniors ($N = 4$), and a Graduate Student ($N = 1$). Many students stated they studied 1 to 3 hours a week ($N = 18$), with many students ($N = 17$) studying more than 4 hours a week. Seven students self reported having been diagnosed with an anxiety disorder including a Panic Disorder (with or without Agoraphobia) ($N = 2$), Social Phobia ($N = 1$), Obsessive Compulsive Disorder ($N = 1$), Generalized Anxiety Disorder ($N = 1$), and Anxiety Disorder Not Otherwise Specified (NOS) ($N = 2$).

Measures

The Five Facet Mindfulness Questionnaire (FFMQ) was developed by Ruth A. Baer, Gregory T. Smith, Jaclyn Hopkins, Jennifer Krietemeyer, and Leslie Toney to measure five facets of mindfulness (Baer, Smith, Hopkins, Krietemeyer, and Toney, 2006). The five facets include observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. Observing addresses how well an individual is able to notice and/or acknowledge internal and external experiences.

Describing is the ability of an individual to label thoughts and feelings with words. Acting with awareness addresses an individual's ability to be in the moment and not just doing what needs to be done while thinking of other things. Nonjudging of inner experience measures the ability to allow thoughts and feelings without placing judgment on them. Nonreactivity to inner experience looks at a person's ability to allow thoughts without acting on them.

The ability to break down mindfulness into five facets helps to address not only if a high test anxious individual is mindful or not, but also to see what particular facet the individual may struggle with. Subjects taking the FFMQ respond to 39 statements using a 5 point Likert scale, where 1 equals never or very rarely true, 2 equals rarely true, 3 equals sometimes true, 4 equals often true, and 5 equals very often or always true. Example inventory questions include: "I notice how foods and drinks affect my thoughts, bodily sensations, and emotions" for Observe items, "Even when I'm feeling terribly upset, I can find a way to put it into words" for Describe items, "When I do things, my mind wanders off and I'm easily distracted (R)" for Act with Awareness items, "I make judgments about whether my thoughts are good or bad (R)" for Nonjudge items, and "I watch my feelings without getting lost in them" for Nonreact items (Baer et al., 2006).

Internal consistency for four of the facets (observing, describing, acting with awareness, and nonjudging of inner experience) is between .72 and .92. Nonreactivity to internal experience produced an internal consistency of .67. The inventory uses a 5-point likert scale and 39 items to measure the mindfulness.

The White Bear Suppression Inventory (WBSI) was developed by Daniel Wegner and Sophia Zanakos (1994) to measure to what level individuals suppress their thoughts.

Wegner and Zanakos (1994) believed that individuals who suppress their thoughts are not allowing themselves to habituate to the emotional side of the thoughts, thus causing the thoughts to produce a higher psychophysiological response when the issue resurfaces (Wegner & Zanakos, 1994). There is a possible link between those who suppress their anxious thoughts and those who have high test anxiety. Individuals that are suppressing their test anxious thoughts are not allowing themselves to habituate to and deal with the thoughts. Thus when it comes time to take the next test the person has as much or more anxiety about the test.

Subjects taking the WBSI respond to 15 statements using a 5 point Likert scale, where 1 equals strongly disagree, 2 equals disagree, 3 equals neutral or don't know, 4 equals agree and 5 equals strongly agree. Example inventory statements include: "There are things I prefer not to think about," "I wish I could stop thinking about certain things," and "I always try to put problems out of my mind" (Wegner & Zanakos, 1994). Scores on the WBSI correlate with anxiety (.58), depression (.52) and obsessive thinking (.40). The reliability is .89.

The Test Anxiety Inventory (TAI) was developed by Charles D. Spielberger (1980) out of the State-Trait Anxiety theory to measure individual differences in test anxiety. The inventory consists of 20 items measured on a 4-point likert scale. The TAI also consists of two subscales, worry and emotionality, that measures two major components of test anxiety according to the Transactional Process Model. The TAI/Worry component measures the cognitive concerns an individual may experience taking a test. The TAI/Emotionality component measures the emotional and physiological responses while

taking a test. The TAI also produces a total score to measure the overall anxiety an individual may experience while taking a test.

Example inventory questions include: “I wish examinations did not bother me so much” for overall test anxiety, “During tests I feel very tense” for the emotionality component, and “I freeze up on important exams” for the worry component (Speilberger, 1980). The internal consistency for the TAI/Worry is .88. The internal consistency for the TAI/Emotionality is .90. The internal consistency for TAI Total score is .92. When the TAI was compared to other test anxiety inventories, the TAI was found to be equivalent (.82).

Procedure

Students were given access to the study through the universities online website. Students first needed to read through and agree with the consent form before completing the surveys. Students who decided not to participate had the ability to exit the survey at any time during this study. Students who agreed to participate were given a demographic survey, followed by the Test Anxiety Inventory, White Bear Suppression Inventory, and the Five Facet Mindfulness Questionnaire. At the completion of the study students were given access to the studies debriefing page and then were redirected to a webpage where they could print out an extra credit slip to verify participation.

RESULTS

A Pearson Correlation was used to look for significant relationships between the Test Anxiety Inventory, the Five Facet Mindfulness Questionnaire, and the White Bear Suppression Inventory.

Hypotheses

The first hypothesis predicted there would be a negative relationship between the Test Anxiety Inventory and the Five Facet Mindfulness Questionnaire. A significant relationship was found at the .05 level ($r = -.347, p = .033$). The second hypothesis predicted there would be a positive relationship between the Test Anxiety Inventory's Emotionality component and the White Bear Suppression Inventory. There was no significant relationship found. The third hypothesis predicted there would be a negative relationship between the Test Anxiety Inventory's Worry component and the Five Facet Mindfulness Questionnaire's Nonjudging of Inner Experience and Nonreactivity of Inner Experience. A significant relationship found at the .05 level ($r = -.368, p = .023$) for the Nonjudging of Inner experience. There was no significant relationship found between the Test Anxiety Inventory's Worry component and the Five Facet Mindfulness Questionnaire's Nonreactivity of Inner Experience.

Other Significant Relationships

There were negative relationships found between the total scores for the Five Facet Mindfulness Questionnaire and the White Bear Suppression Inventory ($r = -.418, p = .009$). Significant negative relationships were found between the White Bear Suppression Inventory total score and the Five Facet Mindfulness Questionnaire Nonjudging subscale ($r = -.507, p = .001$), Five Facet Mindfulness Questionnaire Acting with Awareness

subscale ($r = -.395, p = .014$). The Test Anxiety Inventory total score also had significant relationships with Five Facet Mindfulness Questionnaire Acting with Awareness subscale ($r = -.588, p = .000$), Five Facet Mindfulness Questionnaire Nonjudging subscale ($r = -.435, p = .006$), and Five Facet Mindfulness Questionnaire Describe subscale ($r = -.347, p = .045$).

The Test Anxiety Inventory Emotionality subscale also had significant relationships with the Five Facet Mindfulness Questionnaire Acting with Awareness subscale ($r = -.587, p = .000$) and the Five Facet Mindfulness Questionnaire Nonjudging subscale ($r = -.479, p = .002$). The Test Anxiety Inventory Worry subscale also had significant relationships with Five Facet Mindfulness Questionnaire Acting with Awareness subscale ($r = -.571, p = .000$), Five Facet Mindfulness Questionnaire Describe subscale ($r = -.367, p = .023$), and Five Facet Mindfulness Questionnaire Nonjudging ($r = -.368, p = .023$).

Positive relationships were found between Five Facet Mindfulness Questionnaire's Observe subscale and the Test Anxiety Inventory's total score ($r = -.347, p = .021$), Emotionality component ($r = -.399, p = .013$), and Worry component ($r = -.403, p = .012$).

Table 1 shows an overview of the Pearson Correlation Coefficients between the scores.

Table 1

Pearson Correlations for the White Bear Suppression Inventory, Test Anxiety Inventory, and Five Facet Mindfulness Questionnaire

Scales and Subscales	White Bear Suppression Inventory	Test Anxiety Inventory Total	Test Anxiety Inventory Emotionality	Test Anxiety Inventory Worry
Five Facet Mindfulness Questionnaire Total	-.418**	-.347*	-.315	-.313
Five Facet Mindfulness Questionnaire Observe	.166	.347*	.399*	.403*
Five Facet Mindfulness Questionnaire Describe	-.266	-.327*	-.229	-.367*
Five Facet Mindfulness Questionnaire Acting with Awareness	-.395*	-.588**	-.587**	-.571**
Five Facet Mindfulness Questionnaire Nonjudge	-.507**	-.435**	-.479**	-.368*
Five Facet Mindfulness Questionnaire Nonreact	-.059	.124	.139	.132

**p < .01

*p < .05

DISCUSSION

It was hypothesized that individuals who are able to be mindful would be less likely to have test anxiety. While tests can be stressful for anyone, some individuals appear to be able to handle it better. The researchers believed the individuals with low test anxiety were able to focus on the task at hand and not on the feelings, thoughts, or physical changes that occurred in relation to the test. Therefore, individuals with low test anxiety appeared to be more mindful during the different stages of the test and individuals with high test anxiety appeared to be less mindful.

Hypotheses

The results showed the relationship between an individual's test anxiety total score and mindfulness total scores were negatively correlated. These results are as predicted and show a possible relationship between an individual's test anxiety level and their ability to be mindful during stressful situations.

Previous research suggests there would be a positive correlation between the Test Anxiety Inventory Emotionality component and the White Bear Suppression Inventory, however, none was found in this study. In fact, the White Bear Suppression Inventory did not significantly correlate with any part of the Test Anxiety Inventory.

The Five Facet Mindfulness Questionnaire Nonjudging of Inner Experience facet negatively correlated with the Worry component as was predicted. It was also predicted there would be a negative correlation between Five Facet Mindfulness Questionnaire Nonreactivity facet and the Test Anxiety Inventory Worry component. The results showed there was not significant correlation, either positive or negative.

Strengths and Limitations

There may be possible limitations to this study. The first is the participant number. With only 38 students taking the study the data range is very limited. It is possible the results would change had there been more participants. The way the data was collected could be considered a limitation.

The population sampled was college students who were given the option to participate in a study as opposed to completing their own research project. It is possible that students who chose to participate are not doing well in the class and possibly more likely to have test anxiety than students who did not participate in the study. There is also the possibility that the individual did not feel the anxiety at the time of taking the questionnaires and therefore, the results were altered. Another possibility is that students may be trained in using Mindfulness skills, but are not able to adapt them to all areas of their life. This could cause a result where the individual scored high on the Test Anxiety Inventory and the Five Facet Mindfulness Questionnaire.

Future Directions and Conclusions

This research lays the ground work for a possible new direction to help individuals with test anxiety. There is strong evidence that individuals who have low test anxiety tend to be more mindful than individuals who have high test anxiety. In the future, researchers could replicate the study to see if a bigger sample size would have an effect on the results. A possible next step for this research would be to develop a study where individuals who have test anxiety are taught mindfulness skills and how to apply them to the testing experience.

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APPENDIX A

Consent Form

Department of Psychology
Fort Hays State University
Hays, KS
(785) 628-4405

Informed Consent

Study Name: MINDFULNESS AND TEST ANXIETY IN COLLEGE STUDENTS

Faculty Researcher: Leo Herrman, PhD

Telephone Number: (785) 628 - 4195

Student Researcher: Jamey Brannon, Graduate Student

Telephone Number: (785) 639 - 1008

The Psychology Department at Fort Hays State University supports the practice of protection for human subjects participating in research. Your willingness to help us is greatly appreciated.

The purpose of this study is to see if there is a relationship between test anxiety and mindfulness. To complete this study, students need to spend 20 to 30 minutes completing 4 surveys. Students may receive extra credit for participating in this study. At the conclusion of completing the surveys students will be redirected to a webpage they can print and provide to their teachers for extra credit. **You will receive course or extra credit for your participation provided your instructor**

awards credit for research participation and you meet the instructor's requirements to receive that credit.

This study has been reviewed to determine that it poses little or no risk of harm to you. However, in the unlikely event that you do feel any coercion, threat, or discomfort at any time during the study, you may choose to withdraw with no further questions asked. If you choose to withdraw, you will still receive any course credit promised to you in exchange for your participation. Students who participate in this study and believe they may suffer from and/or would like information on test anxiety may contact Fort Hays State University's Kelly Center at 785-628-4401.

Any information obtained from you will be kept strictly confidential. You may be assigned an arbitrary subject number to assist in data collection. We assure you that neither your name nor subject number will be associated in any way with any reportable results.

You will gain no benefits by participating in this study other than educational (or course credit if it is offered by your instructor). The researchers are obligated to tell you as much as you care to know about the study after your part in the study is complete. If you would like a written summary of the results, please include your name and address in the space provided, and the researchers will send you a copy when it is available.

All persons who take part in this study must agree to this consent form. By clicking on agree below you are indicating that you have been informed of your rights as a participant, and you have agreed to participate on that basis.

By clicking on agree, I affirm that: I am at least 18 years of age, have read and understood my rights and the study description on this page, and voluntarily agree to participate in this research study.

Disagree

Agree

APPENDIX B

White Bear Suppression Inventory

(WBSI)

This survey is about thoughts. There are no right or wrong answers, so please respond honestly to each of the items below. Be sure to answer every item by circling the appropriate number beside each.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral or Don't Know	Agree	Strongly Agree

- 1 2 3 4 5 1. There are things I prefer not to think about.
- 1 2 3 4 5 2. Sometimes I wonder why I have the thoughts I do.
- 1 2 3 4 5 3. I have thoughts that I cannot stop.
- 1 2 3 4 5 4. There are images that come to mind that I cannot erase.
- 1 2 3 4 5 5. My thoughts frequently return to one idea.
- 1 2 3 4 5 6. I wish I could stop thinking of certain things.
- 1 2 3 4 5 7. Sometimes my mind races so fast I wish I could stop it.
- 1 2 3 4 5 8. I always try to put problems out of mind.
- 1 2 3 4 5 9. There are thoughts that keep jumping into my head.
- 1 2 3 4 5 10. There are things that I try not to think about.
- 1 2 3 4 5 11. Sometimes I really wish I could stop thinking.
- 1 2 3 4 5 12. I often do things to distract myself from my thoughts.
- 1 2 3 4 5 13. I have thoughts that I try to avoid.
- 1 2 3 4 5 14. There are many thoughts that I have that I don't tell anyone.
- 1 2 3 4 5 15. Sometimes I stay busy just to keep thoughts from intruding on my mind.

APPENDIX C

Five Facet Mindfulness Questionnaire

(FFMQ)

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 16. I have trouble thinking of the right words to express how I feel about things
- _____ 17. I make judgments about whether my thoughts are good or bad.
- _____ 18. I find it difficult to stay focused on what's happening in the present.

- _____ 19. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.
- _____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 21. In difficult situations, I can pause without immediately reacting.
- _____ 22. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.
- _____ 23. It seems I am “running on automatic” without much awareness of what I’m doing.
- _____ 24. When I have distressing thoughts or images, I feel calm soon after.
- _____ 25. I tell myself that I shouldn’t be thinking the way I’m thinking.
- _____ 26. I notice the smells and aromas of things.
- _____ 27. Even when I’m feeling terribly upset, I can find a way to put it into words.
- _____ 28. I rush through activities without being really attentive to them.
- _____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.
- _____ 30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
- _____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 32. My natural tendency is to put my experiences into words.
- _____ 33. When I have distressing thoughts or images, I just notice them and let them go.
- _____ 34. I do jobs or tasks automatically without being aware of what I’m doing.
- _____ 35. When I have distressing thoughts or images, I judge myself as good or bad, Depending what the thought/image is about.
- _____ 36. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 37. I can usually describe how I feel at the moment in considerable detail.
- _____ 38. I find myself doing things without paying attention.
- _____ 39. I disapprove of myself when I have irrational ideas.

APPENDIX D
Test Anxiety Inventory
(TAI)

A number of statements which people have used to describe themselves are given on the following page. Read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel:

1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always

There are no wrong or right answers. Do not spend too much time on one statement but give the answer which seems to describe how you generally feel.

Please answer every statement.

- | | |
|---------|--|
| 1 2 3 4 | 1. I feel confident and relaxed while taking tests. |
| 1 2 3 4 | 2. While taking examinations I have an uneasy, upset feeling. |
| 1 2 3 4 | 3. Thinking about my grade in a course interferes with my work on tests. |
| 1 2 3 4 | 4. I freeze up on important exams. |
| 1 2 3 4 | 5. During exams I find myself thinking about whether I'll ever get through school. |
| 1 2 3 4 | 6. The harder I work at taking a test, the more confused I get. |
| 1 2 3 4 | 7. Thoughts of doing poorly interfere with my concentration on tests. |
| 1 2 3 4 | 8. I feel very jittery when taking an important test. |
| 1 2 3 4 | 9. Even when I'm well prepared for a test, I feel very nervous about it. |
| 1 2 3 4 | 10. I start feeling very uneasy just before getting a test paper back. |
| 1 2 3 4 | 11. During tests I feel very tense. |
| 1 2 3 4 | 12. I wish examinations did not bother me so much. |
| 1 2 3 4 | 13. During important tests I am so tense that my stomach gets upset. |

- 1 2 3 4 14. I seem to defeat myself while working on important tests.
- 1 2 3 4 15. I feel very panicky when I take an important test.
- 1 2 3 4 16. I worry a great deal before taking an important examination.
- 1 2 3 4 17. During tests I find myself thinking about the consequences of failing.
- 1 2 3 4 18. I feel my heart beating very fast during important tests.
- 1 2 3 4 19. After an exam is over I try to stop worrying about it, but I can't.
- 1 2 3 4 20. During examinations I get so nervous that I forget facts I really know.

APPENDIX E
Demographic Form

- 1) What is your gender?
 female
 male
- 2) How would you classify yourself?
 White (Non Hispanic)
 Asian or Pacific Islander
 American Indian or Alaskan Native
 Hispanic/Latin American
 Black/African-American
 Rather not say
 Other Specify: _____
- 3) What year are you in college?
 freshman
 sophomore
 junior
 senior
 graduate
- 4) About how many hours a week do you generally spend studying?
 less than 1
 1-3
 3-5
 more than 5
- 5) Have you ever been diagnosed by a doctor or psychologist/psychiatrist with an anxiety disorder?
 Yes
 No
- 6) Please indicate which disorder you have been diagnosed with?
 Prefer not to answer/Never been diagnosed
 Panic Disorder (with or without Agoraphobia)
 Agoraphobia without history of Panic Disorder
 Social Phobia
 Obsessive-Compulsive Disorder (OCD)
 Posttraumatic Stress Disorder (PTSD)
 Acute Stress Disorder
 Generalized Anxiety Disorder
 Anxiety Disorder Due to a Medical Condition
 Anxiety Disorder Not Otherwise Specified (NOS)
 Other Please Specify _____

APPENDIX F

Debriefing

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(785) 628-4405

Debriefing

Test anxiety affects many students during their academic career. Test anxiety occurs when the student feels apprehension when taking a test. This apprehension can present itself in the form of behavioral symptoms (begin to feel fidgety, become irritable), physiological symptoms, (rapid heartbeat, flushing of the skin), and cognitive symptoms (problems with concentration, perfectionism). Mindfulness is when an individual is able to become fully in the moment and not pass judgment or distort the experience. This allows the individual to become completely aware of what is going on around them. Once the individual becomes aware they are better able to handle stressful situations that arise.

The purpose of this research was to find the relationship between test anxiety and mindfulness. The researchers believe that individuals with high levels of test anxiety will in turn have low scores on the mindfulness scores. The hypothesis states there will be a negative correlation between test anxiety and mindfulness. Also, we hypothesize there will be a positive correlation between mindfulness and thought suppression scores.

At the conclusion of this semester, a written summary of this study will be posted on the FHSU Psychology Department's webpage (<http://www.fhsu.edu/psych/>) under "research." If you have any questions about this

research project, you may contact the faculty researcher, Dr. Leo Herrman at (785) 628-4195 or student researcher Jamey Brannon at Jamey@testanxietystudy.com.

If after participating in this research you are feeling distressed in any manner, the following resources can offer you professional support and counseling. If you do not live near Hays, we encourage you to call your local mental health center.

Fort Hays State University Kelly Center (free of charge to students)
(785) 628-4401

High Plains Mental Health Center (Hays, KS)
(785) 628-2871

If you have any questions regarding your rights as a research participant, you may contact Dr. Janett Naylor, chair of the Fort Hays State University Dept. of Psychology Ethics Committee (785-628-2871).

APPENDIX G

Test Anxiety Inventory Approval

January 15, 2010

Jamey Brannon, Graduate Student
Fort Hays State University, KS

Dear Ms. Brannon:

In response to your recent request, I am very pleased to give you permission to reproduce and use the Test Anxiety Inventory (TAI) in your Masters Thesis research, entitled:

Mindfulness and test anxiety in college students.

It is my understanding that your research will be carried out at:

Fort Hays State University, Hays, KS

This permission is contingent on your agreement to share your findings with us when your research is completed. I look forward to receiving further information about your procedures and the results of your study as this information becomes available.

Best wishes on your research project.

Sincerely,

Charles D. Spielberger, Ph.D., ABPP
Distinguished Research Professor of Psychology
Director, Center for Research in Behavioral
Medicine and Health Psychology
Phone (813) 974-2342; E-mail: spielber@cas.usf.edu

APPENDIX H

Five Facet Mindfulness Questionnaire Approval

Baer, Ruth <rbaer@email.uky.edu> Thu, Oct 1, 2009 at 8:30 AM
To: Jamey Brannon <jmybrnn@gmail.com>

Dear Jamey,

You're welcome to use the FFMQ. I've attached some materials and papers in case you don't have them. Good luck with your project!

Ruth

Ruth A. Baer, PhD
Professor of Psychology
Department of Psychology
115 Kastle Hall
University of Kentucky
Lexington, KY 40506-0044
phone: 859-257-6841
fax: 859-323-1979
email: rbaer@email.uky.edu

APPENDIX I

White Bear Suppression Inventory Approval

Dan Wegner <wegner@wjh.harvard.edu> Wed, Sep 30, 2009 at 4:38 PM

To: Jamey Brannon <jmybrnn@gmail.com>

You have my permission to use the WBSI. If you write up your study, send me a copy?
DMW

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Daniel M. Wegner
Department of Psychology
Harvard University
33 Kirkland St., WJH 1470
Cambridge, MA 02138
Ph: (617) 496-2596 Fax: (617) 496-2595
Email: wegner@wjh.harvard.edu
Website: <http://www.wjh.harvard.edu/~wegner/>

Jamey Brannon

419 W 3rd st Apt. A
 Larned, KS, 67550
 Home Phone: (785) 639-1008
 jmybrnn@gmail.com

Education

Expected December 2010 Master of Science Thesis Subject: Test Anxiety and Mindfulness in College Students	Fort Hays State University, Hays Major: Clinical Psychology
May 2005 Bachelor of Arts	University of Kansas, Lawrence Major: Psychology
February 2001 Associate of Arts	Brown Mackie College, Salina Major: Accounting

Training

September 2007 Mindfulness: Enhance Your Therapeutic Skills with Powerful Mind-Body Awareness Techniques	Cross Country Education, Wichita
May 2006 Leaderville Series	Fort Hays State University, Hays
March 2006 Self-Mutilation Behavior in Youth and Adults: Causes, Treatment and Prevention	Cross Country Education, Wichita
July 2004 Programming in BASIC	Education Direct
March 2002 PC Repair	Education Direct

Honors and Awards

May 2005 The Ronald E McNair Challenger Award for diligence and commitment to research and learning.	University of Kansas, Lawrence
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Association Memberships

2007-2008
National Association of Cognitive-Behavioral Therapists Student Affiliate

2006 – 2007
American Psychology Association Student Affiliate
American Psychology Association of Graduate Students

2005 – 2006
Fort Hays State University
Graduate Association of Students of Psychology

Research Experience

June 2004 – July 2004
University of Kansas
Created and completed research on “The Difference in Perception of Values Among College Students” working with Dr. Karpowitz.

Teaching experience

Graduate Teaching Experience

- Fall 2005, Spring 2006 Child Psychology
- Fall 2005, Spring 2006 Social Psychology
- Fall 2005, Spring 2006 Experimental Lab
- Fall 2006, Spring 2007 Abnormal Psychology
- Fall 2006 Personality

July 2006
Fort Hays State University, Hays
Taught about adult Attention Deficit Disorder to college students.

June 2003
University of Kansas, Lawrence
Taught internet safety to Upward Bound students.

Testing experience

Wechsler Adult Intelligence Scale - 3rd Edition (WAIS-III)
Wechsler Memory Scale - 3rd Edition (WMS-III)
Wechsler Intelligence Scale for Children - 3rd Edition (WISC-III)
Woodcock-Johnson Tests of Achievement – 3rd Edition (WJ-III)
Minnesota Multiphasic Personality Inventory – 2nd Edition (MMPI-2)
Millon Clinical Multiaxial Inventory – 3rd Edition (MCMI-III)
Personality Assessment Inventory (PAI)

Volunteer experience

November 2006
Hays, KS
Association for Psychological and Educational Research in Kansas
Duties included: Keeping time and helping the presenter.

August 2006 – December 2006 Hays, KS
 Mentoring International High School Students From Spain and Brazil
 Duties included: Helping with homework, answering questions about American life, and taking them to school and other activities as needed.

September 2005 Hays, KS
 National Alliance on Mental Illness Kansas Conference
 Duties included: Keeping time and helping the presenter.

August 2000 – June 2001 Salina, KS
 Phone Counselor, The Crisis Hotline
 Duties included: Answering the phone, giving referrals, suicide prevention.

Presentations

Brannon, J. (2004) "The Difference in Perception of Values Among College Students" Heartland Conference, September, Kansas City, Missouri.

Achievements

2007-2008 President of Graduate Association of Students of Psychology

2006 – 2007 Vice President of Graduate Association of Students of Psychology

2003 – 2005 McNair Scholar, University of Kansas

Skills

- Working knowledge of SPSS.
- Proficient in Microsoft Excel, PowerPoint, Word, Outlook, FrontPage, Access and Macromedia Dreamweaver.
- Can program in HTML, PHP, Visual Basic and C++.
- Working knowledge of UNIX, Linux and Windows operating systems and servers.

Certifications

2009 – Present American Red Cross First Aid
 2009 – Present American Red Cross CPR/AED for the Professional
 2010 American Red Cross Lifeguard

Internship

August 2008 – December 2008 Larned, KS
 Practicum Student, Larned State Hospital
 Duties included: Meeting with adult and youth patients for initial assessments and individual therapy, co-facilitate groups, complete testing, and writing reports.

Employment

- Oct 2009 – Present Larned, KS
 Activity Therapist I, Larned State Hospital Sexual Predator Treatment Program
 Duties include: Leading recreation sessions for residents to develop social skills, self esteem, and anxiety reduction. Sessions include but are not limited to: social recreation (playing pool, table games, crochet, card games), library (help residents find books of interest), interactive games (using the Wii gaming console to get residents active), pottery, and art classes.
- Feb 2009 – Oct 2009 Larned, KS
 MH/DD Technician, Larned State Hospital Issac Ray
 Duties include: Assist mental health/security patients in daily activities, interact with patients in a therapeutic way, and use de-escalation techniques (MANDT) to help calm patients down when needed.
- April 2006 – Feb 2009 Hays, KS
 Front Desk Clerk, Best Western Vagabond
 Duties include: Checking guests in and out, maintaining computers and network, completing nightly audit.
- April 2006 – Feb 2009 Hays KS
 Front Desk Clerk, Budget Host Villa
 Duties include: Checking guests in and out, maintaining computers and network, completing nightly audit.
- August 2005 – May 2007 Hays, KS
 Graduate Teaching Assistant, Department of Psychology, Fort Hays State University
 Duties include: grading papers and tests, developing assignments and entering grades online.
- March 2002 – August 2005 Lawrence, KS
 Student Operator Level II, Computing Center, University of Kansas,
 Duties included: Monitoring servers, monitored backups of systems, and development and production of a time off request website.