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Reduction of Test Anxiety by Using Mandalas: A Pilot Study

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REDUCTION OF TEST ANXIETY BY USING MANDALAS:
A PILOT STUDY

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ABSTRACT

This study investigated the use of a mandala drawing activity to reduce test anxiety in a small group of fifth grade students. A group of six students both boys and girls from a private North Florida School participated in the 4 week pilot study which met 5 times. The participants were given a pretest survey, the Children’s Test Anxiety Scale (CTAS), to evaluate how often the students experience test anxiety. The survey was given during the first session approximately 2 weeks prior to the initiation of the Florida Comprehensive Assessment Test (FCAT). Three meetings consisted of an introduction to the mandala activity and opportunities for the students to create their own mandalas. One of these meetings allowed the students to create a mandala immediately before the first section of the FCAT was administered. The students completed the CTAS as a posttest during the final meeting. The scores of the post-evaluation were compared to the pre-evaluation scores in reference to the change in test anxiety levels due to the mandala activity. The results show some reduction in levels of test anxiety which when analyzed with a t-test did not show significance. The qualitative data collected through the form of behaviors displayed in the meetings demonstrated an overall improvement experienced during the course of the program. Suggestions for further research and suggestions for art therapy practitioners were discussed.
CHAPTER ONE

INTRODUCTION

There are approximately 32 million elementary school students in the United States (U.S. Census Bureau, 2010). Almost 33% of elementary school students exhibit symptoms of test anxiety (Cizeck & Burg, 2006; Soffer, 2008). Out of 2.5 million students enrolled in Florida School, several thousand are affected by test anxiety in Florida alone. Anxiety in general appears in many different forms. Some students may experience a fast heart beat, inability to focus, shakiness, or mind blankness. The high numbers of students with test anxiety today could be due to the increased importance of testing. The expansion of testing in every level of education and into all aspects of social and vocational enterprise calls for the need to address the test anxiety that is associated with it (Cizek & Burg, 2006).

Society is focused on the benefits of an education. People claim education is the key to a better life, better jobs, and success. Examinations have become a reflection of the quality of education as well as the student’s level of performance. The increased value of tests has not come without repercussions. The lives of students can be significantly affected by their performance on major tests as society places increased importance on testing (Speilberger & Vagg, 1995). In the state of Florida, one of the major assessments for elementary school children is the Florida Comprehensive Assessment Test (FCAT). High test scores or improvement on the FCAT is often rewarded whereas low test scores could result in penalties. Low test scores could be explained by a number of contributing factors such as not studying enough, not understanding the questions, not understanding the information, lack of sleep, or not eating a good breakfast; the list of possible variables goes on and on.

The two main types of testing discussed in reference to this pilot study are standardized testing and traditional or academic testing. Standardized testing is used by numerous states to measure the quality of education and a student’s level of academic performance. In some districts the mean scores reflect on the school and the program (Crocker & Schmitt, 1987). The use of standardized test scores as a reflection of school and teacher performance increased in 2002 due to the No Child Left Behind Act (NCLB). The NCLB was a piece of legislature signed into law early in 2002. The major theme behind this law was “every child can learn” (Florida
The premise of NCLB was to ensure every child has an equal opportunity for quality education (Soffer, 2008). Four basic standards were proposed in NCLB: schools are responsible for results, states are given flexibility in use of federal money, classroom teaching should be based off of scientific research, and parents should be more involved by allowing them to make educated choices about the education of their child (Florida Department of Education, 2005). The NCLB also requires children from grades 3-11 be given standardized tests annually (Florida Department of Education, 2005).

After 2002 the FCAT influenced the teacher, school, and the student by affecting the eligibility for promotion between grade levels. The minimum score for promotion into the next grade is set by individual school districts. Students must score a Level 2 or higher in 3rd grade on the FCAT to be promoted to the next grade. Students in the 9th grade must pass the grade 10 reading assessment in order to graduate. The students receiving lower than level 2 scores are required to be enrolled in and complete remediation during the following year. All students who score below a level 3 on FCAT reading or mathematics are required to be provided with additional diagnostic assessments to determine the nature of the student’s difficulty, the areas of academic need, and strategies for appropriate intervention and instruction as described in the student’s individualized progress monitoring plan.

Schools began focusing on teaching to the test in order to improve test scores. The root of the low test scores problem could be some degree of test anxiety that has been undetected. The negative effects of tests which may appear as test anxiety are often ignored (Gardner, 2010). The effects of test anxiety may not be noticed until their mind goes completely blank during a test (Emery & Krumboltz, 1967).

Test anxiety is one form of anxiety which is particular to performance on various types of Assessment. Although test anxiety is in reference to assessments, the affects, of test anxiety can be experienced before, during, and after the test. Although most people have experienced some level of test anxiety in their lifetime, the feeling typically passes and does not interfere with test-taking abilities. Test anxiety becomes troublesome to an individual when the individual cannot overcome the feelings in order to perform to his or her greatest potential. The pilot study presented focused on test anxiety experienced by a small group of fifth grade students in order to investigate an art therapy intervention program as a potential way to reduce levels of test anxiety.
Purpose of the Study

Each year the importance of the Florida Comprehensive Assessment Test (FCAT) is emphasized to teachers, students, and parents. The FCAT is a standardized test given to students in grades 3-11 once a year (Florida Department of Education, 2005). In addition to testing the achievement of each student, the test is used to compare schools, teachers, and students. The pressure put on administrators to achieve excellence on these tests funnels down to rest on the individual students. The increased pressure may cause them to exhibit anxiety towards the FCAT and/or other academic tests. According to Wren and Benson (2004), there has been a push to increase achievement.

The increase in standardized testing will likely lead to an increase in test anxiety in elementary school children. When achievement test scores are influenced by test anxiety, especially for subgroups of students, the scores will be biased. In this situation, issues about the validity of the score’s interpretation will be raised. (p. 228)

High levels of test anxiety could potentially bias test scores thus jeopardizing assessment validity (Zeidner, 1990). In other words, the anxiety may affect students’ ability to take tests to such extents as to prohibit students from reaching their optimum ability. A test is not an accurate measurement of achievement when a child cannot perform to the height of potential due to anxiety (Wren & Benson, 2004).

The purpose of the pilot study proposed herein is to better understand the usefulness of art therapy as a test-anxiety-reducing technique. A brief art activity, designed to reduce stress and to help school-aged children focus, was assessed using a small group of student participants. A mandala drawing exercise as used in this pilot study pertains to any drawing conducted within a circular form. A more in-depth explanation of mandalas is provided later in the chapter.

Another purpose of this study is to introduce an activity that students could on their own time or that the teacher could administer to help students increase their focus. Students can learn to manage or control the feelings through art. Art as therapy can be helpful for students as a focusing technique and an outlet for creative expression.

Art therapy is used in schools in several ways. Art therapists are hired in schools as “art teachers, special education teachers, school counselors, school psychologists and other titles” (Dolginko, 2008, p. 10). Art therapists take the traditional methods of using words to help children understand their issues to a new level by using art. Art offers the freedom to express
things that would be difficult to express through oral language (Dolginko, 2008). “Developing the ability to communicate their thoughts and feelings will enable children to be healthier and happier and, therefore, support their learning” (Dolginko, 2008, p. 10).

A pilot study conducted in 2010, which identified another area in schools where art therapy has been found to be beneficial which is to help reduce test anxiety (Isis, Bush, Siegel, and Ventura, 2010). The pilot study consisted of a number of departments who worked together to provide funding, treatment, and educational services for four populations who were in need of special education. The students who participated had been labeled difficult to work with by the regular art teacher. The children flourished while participating in the art therapy program. The program not only aided the children in learning about art but it also educated administrators, parents, and teachers about the special interventions and accommodations needed for these populations. The pilot study was granted an additional year to continue the program (Isis et al., 2010).

**Justification**

Art therapy has been found to benefit a variety of areas including “conflicts and problems, develop interpersonal skills, manage behavior, reduce stress, increase self-esteem and self-awareness, and achieve insight” (American Art Therapy Association, 2010). It has been said that as children get older, the interests in education change.

Because of high-stakes testing and the pressure that surrounds it, children are no longer engaged in enriching experiences for the pure joy of learning – experiences whereby they make decisions, explore options, make hypotheses, or problem solve. Extrinsic motivation, in the form of rewards and consequences, has replaced learning for the sheer pleasure of learning and the internal satisfaction that comes from a job well done. (Solley, 2007, p.33)

Art provides a different approach which uses visual representation in conjunction with words to express meaning (Dolginko, 2008). Students are able to approach topics through art which can incorporate joy back into learning.

The No Child Left Behind Act (NCLB) introduced in 2002 promised the possibility of additional state and federal funding granted to schools to reward for the significant improvement of standardized test scores (Isis et al., 2010). Academic testing throughout the school year helps in the preparation for the FCAT as well as being a measure of the students’ achievement.
Administrators began putting more emphasis on test scores and pressuring both teachers and students to prepare for these standardized tests. As a result of the NCLB, teachers are reprimanded and possibly penalized for the students’ low test scores and rewarded for high achievement on the tests (Solley, 2007). The tests are used to display the level of student achievement and areas of improvement with little regard to the child’s personal life or study habits. The increased pressure leads to an increase in test anxiety causing a bias (Zeidner, 1990). Given the importance of the test scores in assessing the effectiveness of teaching under NCLB, any question of bias in the scores due to test anxiety will be equally important to evaluate” (Wren & Benson, 2004, p. 228). Thus far, very little emphasis is placed on educating teachers about test anxiety or how to reduce it which introduces the need for additional research in this area (Gardner, 2010).

There is also a paucity of research available on the use of art therapy or mandala drawing activities in conjunction with test anxiety. One study which used mandala drawing exercises reduction of anxiety was conducted by Curry and Kasser in 2005. The study investigated the use of coloring mandalas to help reduce anxiety in college students. The researchers found when participants colored for 20 minutes on a mandala or a plaid drawing the level of anxiety was significantly lower than when participants colored on a free drawing. Curry and Kasser suggested further research investigate the use of a free drawing mandala to reduce levels of anxiety (2005).

As the importance of testing increases and consequently the level of test anxiety increases, the need for effective test anxiety reduction is necessary. As assessments have been deemed the best way to measure achievement, it is important to investigate ways to reduce the potential anxiety that could be produced from those assessments. Highly anxious people are at a higher risk of co-occurrence of co-morbid disorders.

**Research Question**

Drawing in or creating within a mandala has been identified to advance meditation and healing in ancient cultures (Coar, 2010). Coar conducted a study to investigate the use of creating mandalas to help ease grieving females who experienced the death of a loved one. “By creating their own mandala, the participants had an instrument to facilitate the development of artistic expression” (p. 4). The mandala serves as a catalyst for concentration.
Using the Coar study as a base, the purpose of this short pilot study is to investigate the research question: Will producing mandala drawings reduce symptoms of test anxiety? An art therapy drawing directive was used to investigate reducing test anxiety in group of fifth grade students who had demonstrated physical and emotional symptoms of test anxiety in class. Previous research findings used mandalas to increase focus and relaxation to help reduce general anxiety.

**Definition of Terms**

The following section briefly describes art therapy, test anxiety, and Mandalas, as they are used for the purpose of the study.

**Art Therapy**

Art therapy involves an art therapist facilitating the use of art for the healing qualities art possesses (Burns, 2009). As one expert put it, “Art as therapy is a healing experience” (Coar, 2010, p. 17). Art therapy incorporates the visual arts with psychology to improve the quality of life of individuals.

Art therapy is a mental health profession that uses the creative process of art making to improve and enhance the physical, mental and emotional well-being of individuals of all ages. It is based on the belief that the creative process involved in artistic self-expression helps people to resolve conflicts and problems, develop interpersonal skills, manage behavior, reduce stress, increase self-esteem and self-awareness, and achieve insight. (American Art Therapy Association, 2010)

**Test Anxiety**

Test anxiety is the apprehension and stress that may be displayed in the head and in the body. High levels of test anxiety, as it is used in this paper, refers to people who experience test anxiety most of the time to almost always to the point that it could be hindering their performance.

Test anxiety was measured using the Children’s Test Anxiety Scale (CTAS) (Wren & Benson, 2004). This scale has been proven valid and reliable for children from the third through the sixth grades. The CTAS measures test anxiety as it relates to thoughts, off-task behaviors, and autonomic reactions (Benson & Wren, 2004). Children who experience test anxiety may be easily distracted during an exam, have difficulty understanding instructions, and have difficulty
recalling information pertaining to the test (Zeidner, 1998). The effects of test anxiety usually hinder performance on tests.

**Mandala**

The word “Mandala” comes from the Sanskrit word meaning ‘circle’ (Jung, 1959). Jung was noted as the first psychoanalyst who theorized the mandala for represented aspects of both personal and professional means (Malchiodi, 1999). In several Eastern cultures the Mandala is used in religious rituals. Traditional “Mandalas” used in religious rituals contain four gates with a circle at the center as the “essential object or goal of contemplation” (Jung, 1959, p. 356). Jung described the Mandala ritual being used to assist with concentration by “narrowing down the psychic field of vision and restricting it to the centre” (Jung, 1959, p. 356).

The non-traditional form of the mandala takes the idea of the religious ritual into therapeutic use. Within the realm of art therapy, the mandala generally refers to any art form that is executed within a circular context (Henderson, Mascaro, Rosen, & Skillern, 2007, p. 149). The individual decides how much or how little to draw and color within the circle. The complexity of the mandala absorbs the individual’s attention and maintains it in order to reach the meditative state (Curry & Kasser, 2005). The centering technique can help the child to focus. The roundness of the circle creates a feeling of security and helps relieve the stiffness of any boundaries. Freedom of expression is higher when allowing a child to draw his or her own mandala.

**Brief Overview of the Study**

In this pilot study, both quantitative and qualitative data collection were utilized to answer the research question, “Will producing mandala drawings reduce symptoms of test anxiety?” Participants consisted of a sample of fifth grade students from a charter elementary school in north Florida. The students were referred by the fifth grade math teacher based on the display of physical symptoms that could be caused by high levels of test anxiety. The teacher assessed the need for participation in the program based both physical symptoms and low academic test scores. These students participated in 5 meetings with the researcher spanning 4 weeks. The Children’s Test Anxiety Scale (CTAS) was used as a pre- and posttest measurement of test anxiety symptoms for comparison at the completion of the study. The students learned about mandalas and created their own before using the intervention prior to the FCAT. The data was analyzed using a *t*-test to uncover the effectiveness of the treatment. Not all aspects of test anxiety could be accounted for within the survey. For that reason, the artwork and behaviors
were also documented to identify the impact the program had on the students that might not have appeared through the survey scores.

**Conclusion**

Test anxiety is an apprehension felt before academic performance is evaluated in the form of an assessment. Test anxiety is an issue many children suffer from that is often overlooked. Unidentified test anxiety could be a reason for lower standardized test scores. Art therapy has been noted as a way to help improve the quality of life of individuals. The use of art therapy helps the child to relax and focus. Research shows reducing test anxiety is one art therapy has been found useful within school settings. The current research seeks to answer the research question, “Will producing mandalas reduce symptoms of test anxiety?” It was hypothesized that creating a mandala drawing before a test would decrease test anxiety.
CHAPTER TWO

REVIEW OF LITERATURE

Previous literature states anxiety is one of the most prevalent ailments in the mental health world today (Chambala, 2008). Everyone experiences some form of anxiety during his or her lifetime (Cohen, 2004). In essence, the occurrence of anxiety is common to all people (Curry, 2005). Test anxiety is one type of anxiety, which usually begins in childhood. Some individuals are faced with symptoms of test anxiety only some of the time while other individuals experience test anxiety symptoms with every test. High frequencies of test anxiety could introduce the potential risk of creating test biases. As the number of students with test anxiety increase, the need is created for more studies to investigate methods of test anxiety reduction.

Anxiety

Anxiety is a reaction to apparent threat or danger (Frey & Odle, 2006). “As far as we know, anxiety is a uniquely human experience” (Frey & Odle, 2006, p. 357). Some significant degree of anxious feelings can be attributed to anticipation of future events (Frey & Odle, 2006). If a person is anxious about one area in particular it is often referred to as a phobia. Extreme amounts of anxiety could be a result of an anxiety disorder.

Many types of anxiety disorders are identified in the DSM-IV-TR (American Psychiatric Association, 2000, Diagnostic and Statistical Manual of Mental Disorders). Someone who has Generalized Anxiety Disorder (GAD) experiences anxious feelings which are continual and diffuse (Plotnik, 2005). In order to be diagnosed with GAD using the DSM-IV-TR, a person must have worry or anxious feelings for at least six months that cannot be explained by any other diagnosis (Long, 1995). Anxiety can take a variety of different forms and is sometimes present with one or more disorders. Comorbidities can include depressed mood, lower self confidence, fewer social skills, and other discomforts. Higher levels of anxiety during childhood could potentially develop into a more serious disorder in adulthood. If anxiety is identified early on, the chances of developing other disorders could be reduced (Long, 1995).

GAD is identified in more women than men (DSM-IV-TR). Anxiety has also been identified to be a family trait (DSM-IV-TR). Someone who has high levels of anxiety might have an increased chance of having family members who also suffer from high levels of anxiety.
Many people to seek treatment state anxious feelings since childhood (DSM-IV-TR). Since Lader found "Depression often coexists with anxiety," physicians need to screen for both when symptoms of either are present" (1994, p. 321).

Anxiety is commonly treated with some form of anti-anxiety medication, but it only suppresses physical symptoms (Lader, 1994). The root cause of the disorder is unaffected by the medication. Anxiety that goes untreated can develop into a more serious disorder down the road. Other types of treatment are needed to help individuals identify triggers for anxiety and learn coping mechanisms to help face symptoms of anxiety.

Test Anxiety

Several types of anxiety have been noted to appear in childhood such as test anxiety and social anxiety. As mentioned in Chapter 1, test anxiety is a form of apprehension focused on performance on academic tests. No two people suffer from test anxiety exactly alike. Some may experience a few of the signs while others experience the majority of symptoms. Signs of test anxiety in the head may include: “mental blank-out, racing thoughts, difficulty concentrating, negative thoughts about: past performance, consequences of failure, how everyone else is doing, and knowing the answers after the test, but not while taking it” (p. 4). Some signs of test anxiety in the body are often marked by “nausea, cramps, faintness, sweating, headache, dry mouth, increased breathing rate, fast heartbeat, and tense muscles” (p. 4). Small amounts of test anxiety could be beneficial during test preparation. Small, manageable amounts of anxiety push the student to spend more time preparing for tests. If signs of test anxiety become apparent, stress levels may be too high.

Test anxiety may be a precursor to other forms of anxiety. Research has shown that test anxiety and performance are significantly related beginning during the 3rd grade (Hembree, 1988). The prevalence of test anxiety drastically increases during grades three through five. High levels of test anxiety reduce the motivation to learn (Hancock, 2001). A student's lack of motivation may lead to behavior problems and an increased chance of dropping out of school.

Although researchers have not identified definite relationships between test anxiety and common demographics, several areas have been determined to be influences such as age, gender, ethnicity, and socioeconomic status. Other common influences include family environment, self-esteem, subject matter, teacher-manifested anxiety, and cross-cultural relationships. Girls typically report higher rates of test anxiety than boys. Elementary and middle school teachers
also report higher numbers of students experiencing test anxiety than teachers of older students (Cizek & Burg, 2006).

Several different assessments have been developed to measure levels of test anxiety. The Test Anxiety Questionnaire (TAQ) designed by Mandler and Sarason in 1952 may have been the first of these scales (Cizek & Burg, 2006). Since the first scale, questionnaires have remained the most common form of measurement for test anxiety. Sarason developed the Test Anxiety Scale (TAS) in 1958 which was developed in relation to the TAQ (Sarason, 1958). Other forms of test anxiety scales have been developed to target different age groups such as the Children’s Test Anxiety Scale by Wren & Benson in 2001 and the Test Anxiety Inventory (TAI) designed by Spielberger in 1977. Overall about two dozen or more measurements for test anxiety have been created to measure levels of test anxiety (Cizek & Burg, 2006).

Wren and Benson developed the Children’s Test Anxiety Scale in 2001 after discovering not many test anxiety assessments were valid and reliable for diverse ethnicities. The assessment was created to measure the thoughts, autonomic reactions, and off-task behaviors in relation to test anxiety. More information about the CTAS, the scale used in this pilot study, is provided in the instrumentation section of Chapter 3.

Some of the best forms of test anxiety reduction remain to be forms of cognitive and behavioral treatments (Cizek & Burg, 2006; Ergene, 2003; Hembree, 1988). Successful reduction techniques incorporate the combination of anxiety reducing components and skill-focused interventions to address the issue (Cizek & Burg, 2006). The reduction of test anxiety may or may not have a significant effect on increasing test scores; however, the reduction of test gain a more accurate view of the student’s true level of achievement (Cizek & Burg, 2006).

Isis et al. (2010) conducted a study working towards integrating art therapy Miami-Dade County Public Schools. One of the areas the researchers found art therapy to be beneficial was in the reduction of test anxiety. Art therapy and relaxation techniques were used to maximize self-confidence in relation to test anxiety. The researchers used several techniques to help students to reduce fears. A visual “to do list” of test-taking strategies helped students to reinforce what they learned. The list also helped students that suffer from “blank outs” upon receiving the test paper. A series of journals that documented the successes of the student were compiled to help increase the confidence of the student.
Art Therapy and Anxiety

Art is one way of helping to identify and reduce feelings of anxiety. “Many art therapists and others have noted that art making can be a relaxing activity, one which can reduce tension and anxiety” (Malchiodi, 1999, p. 35). The creative process of art making is also believed to help release thoughts and emotions which help in letting out and comprehending negative feelings (Malchiodi, 1999). During art therapy treatment, the therapist and client set both long- and short-term goals for the therapy sessions. Art can be instrumental in reaching the goals set for the client.

For the purpose of this study, art therapy will be used in a group setting. Group therapy can be broken down further into subcategories such as small groups, family therapy, or even groups. Groups may not receive individualized treatment or reach the full potential of the therapy session due to the larger size and the lack of security.

Art therapy is a way to increase self-awareness and self-confidence. Art can be a diagnostic tool and a form of treatment for anxiety. Koppitz (1984) identified several objects or characteristics typically drawn by children with anxiety. These characteristics include but are not limited to: lining at the top of the page, shading of the face, shading of the body and/or limbs, shading of the hands and/or neck, legs pressed together, omission of the eyes, clouds, rain, snow, or flocks of birds. DiLeo (1973) also stated that excessive amounts of rain and shading signify anxiety.

In 1972, Burns and Kaufman published information stating folding the paper into segments or compartmentalizing the page in order to place each figure during a kinetic figure drawing is another anxiety identifier. During the same assessment, figures drawn standing with little to no explanation of the action as well as drawings which consist of only stick figures are both found to be defensive mechanisms. Avoidance of the drawing or avoiding completion could be viewed as a defense mechanism connected to underlying feelings of anxiety (Koppitz, 1984). Even though drawings may hold similar characteristics, it is important to remember that each child is “disturbed in his own special way” (DiLeo, 1973, p. 21). Goodenough and Harris (1950) also stated that on no grounds can people claim that children use a universal symbolic language.

By drawing the event that makes him or her feel anxious, the child gives the adult something tangible to work from. DiLeo (1973) stated very clearly that it is important to not read
more into the piece than what is written. By working from a drawing, an adult can help track down the cause for anxious feelings.

Several interventions have been introduced to address anxiety. For example the “squiggle game” created by D. W. Winnicott, as cited by DiLeo in 1973, is a useful directive to help break the walls of anxiety during a session. The game consists of the therapist and client taking turns drawing squiggles. After a time of drawing, the client may see a reference point or area that reminds him/her of specific objects. The game is a way to tear down some of the boundaries formed to hold back expression. The boundaries are a defense mechanism to protect the child from releasing potentially harmful information. Through the activity, the child begins to trust the game and may even enjoy it, momentarily forgetting reasons for being fearful in the first place. After completing the game, the therapist can use a different directive so that through the process of art, the cause of anxious feelings can be discovered and healing can begin.

Some children may avoid completion of a drawing or starting an art piece. The “squiggle game” is also a way to help children overcome avoidance (Winnicott as sited by DiLeo, 1973). If a child seems to be avoiding a drawing, it may be beneficial to ask if the child is feeling anxious about the drawing. Taking the child to the kinesthetic level through scribbling or pencil chase games are other possible ways to break the ice and boundaries the child has built to protect him/herself (DiLeo, 1973).

McDonough (2008) created a study to see if art therapy could reduce feelings of anxiety in college freshmen who were transitioning into the college life. The students participated in five sessions over the course of five weeks. The directives used to reduce anxiety and other connected emotions were a self portrait collage, a path drawing, a relationship tree, a role mask, and a post card from the future. These techniques, as well as many others, work very successfully during therapy sessions.

The creation of the ancient symbol of the mandala has been found to be another possible way to reduce anxiety (Curry & Kasser, 2005). The same study found that coloring a complex design was just as effective at reducing anxiety as using a mandala.

**Mandalas in Art Therapy Treatment**

The mandala is a technique that has been used in several different types of therapy. Jung hypothesized the mandala or magic circle had the potential to represent the “nuclear atom of the human psyche (Franz, 1964, p. 230). Jung theorized the mandala to represent natural wholeness
The mandala is used in therapy to help “restore a previously existing order” (Franz, 1964, p. 247). The mandala helps give expression and shape to something that has never been created before.

The Family-Centered Circle Drawings developed by Burns (1990) was an assessment based on identifying the concept of internal parents and the connection to the self. The drawings are created in a series of circles or mandalas. The assessment uses the circle to help increase projective material. The assessment helps identify barriers and emotional conflicts (Brooke, 2004).

**The Use of Mandalas to Reduce Anxiety**

Mandalas are most often found in Buddhist iconography. In the Buddhist religion Mandalas have a double meaning as “the holy precinct around the Buddha and as a representation of the cosmos” (Di Leo, 1983, p. 13). Around the universe the circle represents wholeness. Typically the circle is representative of many things. One of the first forms that children will draw is a circle. The circle is seen as a head, the sun, a ball, and many other round objects. The mandala has a soothing and therapeutic effect on the maker (Henderson, 2007).

The mandala form is not limited to a circle drawn on a piece of paper. Many circular forms or motions have similar focusing or relaxing abilities. The term *mandala* is used to refer to any art form carried out in a spherical framework (Henderson, 2007). Examples can include but are not limited to: stirring a pot on the stove in a circular motion, decorating a circular cake or cupcake, and paint or working with other visual art mediums with an underlying circular motion.

Curry and Kasser (2005) conducted a study to compare three types of coloring to identify which method showed the highest reduction in general anxiety levels. The researchers hypothesized the use of the mandala drawing technique would reduce levels of anxiety more than the other two coloring types. The researchers hoped the participants would reach a state of meditation during the coloring activity, which would increase relaxation and reduce anxiety levels. The complexity of the mandala was believed to absorb the individual’s attention to reach a meditation state. The study included 84 participants (55 female, 29 male) from a small liberal arts college. The participants took part in the study in groups of two to seven. All participants in the group worked on the same type of coloring activity. The three types of coloring activities included pre-designed mandalas, a pre-designed plaid design, and a blank sheet of paper for an unstructured drawing. Upon entering the room, the participants completed part of an anxiety
scale to identify their level of anxiety. Following the first anxiety scale, each participant wrote about an experience that made him or her feel the most anxious. After completion, the participants assessed their anxiety again, then proceeded to color for 20 minutes. Finally, they completed the items on the anxiety scale for a third and final time.

The authors found that coloring mandalas and plaid drawings both reduced anxiety without significant differences between the two (Curry & Kasser, 2005). The unstructured drawing did not significantly reduce anxiety. It was concluded that evidence shows coloring mandalas and plaid drawings may reduce anxiety. At the conclusion of the study, it was suggested the creation of a mandala might have different results from coloring a pre-existing mandala (Curry & Kasser, 2005).

Smitheman-Brown & Church (1996) examined the use of mandalas as a centering and focusing mechanism with children who have been diagnosed with Attention-Deficit Disorder or Attention Deficit Hyperactivity Disorder. The results established the use of the mandala technique increased concentration and decreased spontaneous behaviors overtime. Gertelsen (2008) also found the mandala was the only technique the children displayed interrupted participation for 15 minutes. The same directive has the potential to reduce anxiety prior to a test. “Mandala drawing may be an important activity to offer children who are anxious or experiencing stress because it can help to calm them while offering a developmentally appropriate task for self-expression” (Malchiodi, 1999, p. 47).

DeLue (1999) conducted a study to investigate the possible correlation between creating a mandala and reducing physiological effects of anxiety. A group of elementary school students participated in this study. The participants’ skin temperatures and heart rates were monitored during the short mandala creation process. The participants were given 12-15 minutes to create a mandala drawing. The results showed a significant change in physiological effects after completing a mandala drawing exercise. A brief mandala drawing exercise may be a tool children can do to help elevate anxiety and stress by promoting relaxation.

Conclusion

Many researchers have studied the effects of art therapy on anxiety. There has been an increase in research of art therapy and anxiety over the last several years. Low levels of test anxiety can be useful for test achievement, but high degrees could result in harmful effects for the student and biased test scores for education systems. Many students suffer from debilitating
levels of test anxiety that go untreated. The current study focused on exploring a technique that could be used to help in school settings to reduce test anxiety. The next section describes the participants, procedure, and analysis for the current study.
CHAPTER THREE

METHOD

The proposed study was conducted with fifth grade students who were identified as displaying test anxiety characteristics. This pilot study investigated the research question, “Will producing mandalas reduce symptoms of test anxiety?” Based off of previous research, the mandala drawing has been shown to work as a focusing technique as well as a relaxation technique.

Research Design

This pilot study used a one group pretest-posttest design with qualitative features. The group was given the Children’s Test Anxiety Scale (Wren & Benson, 2004) to assess the degree of test anxiety. The researcher met with the participants beginning 2 weeks prior to the administration of the Florida Comprehensive Assessment Test. The program consisted of 5 meetings spanning 4 weeks (Appendix D). The meetings were divided into a pretest CTAS meeting, two mandala intervention meetings, a meeting to use the mandala activity prior to the FCAT, and finally a meeting to administer the posttest evaluation of the CTAS with debriefing. The procedure section elaborates on each individual meeting in greater depth.

Participants

In this study, a group of 6 fifth grade elementary students from a participating charter school in north Florida were selected by the math teacher. The students were selected based upon display of test anxiety symptoms and low test scores. Participants were both male (1) and female (5) students between the ages of nine and twelve. All of the participants were under the age of 18; therefore, both an informed consent from the parents and an assent from each participant were collected prior to beginning the program (Appendices A and B). The participants indicated they are not currently taking any medication for anxiety.
<table>
<thead>
<tr>
<th>Participants</th>
<th>Gender</th>
<th>Age (Years)</th>
<th>Grade Level</th>
<th>Reason for Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>“G”</td>
<td>Male</td>
<td>11</td>
<td>5</td>
<td>Test anxious behaviors</td>
</tr>
<tr>
<td>“J”</td>
<td>Female</td>
<td>Unspecified</td>
<td>5</td>
<td>Test anxious behaviors</td>
</tr>
<tr>
<td>“E”</td>
<td>Female</td>
<td>9</td>
<td>5</td>
<td>Specialized assistance with tests</td>
</tr>
<tr>
<td>“BA”</td>
<td>Female</td>
<td>10</td>
<td>5</td>
<td>Specialized assistance with tests</td>
</tr>
<tr>
<td>“B”</td>
<td>Female</td>
<td>10</td>
<td>5</td>
<td>Low test scores</td>
</tr>
<tr>
<td>“I”</td>
<td>Female</td>
<td>12</td>
<td>5</td>
<td>Low test scores</td>
</tr>
</tbody>
</table>

Instrumentation

The major instrument used in this pilot study was the Children’s Test Anxiety Scale (CTAS) created by Wren and Benson (2004). The assessment is a self-rating scale for children. The scale is valid for children from the third through the sixth grades and approximately ages 8 through 12. The scale measures three related elements: thoughts, off task behaviors, and autonomic reactions in order to assess the level of test anxiety the child is experiencing. The original 50-item assessment was reviewed by a panel of 9 teachers as well as administered to a group of 230 elementary students in the third, fourth, fifth, and sixth grades. The correlations of the 50 item assessment ranged from 0.22 to 0.71 within their subscales. The subsamples consisted of gender, race, and grade level. The items which received a correlation below 0.20 were identified and removed based upon complicated wording and irrelevance. The 50-item assessment was thus condensed to 30 statements. Subsequently the reliability for the assessment was 0.92. The subscales were rated at “0.85 for Autonomic Reactions, 0.78 for Off-Task Behaviors, and 0.89 for the Thoughts subscale” (Wren & Benson, 2004, p. 233).

To avoid unnecessarily amplifying the participant’s apprehension towards tests, the students were informed the survey would be used to help the researcher get to know the students attitudes towards tests. The students needed to understand that the self-assessment was not an academic test in which they could be penalized for wrong answers. The following example is taken from Sarason, et al.,(1958) when conducting a study to test the reliability of the Test Anxiety Scale:
We are not giving you a test. When the teacher gives you a test, there are right and wrong answers. We are going to ask you questions about how you feel and what you think but there are no right or wrong answers. When we ask you a question, think about it and then mark which answer matches your feelings best. It does not make any difference what anybody else does. Remember, there are no right or wrong answers. We want to know what you think and feel. Try to be as honest as possible. (p. 106)

The students were asked to be as honest as possible with the understanding there are no right or wrong answers on the survey.

The qualitative data was gathered from the interactions and behaviors demonstrated in each meeting. The participants created mandala drawings during four of the five meetings. The mandalas were reviewed for similar themes, media choice, and overall drawing style. The comments made during the discussion time were also documented in the researcher’s notes. The qualitative data collected displayed behavioral and attitude changes which were not measured by the Children’s Test Anxiety Scale.

**Procedures**

The math teacher selected the students based upon the physical symptoms of test anxiety presented within the classroom as well as students who have a history of receiving low test scores. A packet of information about the study was sent home for the parents of these students to review. The contents of the packet included: a letter of explanation, informed consent, letter of assent for minors, and a demographics page. The letter explained the program and outlined number of times the child would be seen, along with, providing a definition of the mandala circle. The informed consent explained that by signing the form the parent gave permission for his or her child to participate as well as photographs of the participant’s artwork to be taken (Appendix A). Also, a brief demographics page asked for the child’s age, primary language, and if the child has any history of anxiety and/or being medicated for anxiety (Appendix B). Once the parent provided consent for his or her child to participate in the study, the student was asked to participate. If the answer was yes, he or she signed an assent form agreeing to participate in the program and to having artwork documented by photograph.

The students met with the researcher for a five meeting program over a 4 week period. Each session lasted between 20-25 minutes. The meetings began 2 weeks prior to the FCAT. The
Children’s Test Anxiety Scale was administered to the participants during the first meeting. During the second and third meetings, the researcher introduced the participants to the mandala drawing activity. The participants learned about mandalas and created their own mandala drawings. The mandala drawing activity was used in the fourth meeting prior to the administration of the FCAT. The last meeting was used to reassess the attitudes toward test anxiety using the CTAS. The meeting concluded with a debriefing and return of artwork created during the program. The results from the second assessment were compared to the pretest scores for significant changes.

All participants were given an 8.5” x 11” white piece of paper during each mandala drawing activity. Throughout the study, the size of the paper and medium choices were held constant. The students chose between markers, coloring pencils, and crayons to complete the mandala drawings. After choosing a medium, the students were asked to draw a circle then fill in the circle with as much or as little as they chose. All students were informed there is no right or wrong way to color the mandala. They were given 10-15 minutes in which to create the mandala drawing.

**Internal Validity**

Several threats to internal validity existed within the study. Some of the major threats include: subject characteristics and testing the subject. Subject characteristics encompassed students who have had little to no experience with art and the unfamiliarity may have caused anxiety with the art process. To control for this, the art was called a “mandala activity” which left out any terms such as: art project, art test, art quiz, art exercise, art experiential and any other phrases that could potentially cause anxiety. The phrase “test anxiety” was also left out as to not illicit any unnecessary feelings of anxiety.

Two of the participants scored within the normal range of frequency of test anxiety. These students were selected as students who would benefit from the program to help improve ability to focus and increase test scores. They showed a decrease in test anxiety symptoms but were already within the normal range at the beginning of the study.

**External Validity**

The study cannot to be generalized to the general population of fifth graders due to the sample size. Future research with larger sample sizes is needed before information could be generalized to the general population.
Data Analysis

The data was assessed for significant reductions in test anxiety after participating in the mandala activity program. The quantitative data was assessed based on the pre- and posttest CTAS using a t-test. The information from the CTAS was analyzed in terms of overall CTAS score. For the purposes of this study, the score for each item was totaled then divided by the total number of items (30) to provide the mean total for general test anxiety. Each mean score for general test anxiety is the accumulation of scores for each category: thoughts, off-task behaviors, and autonomic reactions.

The literature suggests that graphic indicators in the artwork such as line quality and certain imagery could be evidence of anxiety. For the purposes of this study, each mandala was reviewed for media usage, drawing style, and common themes. These features were documented in the form of meeting notes along with notable behaviors and statements from participants. All data was evaluated for similar terms and concepts. The participants’ verbal statements were paraphrased in the researcher’s notes with the exception of when a direct quote is the only way to preserve the meaning of the comment. After collection and examination, the data was compared to the CTAS scores. The use of meeting notes was beneficial to this study as a way to document change throughout the study that may not be evident in the pre- and posttest evaluations of the CTAS.

Conclusion

In the current pilot study, a short-term intervention using mandala drawings to alleviate test anxiety was assessed. The CTAS, a brief self-rate test to measure the levels of test anxiety was used to analyze for significant changes. The data collected did not show significant changes in CTAS score but changes were noted through the artwork and behaviors. The following chapters discuss the results of the study in depth and provide suggestions for future research to further investigate the relationship between art therapy and test anxiety.
CHAPTER FOUR

RESULTS

In the completed pilot study, a brief art therapy program using mandala drawings was developed to reduce the symptoms of test anxiety in fifth grade students. Students completed mandala drawings prior to taking the Florida Comprehensive Assessment Test (FCAT), a test measuring academic performance in the public school system. The participants, six elementary school students, met with the researcher two weeks prior to the FCAT. During the two week period, involving five meetings, students were introduced and familiarized with the mandala drawing activity for use during the morning of the FCAT. Both quantitative and qualitative data was collected. The quantitative data was collected in the form of an anxiety inventory for children given as a pretest and posttest. The qualitative data was collected in the form of the mandala drawings and researcher observation notes from each meeting.

The Children’s Test Anxiety Scale (CTAS) was used to measure test anxiety levels within the group of selected students. The CTAS was administered to gather information about participant attitudes toward tests during the initial meeting. The scale measured the levels of test anxiety present through three correlated components: thoughts, off task behaviors, and autonomic reactions. The CTAS was administered to the subjects as a posttest the week following the FCAT. The pretest and posttest scores were evaluated for changes to identify the effects of the brief mandala drawing intervention.

Quantitative Results

The subjects were six fifth grade students selected by their math teacher based upon physical symptoms of test anxiety displayed within the classroom. All six participants were present for the CTAS pretest, which was administered during the initial meeting with the participants. Students were provided additional instruction on how to complete the scale. Instructions included reading each statement carefully and choosing which answer best described how they feel about tests. Students were instructed to respond to each statement.

Students had difficulty in completing the CTAS pretest. Some of the participants did not understand the statements and instructions on the scale. As a result, participants asked questions for clarification. A few of the participants misunderstood the instructions and answered only the
first statement in each section, rather than responding to each individual statement. Each student omitted at least one statement which was not scored.

The posttest was administered the week following the FCAT. The participants were given the scale to compare attitudes toward tests from the start of the program to the end of the program. The researcher read the directions of the posttest out loud before the participants began the posttest. The participants did not ask questions or display signs of difficulty with the posttest. The group also responded to each statement on the posttest. The improvement on completing the CTAS a second time could be indication of reduced anxiety.

The pre and posttest were scored on a four point Likert type scale. Scores represented how often test anxiety was experienced by students. Categories included: “almost never, some of the time, most of the time, and almost always.” Almost never was indicated by a score of 1.0 which was the lowest possible mean score on the CTAS. A 2.0 was indicative of experiencing test anxiety, “some of the time.” A score of 3.0 indicated evidence of test anxiety, “most of the time.” The highest score was a 4.0 which indicated the highest frequency of test anxiety symptoms the CTAS can measure. For example, an individual with a mean score of 3.6 experienced test anxiety “most of the time” to “almost always.” Mean scores were calculated for students individually (see Table 2), and then used to calculate the mean scores on the pretest and the posttest for the entire group (see Table 3).

The means presented in Table 2 provide the mean level of test anxiety found in individual students and were calculated by the sum of all statements divided by the total number of statements (30). In Table 3 the total means and standard deviations for the pre- and posttest evaluations of the CTAS are reported (see Table 3). The information shows a slight reduction in overall test anxiety between the two tests.

### Table 2. CTAS Pretest and Posttest Mean Scores for General Test Anxiety

<table>
<thead>
<tr>
<th></th>
<th>“G”</th>
<th>“J”</th>
<th>“E”</th>
<th>“BA”</th>
<th>“B”</th>
<th>“Í”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>2.93</td>
<td>1.47</td>
<td>3.03</td>
<td>1.7</td>
<td>2.07</td>
<td>1.53</td>
</tr>
<tr>
<td>Posttest</td>
<td>2.93</td>
<td>1.33</td>
<td>2.57</td>
<td>2.07</td>
<td>1.27</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Table 3. Descriptive Statistics for the Children’s Test Anxiety Scale Pretest and Posttest

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>2.12</td>
<td>0.698</td>
<td>6</td>
</tr>
<tr>
<td>Posttest</td>
<td>1.93</td>
<td>0.708</td>
<td>6</td>
</tr>
</tbody>
</table>

The mean score on the pretest was higher than the mean score of the posttest, $M(1)=2.12$, $M(2)=1.93$ (see Table 3). A decrease in mean scores from the pretest to posttest indicates that anxiety levels decreased in the students after intervention. There were reduced mean scores for five out of the six participants (see Figure 1). However, the difference between pretest and posttest was not statistically significant, $t(5)=0.290$, $p<0.01=4.77$.

Figure 1. CTAS Pretest and Posttest Mean Scores for Generalized Test Anxiety
Note: 1.0 = Almost Never; 4.0= Almost Always
“BA” displayed an increase in test anxiety symptoms as evidenced by CTAS scores. Several possible reasons could explain her increase in test anxiety including She had difficulty remaining quiet during the drawing time in each meeting. She spoke with another participant across the table in nearly every meeting. She often had to be verbally reminded to wait to speak during the discussion instead of during the drawing time. She displayed a decreased ability to focus which could result in a slower starting time on the directives. She spent time looking at the other members seated around her before starting on her own drawings or tests. BA was also part of a special program to provide assistance on tests. The group needed extra time and explanations of questions. The participation in this group may have changed the amount of test anxiety experienced. BA may have needed extra drawing time on the mandala to be able to fully focus and get into the drawing process. In many of the sessions, BA spent the majority of the drawing time distracted thus hurried to finish drawings. The behaviors BA exhibited resembled the off-task behaviors individuals with test anxiety could demonstrate. More information is provided about BA’s behaviors in the Qualitative Section.

Summary

The results display a slight decrease in overall CTAS means for pretest and posttest when looking at the group of students as a whole. On the pretest, all of the individual participants scored between the ranges of “almost never” and “most of the time” for their level of test anxiety. When looking at mean scores of individual students, it was found that four out of six participants decreased in levels of test anxiety symptoms. One individual showed an increase in test anxiety symptoms. Another individual displayed no change in test anxiety symptoms.

Qualitative Data

Qualitative data consisted of behaviors displayed in the meetings and observations from the mandala drawings. The events of each meeting have been presented in order to provide a better understanding of the behaviors and the interactions within the context of each meeting. The participants’ questions and attitudes changed during the course of the program. The attitudes, behaviors, and comments of students are briefly described, along with changes found in mandalas across the course of the study. Mandalas are presented in terms of similarities among mandalas and the progress made. A summary was provided to discuss overall patterns of behaviors and changes noted throughout the study.
Meeting 1

The initial introductions between the participants and the researcher took place in the first scheduled meeting. The participants were assessed for the first time with the Children’s Test Anxiety Scale (CTAS) as a pretest. Students participating in the study had a letter sent home to their parents discussing the expectations for the study. In the first meeting, the letter sent home was discussed with participants in order to make sure participants understood the program expectations and to answer any questions regarding participation. After completing the CTAS, the researcher introduced the term “mandala” by explaining the word mandala means “circle.” The participants were told they would be able to draw their own mandalas during the second session. The remainder of the meeting consisted of discussing events which would occur in the second session and providing the meeting times for each following meeting. A brief introduction of the participants and describes the significant events of the first meeting.

Pretest. “G,” an 11 year old boy, entered the meeting talkative. He displayed interest in speaking with the group members but frequently talked at the same time as other participants. He received a mean score of 2.93 for total level of test anxiety on the pretest of the CTAS. The score indicated he had test anxiety “most of the time.” He mentioned the fact that many of the statements on the CTAS described his attitude towards tests. He displayed some resistance to the researcher by calling the researcher “Miss teacher” instead of request to call her by her first name, instead he repeatedly called her “Miss Teacher.” The principal interrupted the session to reinforce the need to respect a guest at the school. “G’s” behavior changed after the interaction with the principal. He became quiet and more willing to engage in conversation with the researcher. “G” created a drawing on the back of his test papers. He did not wish to show the drawing to the group so he scribbled over the drawing before handing it in.

“J,” a female participant whose age was unspecified, received a mean score of 1.47 on the CTAS pretest, which indicated test anxiety symptoms were evidenced “some of the time” to “almost never.” The participant worked quietly on the CTAS survey with very little disruption. She displayed the ability to focus on the test despite distractions.

“E,” a 9 year old girl, received a mean score of 3.03 on the CTAS pretest, which indicated test anxiety symptoms were experienced “most of the time” by the student. She marked the first question under each section skipping the remainder of the questions. The researcher discussed the directions with her, encouraging her to read each question in each section. The
participant complied with the instructions by going back through the survey to answer the statements. The participant created a drawing on the back of the test which she did not want to share with the group or the researcher. E told the researcher not to look at the back of her test before turning in the test. The participant later discussed the image with the group indicating she had drawn hearts with “I love…” statements for each of her family members.

“BA,” a 10 year old girl, received a 1.7 mean score on the CTAS pretest, which indicated the participant experienced test anxiety “some of the time” to “almost never.” The participant was the last member of the group to complete the test. She had to be reminded to be quiet and focus on her own paper multiple times. BA participated in a program for students who have difficulty with testing in order to receive additional assistance. The group for testing assistance provided students with as much time to finish the FCAT as needed.

“B,” a 10 year old girl, received a mean score of 2.07 on the CTAS pretest, which meant symptoms of test anxiety were evidenced “most of the time” to “some of the time.” The participant was one of the first members to complete the pretest. The participant worked quietly and did not need redirection.

“I,” a 12 year old girl who had difficulty with low test scores in classes, received the mean score of 1.53 on the CTAS pretest, which means the participant had experienced test anxiety “some of the time” to “almost never.” The participant expressed that many feelings described in the CTAS were true for her only after taking a test. She did not feel the physical symptoms of test anxiety before or during the test as much as she did afterwards. The participant was quiet and appeared focused while taking the CTAS.

Other Significant Events. The study took place in the school conference room located adjacent to the principal’s office and the main office. The principal used the conference room to reach the main office. Frequent traffic passed through the room. “G” shut the door to eliminate the background noise and outside distractions.

The participants were excited about the chairs which could change height, roll, and spin. The students frequently changed the height of the chairs during the first session. The participants also were fascinated with the unique pencils provided to take the CTAS. The pencils changed colors with the heat from their hands. The children were excited to be in this different room with new objects to explore. Another possible explanation could be off-task behaviors demonstrated due to test anxiety.
**Meeting 1 Analysis.** Overall, the meeting was a learning experience. The participants displayed energy through the repetitive height change and displayed interest in the features of the room. The researcher sat with the group members at the table which led to increased volume of talking and talking over one another. The researcher noticed a difference in talking behaviors when walking around the room versus sitting with the group. The group members talked less when the researcher walked around the room. The act of walking around the room may have established the researcher as “in charge” of the meeting by taking a more authoritative stance. The participants also tried to mix up their names to confuse the researcher which was quickly abandoned. The events of the meeting for example, the names mix-up, adjusting chairs, drawing images which they didn’t want to show, and talking over one another could have been a demonstration of elevated anxiety within the group. The participants had never met the researcher, the environment was new, and the individuals were asked to take the CTAS.

**Meeting 2**

The second meeting was designated as the initiation of the mandala drawing activities. A brief lesson was used to introduce the mandala drawing activity. The participants were asked to list circular objects they see throughout their day. The students then talked about creating a drawing within a circle. The images from the book *Creating Mandalas* was shown to provide examples of mandalas and how different they can be (Fincher, 1991). Then, the participants were asked to create a mandala as large as would fit on the 8.5” x 11” white paper. The students were instructed to decide how much or how little to draw within each mandala. The participants chose between markers, coloring pencils, and crayons to color within the mandala. The media choices, common themes, and drawing styles were discussed as they pertain to the drawings by each participant.

At the beginning of the session, the participants were interested in the drawing and asked when the art-making would take place. The students were distracted by the ability to change the height of their chairs. The students immediately began adjusting the height of the chairs upon sitting down. The group was given one minute to adjust the height then instructed not to adjust the height during the session. The students had difficulty remaining quiet during the drawing time. The overall energy level was high in the room as demonstrated by the higher level of distractibility and excitement over the art and the chairs. The students, participants I, G, E, and
BA needed frequent reminders to hold comments until the designated discussion time. Participants G and I worked quickly to finish their mandalas before the end of the drawing time.

**Mandala Drawings.** G asked if he could use the book, *Creating Mandalas,* to draw his first mandala (Fincher, 1991). He also asked if everyone had to draw a mandala. The researcher asked him to create his own mandala without using the book. The participant drew a sun with sunglasses and multiple layers of rays within the circle he created. (see Figure 2). The sun symbol is often seen as resenting energy, light, heat and life (Chevalier & Gheerbrant, 1996). The rays of the sun could represent the spiritual influences the earth receives (Chevalier & Gheerbrant, 1996). J was absent from the meeting.

E created the image of two crosses placed at opposite sides of the mandala. The sun’s rays shine down on the scene with one cloud in the sky (see Figure 2). The rays may display the heat radiating down on the Earth. Several symbols appear in this drawing: the cross, the sun, and the red base. The red base resembled fire which could represent a threat to the two crosses. The most common symbolic meaning for the cross has its roots in religion. The cross represents the life of Christ on Earth and typically denotes holiness or holy ground (Chevalier & Gheerbrant, 1996). The two crosses depicted on red base could be related to the death of Christ or of sacrifice. The image could represent the participant’s feelings of sacrificing talking until the discussion.

BA spent over half of the drawing time looking around the room before starting to draw on her paper. The delayed start could have been from the anxiety of a white sheet of paper in front of her. The participant began to draw but kept her drawing mostly covered from the other participants until the discussion time. The mandala she created consisted of a personified flower with googly eyes, an open mouth, and appendages (see Figure 2). The participant’s image displayed integrated parts and identifiable imagery. The image also included the image of the sun. The participant hid the drawing from the rest of the group until her turn to share the drawing. BA and I decided to reveal their drawings at the same time. Each counted to 3 then BA turned her drawing over while I waited.

B created an island at the left of her mandala. A palm tree sat at the edge of the island. Water surrounded the island. A personified sun appeared above the island. The participant discussed the idea of having a beach party (see Figure 2). B appeared confident and excited to show her drawing of the island beach party. The theme of energy echoed the energy displayed in
her description of the piece. The water which took up the majority to the mandala space could also stand for the source of life. Water is symbolic for the endless possibilities (Chevalier & Gheerbrant, 1996). B may have been feeling more confident with the CTAS over and feeling comfortable with the new format of the meetings thus feeling like the mandala offered endless possibilities for images to create.

Participant I created a personified cloud in the center of her mandala with a blue background. She told the group during the discussion she had meant to draw a hat on the cloud but had forgotten as she hurried to finish during the time allowed. She waited to be the last group member to reveal her drawing by tricking “BA” to reveal her drawing first.

Toward the conclusion of the meeting, “BA” asked what would happen to the questions she left blank on the FCAT. The researcher responded that questions specifically regarding the FCAT should be directed to her teacher. The participants held a brief discussion about how much time was to be allowed for the FCAT and what would happen if they ran out of time. Several participants indicated they were allotted however much time would be needed for them to finish so time was not an issue.

Meeting 2 Analysis. The meeting established the drawings styles to include the use of rich colors and rich detailed objects. A common theme of the sky was noted in all of the drawings. Each one included elements such as the sun. The sun is symbolic of energy which could be representative of nervous energy or anxiety. The rising anxiety about the FCAT as demonstrated through the increasing questions about the FCAT. Some of the questions were asked during the drawing time which could have affecting the emotions emerging in the drawings. Clouds also appeared in several of the drawings. Images of the sky could be symbolic for groundlessness. Four of the drawings displayed personified images of inanimate objects. The drawings displayed an overall energy and positive attitude during the meeting which was evidenced by the symbolism and the overall themes. For many of the individuals, this was their first drawing. The participants may have felt anxious about showing their drawings to the researcher. Anxiety appeared lowered at the end of the session during the discussion time. The participants enjoyed talking about their drawings. The participants displayed a more relaxed body language and smiled while discussing the images.
Figure 2: Mandalas created during the second meeting. Top row (from left to right): “G’s” Mandala; “J” was absent; “E’s” Mandala. Bottom Row (from left to right): “BA’s” Mandala; “B’s” Mandala; and “I’s” Mandala.
Meeting 3

The third meeting was held as a practice opportunity for the participants to continue to gain familiarity with mandala drawings. The participants were instructed to decide on how big to make the mandala based upon the amount of time allowed, twenty minutes, and whether they could finish the drawing in the time allowed. The participants had a difficult time settling down into the session. The participants again needed time to change the height of their chairs before starting the meeting. One individual asked if the participants could create any kind of drawing they wanted. The individuals were instructed to draw as much or as little within the circle as he or she would like. The participants were told that drawings could be finished after the program ended if they did not finish.

Mandala Drawings. G created a drawing of a “cheeseburger” during the third meeting. He indicated he was hungry so he created the food he was thinking about. The image consisted of a thick jagged line to form the edges of the “meat” next to the “yellow cheese” which resembled a mouth (see Figure 3). The jagged edges across the middle create a threatening form that looks like it is coming towards the viewer. The viewer could have been representing the increasing level of anxiety as the FCAT drew closer. During the discussion, G asked J to rotate her image. He projected his own interpretation on the image by explaining he saw the black funnel representing a tornado in the center of the image. The symbol of a tornado is related to that of a hurricane which represents revolt or turmoil (Chavelier & Gheerbrant, 1996). The tornado and the potentially threatening form in his own drawing could demonstrate the inner turmoil experienced as the test drew near.

J created an abstract drawing using multiple colors (see Figure 3). The color black was used to form a strong shape with resemblance to a funnel in the center of the mandala. J did not have anything specific to say about her image during the discussion. She did not know why she had drawn it or what it was. She had been absent from the previous meeting and may have felt everyone had to present drawings during the discussion. On the back of the mandala, she had drawn a second mandala in pencil. This mandala was of a peace sign. As the name suggests, the sign symbolizes peace and calm. The participant could have created the peace to calm the turmoil of the black funnel.

E created a mandala within a mandala. The inner circle contained a purple flower and a sun. The orange sun with yellow and orange rays extended over the flower. The inner circle
rested upon yellow and red rays extended up from yellow and red ground line at the bottom of the mandala (see Figure 3). The sun, as discussed earlier, is the symbol for life, heat, and light (Chevalier & Gheerbrant, 1996). The flower appears to be hit by the rays on both sides thus surrounding the flower. Too much sunlight could be harmful by drying out the flower and causing it to wilt. The inner mandala produces a barrier which could be protecting the flower from the excess sunlight and heat. The image could representative of unknown pressures present or of anxiety. The red fire imagery appeared in this drawing as well as the first mandala.

BA also created a purple flower within her mandala. The words “Pease, Love, Hope, Happiness” were written in between the petals of the flower. A rich border of alternating colors created the edge of the mandala. Borders could be symbolically used to both keep objects in and to keep objects out. The image lacked integration present in the previous drawing as evidenced by the lack of connection between the flower and the border. The lack of integration could be increased anxiety. The image shows the separation of recognizable imagery and abstract border.

B created the image of a clock with butterflies around the edge. The participant drew a face on the clock with “hair” growing around the mouth. The participant discussed her difficulty coming up with something to draw so she looked at the clock to draw one (see Figure 3). She clarified the time marked on the clock was real time. The drawing demonstrated B’s awareness of time and the need to self-regulate time. The embellished clock also demonstrated the need to take a potential threat, such as running out of time on a test, and manipulate it into something fun and less threatening. Participant I was absent from the group during this meeting.

**Meeting 3 Analysis.** The participants displayed an increase of anxiety during the session. The FCAT was less than a week away. The participants still had questions about the FCAT. The anxiety may have been demonstrated through specific features in each participant’s drawing. The main anxiety related symbols noted were the threatening mouth of G’s mandala, the black funnel in J’s drawing, the heat from the suns surrounding the flower in E’s mandala, the border in BA’s drawing and the symbolism of running out of time in B’s drawing. The students were eager to display their images within the group and discuss each one which displayed a reduction of anxiety. All of the participants showed their drawings within the group. The energy continued to display itself within the behaviors and the drawings. The students began to show increased ability to focus during the group meetings as evidenced by the decreased need to change the chair height and having to receive reminders to talk in appropriate times.
Figure 3: Mandalas created during the third meeting. Top row (from left to right): “G’s” Mandala; “J” Mandala; “E’s” Mandala. Bottom Row (from left to right): “BA’s” Mandala; “B’s” Mandala; and “I” was absent from the meeting.

Participant 6 was absent from this meeting.
Meeting 4

The fourth meeting was held the morning the FCAT assessment was administered. The participants came early to participate in the group meeting. The room, in which the meeting was being held, was being prepared for the administration of the FCAT while the participants worked. Snacks for the students were placed in one corner. Two teachers entered the room in the middle of the meeting to collect the snack boxes. The traffic in and out of the room was higher than during the previous sessions. The principal also made frequent trips out of her office. Another teacher had been switched to administer the FCAT in the conference room. This teacher was preparing the room with signs “FCAT in Progress,” “No Cell phones,” and “Quiet Zone.” The teacher was mumbling her checklist of things to do before starting the FCAT. Her supplies for the FCAT sat at the end of the table, forcing one of the participants to move to a new location. Participant I was moved to the corner desk which belonged to an administrator. The students were unable to avoid reminders of the FCAT. The students had difficulty focusing with the frequent interruptions. The overall tension in the room and in the school was also higher that day. The participants sat down without wanting to adjust the height of the chairs. The students also did not have to be frequently reminded to focus on their own drawings or to save comments until the discussion time. The students displayed their anxiety in both behavior and in the artwork created that morning.

Mandala Drawings. G began drawing a small mandala with buildings to form a cityscape within the circle. The size of the circle was several inches smaller than the previous mandala. He drew the image in pencil then scribbled over the drawing before turning he paper over to begin again. The scribbling technique in some circumstances is used as a self-soothing technique. In this case the scribbling could be a self-soothing technique to reduce his anxiety of the FCAT. He decided to continue the food theme started in the previous meeting. The participant created an image of creature to eat the cheese burger. The image is green with an open mouth full of sharp red teeth. The figure had one a black and red arm showing (see Figure 4). The creature resembled “Pac Man” prepared to eat. “Pac Man” is an arcade game character who is constantly eating “dots” on a trail through an obstacle course. He is chased by “ghosts.” The character is in flight mode for most of the time, also known as anxiety. The drawing created could be symbolic of the anxiety felt about the FCAT.
J ran out of time and was unable to complete the drawing during the meeting (Figure 4). The participant also displayed a decreased amount of energy or interest in creating the mandala drawing as displayed through the energy exhibited while making the drawing, and the decreased interest in discussion. At the top of the mandala was the phrase “Crazy Train.” The participant also included a butterfly to the right of the mandala and a heart with horns at the bottom of the mandala. The heart is a traditional symbol for love and good. Horns and a spiked tail are usually representative of evil or rebellion. The participant was primarily quiet during the session. She did not have to be redirected during the drawing time. The two entities are combined to create an image with both poles. The participant did not say much about the image other than she had listened to the song “Crazy Train” on the way to school that morning.

E created a mandala completely filled with rows of color (Figure 4). The participant asked if the group would be taking the FCAT in this room. The participant was very quiet and appeared worried about taking the FCAT in the conference room. E also displayed some kinesthetic characteristics within her drawing which could represent the effects of her test anxiety. Perseveration is the recurring creation of a form which increases comfort levels by self-soothing through the repetitive action.

BA’s mandala also contained of rows of colors (Figure 4). The abstract image was different from her first two drawings. The image completely filled the mandala unlike the previous images which used only used about half of the space. The participant appeared to be exploring techniques such as abstract forms. Again the kinesthetic characteristics in the form of perseveration could display a coping mechanism used to adjust to the test anxiety experienced before the FCAT. BA chose not to discuss the drawing with the group.

B created an image of a test paper with math problems (Figure 4). Each addition problem was answered correctly to receive an “A+” from the teacher pictured with green facial hair. The paper is surrounded by yellow, black, and red scribbles. The participant identified the image represented her successfully completing the test. The participant might have felt more confident with addition problems as opposed to the multiplication, division, and fractions taught in fourth and fifth grades. Again, the symbolic representation of taking a potential threat and adapting it to be an easy achievement was present within the drawing.

I was sitting at the desk in the corner away from the conference table. She created a drawing of two purple flowers growing from the base of the mandala (Figure 4). The sun and
clouds are present in this drawing. A butterfly flies to the right of the flowers. The peaceful image could be a calming escape from the FCAT. Another reason for the peaceful image, could be I felt less anxious since she was not sitting at the conference table near the anxious teacher. The butterfly is symbolically defined as the cycle of life, of womanhood and change. The symbol is sometimes used to reference the Resurrection (Chevalier & Gheerbrant, 1996). I was 12 years old at the time of the study, which is often seen as a time of change. The drawing could be representative changes within her routine and overall life changes coming her way.

**Meeting 4 Analysis.** The participants presented a rigid body language. The overall tension was higher in the room. The students displayed test anxiety symptoms within their behaviors and elements appeared the themes of the artwork. The participants were faced with challenging circumstances during this meeting. The frequent traffic throughout the room, constant presence of a busy teacher, and altered seating arrangement created a constant reminder of the test waiting immediately after the completion of the group. The group demonstrated a reduction of anxiety during the discussion. The group’s body language became less rigid. Not all of the group members participated in the discussion. The ones that did described their drawings with enthusiasm.

**Meeting 5**

The final meeting was held the week following the FCAT administration. The participants were assessed with the CTAS assessment as a posttest. The researcher read the printed instructions to clarify any confusion about how to complete the test. The group members were also reminded the test was about how they feel rather than involving right and wrong answers. The participants displayed the ability to understand the statements and to complete the entire test. The ease in understanding could be a result of seeing the CTAS previously as well as the reduction in test anxiety.

**Significant Events.** During the final meeting, G reported he had strong feelings of having “aced” the FCAT. G was the first student to complete the CTAS. Upon completion, he asked for a piece of paper to draw on. Even though the participants had not been instructed to draw a mandala in the session, the participant created a mandala with one large French fry in the center which he labeled “Frinch Fry Power” surrounded by red flames (Figure 5). He explained the flames were from the cooker and asked if they were inappropriate. The researcher indicated it
Figure 4: Mandalas created during the fourth meeting. Top row (from left to right): “G’s” Mandala; “J’s” Mandala; “E’s” Mandala. Bottom row (from left to right): “BA’s” Mandala; “B’s” Mandala; and “T’s” Mandala.
was not inappropriate to draw the heat of a French fry cooker. One possible meaning for this drawing is the representation of surviving the fire. The “Frinch Fry Power” appeared to have survived and possibly even thrived from the heat and flames of the cooker. Similarly to G’s situation, the threat of the FCAT turned into something he “aced.” He felt calm and confident about his performance on the exam. He asked if he could take his drawings home with him. He said the fries mandala was his favorite image.

J created a mandala which contained a variety of different shapes including an eye in the upper left corner, a piece sign, phrases, spirals, and stars (see Figure 5). The phrases added to the mandala include “Peace Out” and “Colors are Awesome!” J displayed a positive and increased interest in the artwork and discussed the drawing with the group.

E asked if they would have to take the FCAT again during the discussion about the FCAT. In her final mandala, she used markers to create a combination of symbols and phrases (see Figure 5). The border of the mandala was created alternating sections of color similar to BA’s drawing during meeting 2. The interior of the mandala consisted of a purple spiral, two black eyes, and a rainbow section of color. The phrases include “House of Anubus,” “Live, Love, Survive,” and “One eye equal me looking at you!” The participant did not define the purposes of the images and phrases during the discussion. It could be in reference to the mandala group and the FCAT. For instance, the group lived, loved and survived the FCAT and group. The eye could be symbolic for understanding. It could also be symbolic for pay attention or the obvious meaning of being watched by others.

BA was the last member of the group to finish the evaluation. BA’s final mandala, completed after the second evaluation of the CTAS, consisted of two parts. BA told the group she was drawing a lady bug. She drew a red dot and a black dot (see Figure 5). She decided she did not like the image and started over on the other side. She used the end of the marker to fill the mandala with dots and spirals. A concentrated portion of color was created approximately a third of the way from the top forming an “eye” of the spiral (see Figure 5). The image began realistic with a ladybug then she shifted to create an abstract image using lines and dotes of color.

B created a mandala consisting of columns and wavy rows of color to fill the space (see Figure 5). The participant displayed a great deal of energy through the number of colors used and the high energy pattern. The participant discussed the idea of lots of colorful mustaches over
and over again. The image of mustaches is a second reference to facial hair. B could be again making a stressful situation into something humorous.

I’s final mandala created during the last session used markers to create an abstract design (see Figure 5). The phrase “Live, Love, Surf” is written on the bottom of the mandala. A heart is located at the left of the mandala. Colorful lines and spiral weave around the objects to fill the center of the mandala. A pink circle is located towards the top of the mandala. The mandala displays the use of abstract design and line to make a rich colorful mandala.

**Meeting 5 Analysis.** More individuals participated in the discussion during this meeting than in the fourth meeting. The participants displayed a relaxed body language and displayed eagerness to have the previous drawings returned. The participant respectfully took turns talking more than in the first meeting. The group appeared more confident in explaining drawings and with talking to the group. The students were relieved to have completed the FCAT and discussed feelings of how the test had gone. The participants asked if this was the last meeting. The students were excited to receive their previous mandala drawings to take home. The group members looked back through their drawings and several identified drawings which were particularly liked. The participants were debriefed and offered additional services if needed. The participants spontaneously decided to create a final mandala without being instructed or prompted. The final mandalas displayed the changes made over the course of the program. For instance, G created the “Frinch Fry Power” drawing which demonstrated overcoming adversity. The “Frinch Fry” appeared to thrive from the heat. The release of energy was also demonstrated by the rich colors and content.

**Conclusion**

The students displayed various degrees of change as indicated by reduction in CTAS scores, changes in the artwork, and changes in behaviors. The students created rich vibrant drawings full of meanings throughout the program. Drawings seemed to echo the attitudes of the students, whether it was anxiety or confidence. For instance, “B” created the image of a test paper which had received an “A+.” The test was embellished with a teacher who had green hair and scribbles around the paper. The image demonstrated the process of changing a threat into a manageable adversary, revealing an increase in confidence. The pretest and posttest means showed some degree of lessening test anxiety symptoms was experienced within the group. The results present the need for additional research. Additional research could explore the potential of
using a mandala drawing activity with students individually and with minimal interruptions to reduce test anxiety. The results of the study are beneficial in looking for areas to perform future research and providing information to practitioners for clinical consideration.
Figure 5: Mandalas created during the fifth meeting. Top row (from left to right): “G’s” Mandala; “J’s” Mandala; “E’s” Mandala. Bottom Row (from left to right): “BA’s” Mandala; “B’s” Mandala; and “I’s” Mandala
CHAPTER FIVE

DISCUSSION

Chapter five provides a summary of the research study, including research findings. The findings of the study are discussed in relation to past and present research in the area of test anxiety. A discussion of how art therapy was useful to the students in the current study is provided. The limitations are presented, along with their impact on the results of the current study. Limitations aid in identifying areas for further research in this area. The chapter concludes with clinical recommendations for art therapy practitioners in consideration of the results of the current study.

Method

The research study investigated the use of an art therapy drawing directive to mitigate test anxiety. The research question stemmed from previous research findings which used mandalas to increase focus and relaxation to help reduce general anxiety. The research question stated, “Will participating in a mandala drawing activity prior to taking a test help reduce test anxiety?”

To make steps toward answering the research question, a five meeting program was created to aid students who exhibited symptoms of test anxiety. A pretest-posttest analysis was used to identify changes in test anxiety frequency as measured by a test anxiety scale for children. With the help of a charter elementary school in north Florida, a fifth grade math teacher identified six students with physical and emotional signs of test anxiety or low test scores which could have been caused by test anxiety. The group was made up of both boys and girls from ages nine to twelve. The students included in the study were present for at least four of the five meetings. Three of the participants demonstrated test anxiety within the normal frequency range of test anxiety according to scores on the Children’s Test Anxiety Scale (CTAS) (Wren and Benson, 2004).

Evaluation

The CTAS was the assessment used to evaluate the frequency of test anxiety symptoms (Wren and Benson, 2004). The CTAS consists of thirty statements which pertain to test anxiety as it appears in thoughts, off-task behaviors, and autonomic reactions. For the purpose of the study the total frequency of test anxiety was assessed. The statements were measured on a four
point Likert type scale which indicated test anxiety frequency on a scale from a “almost never” to “almost always.”

The pre and posttest was scored by finding the mean score for each individual student on the test. The mean score for each student was compared from pretest to posttest to identify if any change occurred in the level of test anxiety. Following individual evaluation, a mean score was determined for the group as a whole. Mean scores from the pretest to posttest for the overall group aided in determining whether there was an overall significant decrease in test anxiety.

While taking the CTAS, one student said the statements on the scale accurately described his feelings toward tests. Several of the other participants in this study displayed difficulty understanding the written directions provided even though the survey terminology was normed for students from grades three to six. Several of the participants answered the first question in each section before moving on to the next section. To minimize chances of confusion during the posttest, the researcher read the directions to the participants before starting the posttest. The participants responded to the posttest with an increased understanding and knowledge of how to complete the CTAS.

**Results**

The results for the research question, “Will participating in a mandala drawing activity prior to taking a test help reduce test anxiety?” showed the mandala drawing activity had no significant effect on reducing test anxiety as measured by the CTAS. However, notable changes were detected in qualitative data gathered by the researcher in areas the CTAS did not account for. Qualitative data included the students’ artwork and behaviors demonstrated during the meetings.

One of the students displayed an increase in test anxiety as indicated with the CTAS posttest. This participant displayed off-task behaviors, which could have been due to test anxiety throughout the program. The participant began to make increasingly more meaningful drawings toward the end of the program.

Some students demonstrated an improvement in behavior and others demonstrated change through artwork, which became more insightful. Despite the challenges presented throughout the program, the participants learned about using the mandala technique to release negative energy and negative emotions which without the directive may have been released.
during the test. The students began to demonstrate anxiety through the content of the mandalas. The students also demonstrated the desire for creative expression by spontaneously choosing to create a final mandala during the last session. Finally, over the course of the 4 week program, some of the students demonstrated an increased self-confidence and self-esteem. The students were excited to receive and take home the mandalas created during the program. The students displayed pride in the drawings and in identifying which mandala drawings they were particularly fond. Overall, the students learned about creative expression and a method of stress relief.

**Findings as Related to Literature**

Art therapy is beneficial in helping to build self-confidence and self-esteem which help reduce test anxiety (Isis et al., 2010). The participants appeared to benefit from receiving the mandala drawings in the last meeting that they created during the study. An increase in confidence was demonstrated by taking ownership for the drawings and indicating personal favorites. The participants also displayed pride over the drawings. Similarly, the purpose of this study was to reduce anxiety by teaching the students about using art therapy as an age appropriate self-soothing mechanism.

The mandala technique has been found to have meditative qualities which are beneficial in therapeutic settings (Henderson, 2007). The students were faced with a number of challenges during the 4 week program. It is unknown how many participants or how often a meditative state was reached during the drawing time. The program was conducted during the school day which required a short drawing time and overall short meeting time.

The mandala technique has focusing and centering qualities which help increase attention and decrease impulsivity overtime in students with Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder (Smitheman-Brown & Church, 1996). The students in this study through behavior demonstrated decreases in distractibility and off-task behaviors as evidenced by decrease in FCAT related questions and decreased interest in adjusting furniture in the meeting room.

Previous research also found more girls are affected by or display test anxiety symptoms than boys (Hembree, 1988). This pilot study also had more girls than boys who were recommended for the study by exhibiting test anxiety symptoms.
Curry and Kasser found coloring a pre-outlined mandala had a significant reduction of general anxiety in college students (2005). These researchers suggested starting with a blank sheet of paper to allow the participant to draw the circle and create the imagery within. This pilot study used a blank sheet of paper to allow the participants decide how much or how little to draw within the mandala. The participants displayed an increase of self-confidence and pride particular drawings. Overall, each drawing was unique in meaning and purpose.

**Research Problems in Association with the School**

There were a variety of environmental considerations to impacted research study. Considerations occurring during the study included the schools overall lack of evaluation opportunities in the form of tests and space issues such as frequent interruption.

The study was conducted in a charter school in north Florida where test alternative methods of measuring student achievement were used. Mathematics was the only subject where tests were frequently administered. The students’ exposure to testing overall was uncommon. The students with low test taking skills had opportunities to earn higher grades by being assessed in a test alternative manner. Those students also potentially lost the opportunity to improve their low test taking skills may struggle more when presented with a tests such as the FCAT.

The math teacher selected students based upon physical and emotional test anxiety symptoms displayed in class. The teacher also indicated some of the students had a history of low test scores which could be a result of test anxiety. Three of the participants selected scored within the normal range of test anxiety experience.

The meetings were held in the conference room at the school, which also contained administrative offices for the school. The researcher was unable to control extreme factors such as interruptions by administrators due to the need to share the space. An administrator was present during most of the meetings either working on the computer or speaking on the phone. The students struggled to maintain focus on their drawings due to these interruptions. The students also distracted one another by talking at inappropriate times or adjusting the chairs, which became problematic. Each meeting consisted of at least 2 interruptions which caused the students to become distracted from the research meeting.

Additionally, the morning of the FCAT, a teacher who was preparing the room for this major test, was distracting for the research participants. The students were unable to escape reminders and conversations about the FCAT. The teacher hung signs about the FCAT and her
test administration supplies sat the end of the conference table next to the students. One of the group members was forced to sit at the desk in the corner. The overall traffic in and out of the room was higher that morning. Likewise, the overall tension coming from the participants and teachers appeared elevated. The inability to maintain focus could have meant the students were unable to reach the level of “meditative” focus previous research indicated as instrumental in relaxing the individual.

The participants included images from others in their own mandala. For example, during the second meeting, participants “E” and “BA” created mandalas with a purple flower with four petals in the center of the mandala. The individuals were able to easily view each participant’s drawings. One possible reason for borrowing ideas from one another could be a lack of confidence in their own ideas or increased appeal in the ideas of others more than their own.

The use of a conference table with chairs which could spin and had adjustable height capabilities made focus on the drawings challenging. The participants developed their own method to protect ideas. This was achieved by covering up drawings to protect from onlookers. This may indicate social pressures students experience and may indicate social anxiety. Social anxiety is another type of anxiety often found in children. This type of anxiety stems from the fear of performing in public settings. This study did not focus on identifying a correlation between test anxiety and social anxiety. Additional research is needed to identify a correlation.

**Limitations of Research**

Several accommodations were made to the study to meet the needs of the school and of the students. In order to accommodate those needs, several limitations of the study were created. Three major limitations which most likely had an affect on the results of the study were size of the participant group, post-FCAT relief, and a predetermined program plan.

First, the participants were selected based upon teacher recommendation of physical and emotional signs of test anxiety. The teacher indicated several of the participants were selected based upon a history of low test scores which may or may not have been caused by test anxiety. Two of these students presented test anxiety ranges between “almost never” and “some of the time” which were between normal ranges of test anxiety. Despite low levels of test anxiety, these individual were allowed to participate in the study. Three participants in particular scored within the normal frequency of test anxiety. The students had been identified as those who may
benefit from participation in the study. The individuals who started with a lower degree of test anxiety did not have as much room or need to decrease anxiety.

After a test, some students felt a sense of relief because the test was over. The current study evaluated frequency of test anxiety symptoms one week after the FCAT. The students may have had some degree of relief after completing the exam which could have been the reason for the decreased feelings of test anxiety.

Additionally, the predetermined program may not have provided enough time for the participants to become familiar with the mandala technique. The program was brief consisting of 5 meetings over 4 weeks. The meetings were pre-arranged to last approximately 25 minutes which allowed for a 20 minute drawing time and 5 minute discussion. The meeting day was consistent for most of the meetings. The length of the meetings varied. The drawing time had to be cut to 15 minutes with 2 or 3 minutes of discussion because of the need for the students to return to their regular classroom as requested by the teacher. The students did not have as much time to ask each other questions or comment as would have been beneficial for the meetings. The participants felt rushed to finish their drawings. In later sessions, students were encouraged to draw a mandala in a size they could finish instead of being provided ample amounts of time to complete the drawing.

The participants were faced with a number of challenges during the meetings. The group meetings were interrupted, inconsistent and brief which made discussion times short. Some of the students were eager discuss their drawings within the group. The act of discussing the artwork with positive feedback would be an important part of building confidence and overcoming performance anxiety. In most of the meetings, time only allowed for the students to say a few words about their drawing even less time was provided for the other members of the group to comment on each other’s artwork. The lack of discussion time could have had a strong negative impact on the lack of positive results.

**Suggestions for Further Research**

The nature of the pilot study was to investigate an area in need of additional research. The study provides room for future researchers to improve and expand upon the study to further investigate the use of mandalas in lessening test anxiety. The pretest-posttest one group analysis did not present significant results when using the CTAS; however, some students’ behavior improved and for others artwork became richer and more meaningful. A number of additional
research questions were revealed. For example, would a longer program be more beneficial for the students? A longer program might increase self-confidence which would help reduce test anxiety. High test anxiety symptoms, a longer program with longer meeting times, multiple media choices, a neutral setting, examining the effects on the individual components which make up the CTAS, teacher led mandala groups, and art therapy with combined with other anxiety reducing techniques are a few areas where improvement and changes could be made to further enhance study in this area.

For a study focusing on test anxiety, it is important to have participants who have frequent test anxiety symptoms. It would be beneficial to assess a larger group of students who display some test anxiety symptoms to determine which students demonstrate potentially unhealthy frequency of test anxiety symptoms. A more accurate analysis could be achieved by only including participants with high levels of test anxiety.

Smitheman-Brown and Church (1996) discussed the change experienced from using the mandala technique overtime. A longer program with a longer meeting time could increase the degree change noted from the mandala technique. Ultimately, a longer program would provide the individual more time to gain mastery over the medium. The increase in confidence gained from mastery may have an effect on the amount of focus placed on the mandala to reach a meditative state.

Additionally, the materials used in this pilot study were both resistive and controlled. Future research participants may benefit from a choice between resistive materials, such as markers and coloring pencils, and more fluid materials. Examples of fluid materials include acrylic paint and watercolor. Some research has been conducted to examine the media choices of individuals feeling anxious. Researchers could investigate the media choices of individuals with high test anxiety and after test anxiety has been reduced.

A further consideration is the setting of the meetings. Group meetings should be ideally held in neutral setting which provides both privacy and security. The students should be able to focus on the meeting with minimal interruptions. The purpose of the meetings was to improve ability to focus on tasks which is difficulty with frequent interruptions.

The Children’s Test Anxiety Scale (CTAS) has three distinct factors: three distinct components: thoughts, off-task behaviors, and autonomic reactions. Additional research could be conducted to identify if the mandala technique reduces test anxiety appearance within a certain
area of the scale. For the purposes of this study, test anxiety experienced in all three categories was examined for change. Further research may discover certain areas are more directly affected.

Further research could also focus on identifying the benefits of a teacher led mandala program to reduce test anxiety before major tests. Students who participate in a mandala program with the same teacher administering the FCAT may react differently to the program and the presentation of instructions. The consistency of the same teacher leading the program and administering the test may lessen anxiety during testing.

Research could also be conducted to investigate other approaches such as combining art therapy with Cognitive Behavioral Therapy (CBT) which could be used to reduce test anxiety in school age students. Isis et al. (2010) found CBT beneficial when working with anxious individuals. Research could be conducted to identify additional directives that successfully reduce anxiety.

The need for additional research is evident through the results of this study. Although some reduction in test anxiety symptoms were documented, the results show the mandala program alone may not be enough to significantly reduce test anxiety for all students. Future research may discover a longer mandala program combined with additional test anxiety reduction methods may be beneficial for the students.

**Recommendations for Art Therapy Practitioners**

In the future, art therapy practitioners could best benefit their clients by having a base knowledge of the effects and symptoms of test anxiety. Individuals who suffer from test anxiety are faced with psychological and physiological. Students may not only have test anxiety but also social anxiety or another form of anxiety. Some of the student’s needs could include minimal distractions to help maintain focus or space from peers to alleviate social anxiety while test taking.

Each person who suffers from test anxiety experiences the symptoms differently. For example, one member of the group felt the survey statements described what he often experiences when taking tests. Another participant indicated she only felt anxious after the test. The degree of test anxiety can also be different based upon the individual. This was evidenced by the broad spectrum of CTAS scores ranging from low to high. Teachers and counselors faced with a range of anxiety characteristics need to identify individualized methods to help individuals reduce test anxiety. Emphasis is often not on educating teachers about test anxiety or
how to reduce symptoms within the classroom (Gardner, 2010). An art therapist or other mental health professional could help inform teachers of the presence of test anxiety and educate them on techniques to help reduce anxiety.

As mentioned previously, an art therapist should be familiar with a variety of different directives noted to help reduce anxiety. This study focused on only one directive which previous research had found to be beneficial as a meditative technique. Since every individual experiences anxiety in a different way, an array of intervention choices may be necessary. If the participant seems unable to fully engage in the mandala with coloring pencils or markers, the therapist should provide less resistive materials or change directives. An art therapist may find the client has difficulty and is resistant to disengaging from anxious thoughts prior to a test and may need to take additional efforts to decrease anxious thoughts through a variety of strategies.

**Conclusion**

Test anxiety remains an issue for approximately one out of third of elementary school students in the United States. Test anxiety affects the student’s ability to learn and to be accurately assessed. As test scores become more important as a way to measure student achievement and teaching quality, the importance of finding methods to reduce test anxiety becomes more essential. Art therapy has been found to be a beneficial way to reduce anxiety (Isis et al., 2010). More research is needed to investigate the relationship between anxiety and mandalas. The use of a mandala drawing activity alone may not be able to reduce symptoms of test anxiety however the current research raises additional questions about how to reduce test anxiety in elementary school students. Art therapy may have the potential to help individuals who struggle with test anxiety.

In final analysis, the data in this study showed the participants learned about the creative process as a means to help visually depict emotions and release energy. The research in this pilot study took initial steps toward answering the research question, “Will participating in a mandala drawing activity prior to taking a test help reduce test anxiety?”

The data from this pilot study supports the previous research conducted, in that girls exhibit more symptoms of test anxiety thus more girls were recommended as participants in this study. The mandala drawing activity used in the current study may not have significantly decreased test anxiety in the group of fifth grade students when measured with the CTAS. However, previous research shows the mandala activity can have calming effects on children.
with Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder when used over time (Smitheman-Brown & Church, 1996). The students displayed benefits through the improvements in behavior and for others artwork became richer and more insightful.

In the final analysis, it is important for art therapists to be aware test anxiety symptoms and methods to address anxiety. Art therapists should exhibit patience and willingness to meet the client’s needs. Most importantly this study identified the need for further research to be conducted in the area of art therapy and test anxiety to begin to aid the one out of three United States students suffering from test anxiety.
APPENDIX A

“PARENTAL LETTER”

Dear Parent/Guardian:

I am a graduate student in the Department of Art Education at Florida State University. I am conducting research on the effective use of an art activity to help students feel focused before taking a test. The purpose of this is to evaluate the effectiveness of a mandala (art conducted within a circular form) drawing activity on ability to relax and focus to take a test. With your permission, I would like to ask your child to volunteer for this research.

Participating in this study will involve involvement in five 30-minute meetings to learn about the art activity and practice before using the activity before a test. Participation will include filling out 2 brief surveys about the student’s attitude toward tests and creating mandalas. The proposed timeline for starting the activities is April 2012. The activities will be complete before the summer holiday. All activities will be carried out on school grounds under the direction of the researcher. The initial meeting and final meeting will consist of a brief assessment to measure the effectiveness of the art activity.

With your permission, the researcher will photograph the drawings your child creates during the meetings. By signing below you agree to allow the researcher to use and/or photograph your child’s artwork for the following purposes: publication in a professional journal or book, presentation at professional conferences, consultation with other mental health professionals (including supervision) and educational purposes. The artwork will remain with the researcher during the duration of the sessions. The artwork and discussions from the meeting will be reviewed for information indicating any feelings of anxiety. During the final session, the artwork will be returned. I agree to safeguard your child’s artwork to the best of my ability and to notify your child immediately of any loss or damage while your child’s art is in my possession. I also agree to return your child’s artwork immediately if you or your child decides to withdraw the consent. I agree to safeguard your child’s confidentiality to the extent allowed by law. The
children will be asked to write a participation code on their surveys and artworks for matching purposes. The participation code will be given to your child to safeguard your child’s identity. Results will be reported in the form of both individual and group data. Participation or non-participation in this study will not affect the child’s grades or replacement in any programs. Participants will not be recorded with visual or audio devices. Please sign the letter at the top if you do not want your child to participate. By signing at the top of the letter, you are indicating that you read the letter.

You and your child have the right to withdraw from the study at any time without consequences. No compensation is offered for participation. Group results of this study will be available in August 2012 upon request. If you have any questions about this research protocol, please contact me (Anna Campbell) at ****** or by phone at ******. You can also contact my faculty supervisor, ****** at ******. The FSU Human Subjects Office can be reached by phone ******.

Researcher Signature               Date

I have read the procedure described above. I voluntarily give consent for my child
_________________________________, to participate in the study of the effectiveness of an art activity to help relax and focus before taking a test. I have received a copy of this description.

Parent / Guardian Signature                              Date
APPENDIX B

“CONSENT FOR MINOR”

Dear Student:

My name is Anna Campbell. I am a student researcher from Florida State University. I am asking you to participate in a research study where you will be involved in doing art tasks and drawing mandalas, which means you will create drawings within a circle.

If you agree to be in this study, you will meet with me along with other students from your class once a week for 5 weeks. The first week you will be asked to fill out a survey about your feelings when you feel anxious. During the meeting, I will teach you about drawing mandalas. This is to help me understand how you feel when you are nervous. During the meetings you will be given an opportunity to draw your own mandalas. After the final meeting, I will have you fill out the survey again to indicate if your feelings have changed. Participating in this research could help you to focus better when taking tests.

Please talk this over with your parents before you decide whether or not to participate. We have asked your parents to give their permission for you to take part in this study. But even if you parents said “yes” to this study, you can still decide to not take part in the study, and that will be fine.

If you do not want to be in this study, then you do not have to participate. This study is voluntary, which means that you decide whether or not to take part in the study. Being in this study is up to you, and no one will be upset in any way if you do not want to participate or even if you change your mind later and want to stop.

You can ask any questions that you have about this study. If you have a question later that you did not think of now, you can call me at ****** or ask me next time.

Signing your name at the bottom means that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

Name of child (please print) ______________________________________________

Signature of Child __________________________________ Date ________________
APPENDIX C

“DEMOGRAPHICS”

1. What is your child’s age as of his/her last birthday? _________

2. Is English your child’s primary language? Yes No

3. Is your child taking any medication for anxiety? Yes No
APPENDIX D

“PROGRAM OUTLINE”

WEEK 1
Meeting 1: Introduction and Pretest
   Introduce researcher
   Collect Consent forms
   Introduce Group members
   Administer CTAS
   Discuss dates and times for future meetings
Meeting 2: Mandala Lesson
   Introduce Mandala Drawing
   Create Mandala Drawing activity
   Discussion
   Discuss Next Meeting

WEEK 2
Meeting 3: Mandala Practice
   Review “What is a Mandala?”
   Create Mandala Drawing
   Discussion
   Discuss Next Meeting

WEEK 3
Meeting 4: Mandala Activity before FCAT
   Create Mandala Drawing
   Discussion

WEEK 4
Meeting 5: Posttest and Return Artwork
   Discussion about the Test
   Administer CTAS
   Create Mandala Drawing
   Discussion/Debriefing
   Return Artwork
   Offer Services for anyone needs additional aid with test anxiety.
APPENDIX E

“CHILDREN’S TEST ANXIETY SCALE (CTAS)”

Test Attitude Survey

Please read each statement carefully and decide if the statement describes how you think, feel, or act during a test. Then circle the answer that best describes the way you are while taking a test. If you are not sure which answer to circle, read the statement again before circling your answer. Remember that there are no “right” or “wrong” answers on this survey. Please give truthful answers.

<table>
<thead>
<tr>
<th>ALMOST NEVER</th>
<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
</table>

While I am taking tests…

1. I wonder if I will pass.  
2. My heart beats fast.  
3. I look around the room.  
4. I feel nervous.  
5. I think I am going to get a bad grade.

<table>
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<tr>
<th>ALMOST NEVER</th>
<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
</table>

While I am taking tests…

6. It is hard for me to remember the answers.  
7. I play with my pencil.  
8. My face feels hot.  
9. I worry about failing.  
10. My belly feels funny.
<table>
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<tr>
<th></th>
<th>ALMOST NEVER</th>
<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
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</thead>
<tbody>
<tr>
<td>11. I worry about doing something wrong.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I check the time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I think about what my grade will be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I find it hard to sit still.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I wonder if my answers are right.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I think that I should have studied more.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. My head hurts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I look at other people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I think most of my answers are wrong.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. I feel warm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

While I am taking tests…

<table>
<thead>
<tr>
<th></th>
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<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I worry about how hard the test is.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. I try to finish up fast.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. My hand shakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24. I think about what will happen if I fail.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25. I have to go to the bathroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
# While I am taking tests…

<table>
<thead>
<tr>
<th></th>
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<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. I tap my feet.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. I think about how poorly I am doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28. I feel scared.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. I worry about what my parents will say.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. I stare.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Thank you for your help!

(Wren & Bensen, 2004; Soffer, 2008).
APPENDIX F

“HUMAN SUBJECTS APPROVAL LETTER”

APPROVAL MEMORANDUM
Date: 1/18/2012
To: Anna Campbell
From: Thomas L. Jacobson, Chair
Re: Use of Human Subjects in Research

Reduction of Test Anxiety by Using Mandalas: A Pilot Study
The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 01/11/2012. Your project was approved by the Committee. The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 1/9/2013 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.
By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Marcia Rosal, Advisor
HSC No. 2011.7519
APPENDIX G

“THE SCHOOL APPROVAL LETTER”

January 10, 2012

Florida State University
Human Subjects Committee
Tallahassee, FL 32306-2742

RE: Anna Campbell

Dear Committee:

I have met with the researcher, Anna Campbell a graduate student at Florida State University and we have discussed the research proposal “Reduction of Test Anxiety by Using Mandalas: A Pilot Study.” I hereby give my permission for the researcher to recruit participants and conduct the research as proposed in my school. We understand the purpose of this study is to introduce and utilize mandala drawings to reduce levels of test anxiety in 5th grade students. The study will provide the students with a technique to use when feeling anxious prior to an academic test. It is my sincere hope the students will continue to use the technique after the study is completed.

In order to provide support to the researcher, the students’ math teacher, Kathy Tripp, has agreed to work with the researcher to identify students who would benefit, as well as, help schedule a meeting time for the students and the researcher. Based on the requirements of the study, Ms. Tripp will recommend students for participation based on those who display symptoms of test anxiety during the math class she teaches. The students will be given the option to participate in the study and be informed their grade in the class will not be affected by whether or not they participate. The students and parents will have the option of terminating the student’s participation in the study at any time without penalties. We understand that the meetings and artwork conducted by the researcher are confidential and that only she will have access to identifiable data gathered from the artwork and from student discussions. We will look forward to receiving the results of the study, when it is completed.

Due to the school’s status as a charter school, it is exempt from Leon County IRB.

Sincerely,
LIST OF REFERENCES


McDonough, K. L. (2008). *Case studies of art therapy as a tool to aide adjustment to college*. Retrieved from Florida State University Online Library Database.


BIOGRAPHICAL SKETCH

Anna C. Campbell was born June 1988 in Chattanooga, TN. She graduated from Tennessee Technological University in May 2010 with a Bachelor of Science in Psychology. She was accepted into the Masters of Art Therapy program at Florida State University for the Fall semester of 2010. She plans on obtaining her Master of Science in Art Therapy from Florida State University in the summer of 2012. Anna’s research interest include using art therapy to help children in various settings. She is particularly interested in how art therapy can be used in schools to help children, teachers and parents.