

**A COMPARATIVE STUDY OF THE EFFECTIVENESS OF STRESS
INOCULATION TRAINING IN THE TREATMENT OF ACADEMIC TEST
ANXIETY AMONG UNIVERSITY STUDENTS**

By

LONDIWE P. MADIKIZELA

200000339

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Development and Social Sciences at the University of KwaZulu-Natal, Howard College
Campus.

Supervisor : Ms. Lucinda Johns
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Abstract

A commonly used method for treating students with test anxiety in tertiary academic institutions is Skills Workshops. These workshops encompass study, time management and test taking skills. However, Meichenbaum & Butler's (1980) model of test anxiety suggests that test anxiety has four components that need to be taken into consideration when treating test anxiety. These are (1) Internal Dialogue, (2) Behavioural Acts, (3) Behavioural Outcomes and (4) Cognitive Structures. They suggest that Stress Inoculation Training (SIT) is an ideal treatment method for treating test anxiety as it addresses all these components. This study looked at the effectiveness of SIT in comparison to the Skills Workshops as well as no treatment at all. The results showed that both SIT and Skills Workshops were effective in reducing test anxiety levels but SIT was a more superior method.

Chapter One

1.1 Introduction

Assessments and tests are a major part of modern living. One is assessed for suitability to complete a course, to move on to the next grade and to assess how well one understands the work that has been covered in a course. One of the hindrances to testing is test anxiety. This is a response to testing situations which has been studied relentlessly over the years. Studies have sought to uncover the nature of test anxiety, its prevalence, and its effects on performance and methods for helping those who suffer from its debilitating effects (Stober, 2004). It is well established that many people experience anxiety during assessments and that this may be due to different reasons (McDonald, 2001). However, the exact prevalence of test anxiety is unknown. This is because test anxiety appears along a continuum and is not either present or absent. For researchers a point of interest has been the cause of the variation in its presence as well as gaining a deeper understanding of the phenomenon (McDonald, 2001).

Research in the area has found certain factors that might be influential in test anxiety. These include gender differences, intelligence, how important the student perceives the test and the different methods that the student uses to cope with test anxiety. It is thus important for educators, counselors and mental health care professionals to have a deeper understanding of test anxiety.

A number of theories have been proposed to help with the understanding of test anxiety, as well as methods for treating it. These have fallen mainly under two broad categories, which are the Deficit Theories and Interference Theories. Deficit Theories

suggest that test anxiety results from a shortage of skills needed for adequate test preparation as well as skills for test taking (Culler & Holahan, 1980). It is thus suggested that students are equipped with these skills so that they are confident they are well prepared at the time of the test.

Interference Theories suggest that negative thoughts, worry about the test and the negative evaluation of the test situation interferes with the individual's ability to focus on the task at hand and redirects the individual's attention to his/her own negative thoughts. This means that the individual's attention goes away from the actual test (Mandler & Sarason, 1952; Wine, 1980). Treatment implications for this are teaching the individual positive self-talk and cognitive restructuring. Other variations of the Interference Theories suggest that physiological arousal during the test such as the increased heart rate, sweaty palms, trembling and so forth, interfere with the individual's ability to focus on the test. It is thus recommended that relaxation techniques are considered as the treatment of choice according to these theories as they minimize physiological arousal.

According to Tobias (1985), it has been generally accepted that individuals with test anxiety present with difficulties in one of the areas suggested by the different theories. The problem with this view is that test anxiety is seen as either caused by interference or as a result of a deficit in skills. This exclusivity makes it difficult to account for all cases of test anxiety. A limited number of theorists have considered the fact that test anxiety could be a result of a combination of factors (Meichenbaum & Butler, 1980; Tobias 1985). However, most research on methods of treatment has remained focused on one component such as empowering students with study skills while neglecting physiological

arousal and cognitive interference or vice versa depending on the researcher's theoretical framework (Tobias, 1985).

Meichenbaum and Butler's (1980) model of test anxiety provides a comprehensive understanding of test anxiety. This model maintains that test anxiety has four components. These are (1) Internal Dialogue; (2) Behavioural Acts; (3) Behavioural Outcomes and (4) Cognitive Structures. Internal dialogue refers to the individual's worry and negative thoughts about the test; Behavioural Acts encompasses the individual's behaviours related to test preparation and taking; Behavioural outcomes refer to the environmental feedback that the individual gets regarding the test and the Cognitive structures refer to the individual's current meaning system of the test and its outcomes. This model attempts to show the complex nature of test anxiety, however, it does not provide a treatment plan. Meichenbaum and Butler (1980) recommend Stress Inoculation Training (SIT) as a cognitive behavioural treatment approach which complements their model and can thus be used in treating test anxiety as it does address its components.

A number of therapists and trainers have used Stress Inoculation Training in the prevention and treatment of a number of psychological problems. These have included problems with anger, different kinds of anxiety, problems with circumscribed fears, medical problems and general stress reactions (Meichenbaum, 1996). Unfortunately, probably due to differing theoretical frameworks, this approach has not been widely adopted in treatment of test anxiety.

Most universities and colleges have an intervention in place for students who suffer with test anxiety. The problem with these interventions is they tend to be limited to one component such as equipping students with study skills. Currently, at the University of

KwaZulu-Natal (UKZN) there are Skills Workshops that are offered to students close to exam time.

1.2 University Wide Interventions

Test anxiety has adverse effects on everybody that is involved in the educational system. It affects the students, their teachers, counselors as well as educational institutions. Lecturers are affected by test anxiety through the number of students that perform poorly in their courses, having to account to the Heads of the Departments (H.O.Ds) about students' performance as well as having to re-set tests because students "missed" the test because they felt ill-prepared for the test. At times lecturers feel guilty for the students' poor performance as they usually do not know what the true source of the problem is. School counselors are involved when there is a need to determine where the problem lies. In instances where test anxiety has been determined to be a problem, counselors are involved in attempts to help the students.

As the problem of test anxiety and its debilitating effects are identified in many student populations, most college and university counseling centres offer services to help students with this problem. These range from individual counseling sessions that teach relaxation techniques, offer systematic desensitization, stress inoculation training (Powell, 2004) to workshops aimed at helping improve student's study habits (Trimble & Carter, 1980).

A look at the available literature suggests that Skills Workshops have gained much popularity. This might be due to the fact that they are not time consuming and can be administered to a large group of students at the same time. Therefore it is time and cost

effective particularly close to exam times when large numbers of students flock to counseling centers in panic as they seek methods to cope with their anxiety.

A large number of tertiary institutions offer the Skills Workshops. The University of Wisconsin Madison's Counseling Department offers students group sessions and workshops aimed at helping them prepare for the test effectively and minimizing sources of stress. In these workshops students are given tips on how to prepare for the test such as allocating enough time for revision, checking past exam papers, using the study time table and so forth. They are also told what to do during the test. This includes activities such as having allocating time to get to the venue early, organizing writing material on time, reading instructions carefully and so forth. These Skills Workshops are believed to help in the reduction of exam anxiety (University Health Services - www.uhs.wisc.edu/dispay). These workshops are focused on the physiological arousal as well as the inadequate study and test taking skills, with much less emphasis on the cognitive aspect of test anxiety.

The Durban University of Technology has similar kinds of workshops aimed at equipping students with study skills in preparation for exams as well as give students tips of how to manage stress such as taking walks, exercise, relaxation techniques, and so forth to minimize stress. They also provide students with tips on how to tackle certain kinds of questions. These workshops are offered mainly close to exam times. Students who require more continuous help have to present themselves to the Counseling Unit for individual sessions (Counseling and Health Services, 2006)

At the University of KwaZulu –Natal (UKZN) the institution where the study was conducted, similar kinds of workshops are conducted with the aim of helping students

prepare for exams. These workshops are focused on disseminating information on time management, good study habits and test taking skills. They are usually one hour long. The facilitator describes to students generally what test anxiety is and gives students tips of how to study effectively as well as how to answer different kinds of questions. Their aim is to help students improve their study and test taking skills. These workshops can be beneficial for students who suffer with test anxiety as they improve study skills, test taking skills and students' confidence levels regarding the test. However, these workshops might be inadequate as they do not tap into negative cognitions and interference in test anxiety.

Students with test anxiety who present themselves in the counseling centre are seen and counselled individually. These students usually get treated with a Cognitive-behavioural treatment approach. The Student Counseling Units at the university recognizes the importance of helping students with test anxiety. However, as far as the researcher knows, there is no documented efficacy of these interventions at this university.

It is commended that tertiary institutions are offering students these workshops to help them cope better with exams and the fact that students who require continuous help can be counseled individually as they present themselves. However, it might be more beneficial to offer group sessions that are more comprehensive in treatment than merely study skills and physiological symptom management as this might be more effective.

Dykeman (1993) has used Cognitive Behavioural Therapy (CBT) with university students to help them improve their study skills, improve their social networks, decrease their test anxiety and increase their locus of control. This intervention was set up in a way

that the therapist's role was to firstly, empower students with effective study skills and a sense of efficacy that they can improve their skills and perform well. Secondly, the therapist had to create a group atmosphere so that the students can link and interact with one another. Thirdly, enable the students to reassess and redefine their relationships with each other thus expanding their social resources and lastly, provide opportunities and experiences that will allow them to develop friendships that could be used as a resource for academic and emotional support. The findings from this study showed that students who had participated in the intervention had less anxiety and had adopted better study habits than the control group.

When the Memorial University of Newfoundland in Australia realized that the student failure and drop out rate were high, an intervention program based on principles of CBT was developed. The program focused firstly, on teaching students methods of improving the acquisition of information when studying, help them remember more of their studied work and equip them with practical skills such as time management. The intervention also included methods aimed at alleviating unreasoned test anxiety. This included methods such as positive self-talk and relaxation techniques. It is reported that three years after the intervention, students were still using the skills learnt in the intervention and maintained the significant reductions in test anxiety (Doyle & Garland, 2001). These results are encouraging as far as the effectiveness of CBT in the treatment of test anxiety is concerned.

A considerable amount of students are seen at the Student Counseling Centre of UKZN in a year presenting with different problems. According to a psychologist working at the Centre this number significantly increases at time of exams with more students

approaching the Centre with academic concerns and dread for the exams. This seems to be a universal trend as a study by Heppner, Kivlinghan, Good, Roehlike, Hills & Ashby (1994) also revealed that presenting problems of university students tend to change at times of exams thus suggesting students' desperation at this time and an ever growing need for institutions to respond appropriately to this demand.

As there is no available data on the effectiveness of the skills workshop, it cannot be concluded how effective it is for students and it cannot be compared to other treatment approaches. It is thus important that a study is conducted to look into this.

1.3 The Aim of the Study

To the researchers' knowledge, no studies have been conducted to attest the efficacy of the skills workshops in the treatment of test anxiety. The aim of this study is to compare the effectiveness of the Skills Workshops currently used at UKZN with Stress Inoculation Training.

1.4 Relevance of the study

The study is relevant for psychologists, counselors and teachers that come into contact with students who suffer from test anxiety. It adds knowledge in the area of test anxiety treatment. It will help therapists in choosing the best treatment method to adopt for test anxiety with strengths and weaknesses of each method being discussed. It might also spark questions and interest thus rekindling interest in this area.

At the same time, this study will provide documented data about the effectiveness of the skills workshops currently conducted at the university.

It is important for the educational system to provide treatment for these students to help them cope with tests. According to previous research, children with test anxiety in grade school grow up to be adults with test anxiety in tertiary as well as throughout their lives. It is thus important that test anxiety be treated early so that these children do not grow up fearing tests. However, this does not usually happen as the majority of teachers are ill-equipped to correctly identify test anxiety (Sarason, 1973). In instances where test anxiety might be correctly diagnosed, the teachers generally do not know how to help the child. This is especially true in township and rural schools where the quality of education is still poor and there are no school counselors to help with emotional and psychological problems. As a result test anxiety goes undetected and untreated.

Test anxiety might be further exacerbated when one first enters tertiary education because there are many changes that one has to deal with when transiting from high school to tertiary (Lake, 2000). Students have to deal with a different and difficult environment in tertiary. This is because they have to take responsibility for their own studying, have to adapt to lectures rather than classes, and have to manage their own times with minimal guidance from lecturers. This on its own is enough to make them highly anxious. The situation is worsened by the fact that the structure of tests is often different. This has the potential to make students lose confidence in their ability to cope with the demands of tertiary institutions thus making them highly anxious particularly in tests when lacking guidance and social support.

Treatment for test anxiety can provide students with an increased sense of confidence as they feel that they have some control over themselves as well as over the test.

Quality social support is often lacking in tertiary institutions, particularly when one is doing first year. This is because majority of students come from far away places and stay at residences away from family which makes social support limited. Also, the way that lectures are structured mean that students are in contact with many different lecturers in short periods which makes building relations and continued contact with lecturers impossible. This means that students also miss out on the support that was provided by teachers while they were in school. Furthermore, the fact that students choose their own electives mean that there is also no firm continuity in their classmates. They change classmates with almost every class change. This results in students not being as able to support each other as well as they would if they would have been in all classes together as is generally the case in school. As a result, one has to work extra hard to build a support network and this can be very hard if one is shy or lacks self-confidence.

It is essential that test anxiety be addressed as it has a negative effect on academic performance as well as students' confidence in general. If left untreated, test anxiety can cause students to shy away from post graduate studies as they would not have confidence that they can cope. Also, these students might be excluded from courses or opt for dropping out as they feel they are not coping with the demands of the course. Treating test anxiety can help them build a support network and reinstate their self-confidence while making them more self aware which would point their academic lives in the right direction.

1.5 Hypotheses

The hypotheses of the current study were formulated as follows:

- 1.4.1 Stress Inoculation Training is more effective than Skills Workshops and no treatment at all in the treatment of academic test anxiety.
- 1.4.2 Skills workshops are more effective than no treatment at all in the treatment of test anxiety
- 1.4.3 There are gender differences in test anxiety levels between males and females.

1.6 Conclusion

While test anxiety has been an area of interest in psychological and educational research for over four decades, it continues to be a significant area to this end. Educators and counselors are constantly trying to find ways of helping students who suffer its debilitating effects. As a result, there is still a great need to broaden knowledge in this area. The current study sheds some light in the area of test anxiety as well as its treatment approaches.

The next chapter looks at the literature which informed this study. The theories as well as treatment modalities briefly mentioned in this chapter will be discussed in greater detail. Test Anxiety will be discussed in relation to variables such as gender, test performance, intelligence, methods used for coping with it as well as treating it.

Chapter Two

Literature Review

2.1 Introduction

This chapter provides a basic understanding of anxiety, more especially test anxiety. Firstly anxiety and test anxiety are defined, and then follows an overview of some significant factors in test anxiety such as the significance of the test to the student, test preparation, test performance, the students' intelligence, their gender, as well as the coping methods they utilize because these are central issues in test anxiety research. The models of explaining test anxiety are also discussed. These include Interference and Deficit Models. This chapter also looks at the different methods adopted in the treatment of test anxiety and ends with a discussion of the theoretical framework used to understand test anxiety in this study as well as the treatment method related to that theory.

2.2 Definition of Anxiety

According to Doctor and Khan (2000), the word anxiety derives from a Greek word meaning "to press tight" or to strangle. The Latin word "anxius" and other related terms also imply narrowness and constriction. These words signify distress, uneasiness and discomfort which are still core elements of modern day anxiety definitions. Anxiety can thus be defined as an unpleasant emotional reaction which is a result of a situation that is viewed as threatening thus causing fear (Sdorow, 1998).

Fear and anxiety are very similar. Doctor and Khan (2000) describe anxiety as a fear of the unknown which is activated by the expectation of danger, either from one's own thoughts or from the environmental factors. The difference between fear and anxiety is

that fear is a response to an obvious, recognized, present and external danger whereas anxiety is a response to a situation or object that the individual has come to fear through learning and past experience but which may not pose real danger. Anxiety has been described as a full experience of fear in the absence of a known threat or danger (Doctor & Khan, 2000).

In both fear and anxiety, the body reacts by preparing itself to meet the threat. This leads to the appearance of cognitive and physiological symptoms. The cognitive symptoms of anxiety present themselves as thoughts of on-coming doom, racing thoughts, inability to concentrate and an over-active imagination. The physiological symptoms usually include an increased heart rate, galvanic skin response, sweating, increased blood pressure, muscle tightness, trembling and so forth (Doctor & Khan, 2000). It has been noted that these symptoms can occur in certain and specific situations which is known as state anxiety or can occur in undifferentiated situations which is known as trait anxiety (Morris, Franklin & Ponath, 1983).

The wide range of situations which can be a source of state anxiety amongst individuals and the need to study anxiety in a definable context has made researchers turn their attention to specific sources of anxiety such as social anxiety, anxiety over public speaking and test anxiety (Sarason, 1980). The next section will examine test anxiety.

2.3 Definition of Test Anxiety

Test anxiety is an uneasiness or apprehension that is induced in an individual by a test situation and the concern about the possibility of performing poorly (Ottens, 1991). It is usually experienced before, during and after a test or examination. The individual with test anxiety experiences physiological as well as cognitive symptoms in the test situation.

Early research into test anxiety was based on the assumption that it was a uni-dimensional phenomenon. The first people to recognize that this was not the case were Liebert and Morris (1967). The two theorists suggested that test anxiety had two components which are “worry” and “emotionality”. The worry component characterizes the individual’s concerns about possible poor performance and its perceived negative consequences. Emotionality characterizes the physiological symptoms that are associated with test anxiety. This includes things such as sweating, an increased heart rate, galvanic skin response, trembling and so forth. Recent studies have suggested that there are two more components of test anxiety. These are cognitive interference and lack of confidence. According to Stober (2004) the interference component characterizes distracting and blocking thoughts that disturb or interrupt performance during tests. The lack of confidence component represents the individuals’ negative feelings about the self in the test situation.

Test anxiety has been studied intensively in the past. While the number of studies being done on it has somewhat decreased over the years, it continues to be one of the relevant areas of research in education and psychology today. The interest in test anxiety lies in the fact that it is a major concern for the students who suffer its debilitating effects, their educators, as well as their counselors (Ottens, 1991).

Research into test anxiety has not only been limited to its components. A host of other issues related to test anxiety have been investigated. These include factors which increase one’s susceptibility to experiencing debilitating test anxiety during the test, the effects of test anxiety on performance, methods to help those who suffer with test anxiety and so forth.

The rest of this chapter looks at studies that have been conducted on test anxiety, The focus is on the factors that modulate anxiety during tests, the theoretical framework as well as the treatment approaches that exist.

2.4 Factors Modulating Test Anxiety Levels

2.4.1 Test Significance

Tests and exams are still the most frequently used methods to measure students' knowledge and understanding of the work covered in schools, colleges and universities. This makes tests a very important aspect of academia. Students are generally affected by tests and how well they perform in them. However, the significance of each test for each student usually differs. Tests that have a determining effect on a students' life usually trigger more anxiety. According to Burns (2004) these are the tests where performance will determine whether the student will graduate or not, whether he/she will be accepted to post graduate programs, as well as whether he/she will gain employment in the future. As a result, these tests understandably become stressful for students.

In his study, Burns (2004) found that students who felt under pressure to perform well and those who expected to do well in the test tended to show increased levels of test anxiety. These were end of year tests and tests of students' major courses. The results suggested that students were more likely to experience increased levels of test anxiety in their major courses as well as in final examinations than when they felt that there was less pressure.

It has been found that many first year students succumb to certain beliefs which make them feel pressured by tertiary education as well as overestimate the significance of tests

(Lake, 2000). These irrational beliefs have the potential to harm one's quality of life. These include beliefs that (a) I am only as good as my grades and class rank (b) I must study all the time (c) I must be at the top of my class to be successful (d) I can't have a social life when studying and (e) I have no time for leisure or fun. These irrational beliefs have been found to be highly correlated with anxiety when it comes to academic tasks and are heightened when there is an up-coming test or exam (Sheehy & Horan, 2004). This suggests that first-year students are at a higher risk for developing test anxiety due to overestimating the significance of all tests they write.

2.4.2 Test Preparation

Test preparation can be defined as the effort that students invest in familiarizing themselves with the work that they will be tested on as well as arming themselves with adequate skills and knowledge to deal effectively with the demands of the test (Palmer, 1999). There is evidence that inadequate test preparation leads to decreased performance. This occurs if a student did not cover all the relevant topics in their revision or the revision is too shallow and superficial to be useful at the time of writing (Ng & Mitchell, 1972).

There are a number of reasons that can lead to inadequate test preparation. The most common one is avoidance of the study material prior to the test and procrastination which leads to students being ill prepared for the test as they do not have enough time for studying. The other reason is that at times students have inadequate or ineffective study skills, which means that the student spends time trying to sift through chaotic study material and have no skills that helps him/her with encoding and retrieval of information in the brain (Phillips, Pitcher, Worshan & Miller, 1980). This suggests that there is a need

to help students with effective learning skills as well as test taking skills to help prepare them for taking tests (Birenbaum & Nasser, 1994).

Helping students with effective study skills and test taking skills is important to help increase students' confidence levels as they approach the test. A study by Palmer (1999) revealed that those students who knew that they had not studied sufficiently had increased levels of test anxiety as the test approached as they were not confident about their possible performance. This suggests that one of the ways of decreasing test anxiety is through improving the student's revision or test preparation thus making them more confident as the test approaches.

2.4.3 Test Performance

The marks that one gets on a test can have very far reaching consequences. It is thus discernible that students generally want to perform well in tests. However, the relationship between test anxiety and the students' subsequent test performance is not easy to decipher. Some studies suggest that the levels of anxiety have a negative effect on test performance while others suggest that the opposite is true.

It has been noted that students who score high on test anxiety scales tend to perform poorer than those who score low on these scales when the situation resembles a test. In a study by Sarason (1980) students with test anxiety performed poorer than those who do not have test anxiety when they were being formally tested. However, they performed as well as non-test anxious students on class tasks where the environment was not test-like.

A study by Bruch, Juster and Kaflowitz (1983) also showed similar results. They recruited 72 second year psychology students and assessed them for test anxiety as well as their performance on simulated test situation. Their findings showed that students who

scored higher on test anxiety measures performed poorer than the students who scored lower on test anxiety measures.

In support of these findings, a study by Burns (2004) on the relationship between test anxiety and test performance revealed that tests, which the students perceived as more important such as year-end tests tended to produce more anxiety than tests that are perceived as less important. This invariably resulted in even poorer performance. It also showed that this was particularly true if the student also did not feel adequately prepared for the test.

Chappell et al. (2005) investigated the relationship between test anxiety and test performance in a group of 4000 undergraduate students. The results showed a small but significant difference between high and low test anxious students. Students scoring low on test anxiety had a grade point average of B+ while those with high test anxiety had a grade point average of B. All these studies support the notion that test anxiety has a negative effect on test performance.

Some studies claim that they have found the basis for the negative effect of test anxiety on performance. Eysenck (1982) reported that state anxiety impairs students' cognitive abilities on complex tasks thus making them prone to making mistakes and having thinking errors. Also, Zeidner and Schleyer (1999) reported that the worry component of state anxiety uses up one's working memory and the ability to pay attention to tasks. This means that students with test anxiety have difficulty thinking straight and paying attention in tests, which impairs performance particularly in complex tasks.

However, a study by Mwamwenda (1994) raises questions which leave the issue of test anxiety and test performance inconclusive. He assessed gender differences on test anxiety scores and academic achievement among South African university students. He found no significant differences in male students' test performance regardless of whether they had high or low levels of test anxiety. This means that test anxiety did not affect performance in male students. However, contrary to what was predicted, the female students who had high levels of anxiety performed better on the class test than those with low test anxiety. It thus appears that anxiety for these female students had a positive effect on their performance and that test anxiety had no effect on the performance of males. This seems to suggest that one cannot fully generalize the effect of test anxiety on performance without looking at other factors, like gender and intelligence.

2.4.4 Intelligence

Intelligence can be defined as the global capacity to act purposefully, to think rationally and to deal effectively with the environment. One's intelligence is determined by looking mainly at his or her score on an intelligence test which assesses overall mental ability. Those who score exceptionally high on intelligence tests are said to be mentally gifted (Sdorow, 1998).

Intelligence seems to have a positive relation with test anxiety and its outcomes. Zeidner (1995) points out that high intelligence students are likely to use more constructive methods of coping such as planning, gathering of information, increasing study time on tasks, seeking social support and so forth while preparing for the test which would decrease stress and is more effective than palliative methods of coping which may be used by less intelligent students.

In a study by Zeidner and Schleyer (1999) it was hypothesized that students who are mentally gifted across gender and school would experience lower levels of test anxiety than those who are not mentally gifted. They based this on the assumption that students who are intellectually superior have no past experiences of academic failure which increases their confidence in test situations thus minimizing negative self-statements. Also, intelligence serves to moderate the effects of test anxiety on performance. That is, students who are intelligent acquire more information in class and remember more in tests even if they are anxious while students who are less intelligent acquire less in the first place and remember even less in the test which results in poorer performance. The results they obtained confirmed their hypothesis. The gifted students, regardless of school grade and gender, were less anxious than their non-gifted counterparts. Thoughts of doing poorly and negative self-statements had less debilitating effects on their actual test performance.

However, these researchers warn that intelligence might not always be beneficial in test anxiety. This is due to the fact that students who have higher intelligence would have more intellectual ability to accurately work out the negative consequences of failure than would low intelligence students. This would in turn result in the increase of students' worry and concern over taking the test which would mean that intelligence leads to higher levels of test anxiety. To the researcher's knowledge, no studies have been conducted to test this hypothesis.

2.4.5 Gender Differences

There are long standing claims that the prevalence of psychological problems differ between male and females. Epidemiological studies have shown that the differences are

commonly found in neurotic disorders (Strebel, Stacey & Msomi, 1999; Bela, 2006). It appears that females tend to present more with anxiety disorders and depression while men tend to present with substance-related problems (Strebel, Stacey & Msomi, 1999). Some theorists have hypothesized that this is due to the fact that when men are experiencing emotional difficulties, they turn to alcohol and other substances as a way of coping which is viewed as socially appropriate (Loewenthal, Lee, MacLeod, Cook & Goldblatt, 2003)

Even in instances where males report emotional difficulties, they tend to understate these feelings in an attempt to uphold a macho stance. As a result, females tend to report experiencing more anxiety than males. This is a trend that has been noticed in children and continues into adulthood (McDonald, 2001). A study by Zeidner and Schleyer (1999) showed that females reported more levels of test anxiety than males in both the emotionality and the worry component of test anxiety.

In another study, Aysan, Thompson and Hamarat (2001) took 59 high school juniors with an average of 16 years and 54 high school seniors with an average of 18 years of age and assessed their levels of test anxiety. They found that younger students, particularly younger girls showed higher levels of anxiety over academic tasks. They noticed that girls tended to use more self-blame, became more overtly worried and displayed more anxiety over problems than did boys.

The study mentioned above was conducted on high school children. It is possible that this trend changes with age. As a result, these findings might not prove to be as relevant for the current study. However, it has been reported that while general fears tend to decrease among children as they grow older, academic fears do not follow this trend; they

tend to remain constant (King, et al., 1989; McDonald, 2001) which would mean that the studies conducted on children bear results that can be generalized to adults when it comes to academic test anxiety.

A study by Mwamwenda's (1994) seems to support gender differences. In his study 63 university females and 29 university males were tested for test anxiety prior to writing an educational psychology course test, it was found that female students had on average higher levels of test anxiety than their male counterparts.

A study by Alansari (2006) looked at gender differences in anxiety among undergraduate students from 16 different countries. Results showed that there were significant gender differences in students from 11 countries. In these countries, females had higher anxiety levels than their male counterparts.

Some researchers maintain that the incidence of test anxiety is the same amongst females and males. The difference lies in that females tend to be more willing to report experiencing anxiety, which is not the case with males (McDonald, 2001). El-Zahhar (1991) argues that the reason for gender differences in test anxiety lie in the fact that males are more defensive compared to females. That is, males generally tend to claim to be less anxious in a test situation than is the case in reality.

While there is uncertainty as to why there exist gender differences in anxiety levels, some studies have focused attention on gender differences and the different dimensions of test anxiety. Stober (2004) found that females had the highest levels of *worry* and *emotionality*. They also scored higher on the *lack of confidence* component, although not as high as the other two. The only component that did not show any significant gender differences was *interference*. This suggests that for the most part, male students who

suffer from test anxiety are troubled more by interfering thoughts than worry or the physiological responses.

2.4.6 Coping Methods

Due to the stressful nature of test anxiety, test anxious students employ a number of coping strategies to help them deal with their anxiety and reduce stress. These strategies vary widely from individual to individual. They may include extended hours of preparation, consulting with lecturers, seeking social support, positive thinking and so forth. A considerable amount of research has been conducted to determine methods used by students to cope with this phenomenon as well as methods that are found to be particularly useful.

Kondo (1996) found five clusters of tactics used by students to cope with test anxiety. These were positive thinking, relaxation, preparation, resignation and concentration. Positive thinking involves tactics that generate positive thoughts about the exam situation such as imagining one getting a good grade. In addition, he found that students use other positive thoughts that might not be directly related to the test but are aimed at suppressing the negative thoughts that underlie the anxiety. Relaxation techniques are aimed at alleviating bodily tensions experienced by the student with test anxiety. These include taking a deep breath, shaking the body and recreational activities such as watching television and listening to music to seek diversion. Preparing for the exam through perceived adequate studying is one method employed by students to reduce uncertainty about the up coming test and thus help them to feel more confident and less anxious. Resignation is the unwillingness to do anything to alleviate the test anxiety. Kondo (1996) maintains that it is intended on minimizing the impact of the anxiety by

refusing to face the problem. Concentration is characterized by the student's attempts to handle the task at hand as effectively as they can, for example, solving easier problems first, writing as much as possible thus minimizing opportunities for undesirable consequences. Resignation was found to be the least effective method of coping as it did not seem to have any effect on the actual performance in the test.

Sarason (1981) reported that social support acts to protect one from severe stress in test situations. She maintains that while test anxiety may be due to a problem of interfering cognitions and the direction of attention, social support helps the individual feel less alone in the situation thus reducing the self-deprecating negative thoughts. Students have been found to seek social support by forming study groups, discussing the course content with each other and talking about their anxieties with each other.

However, a study by Orpen (1996) found that social support from class peers was less effective than that coming from family and outside friends. He stated that this might be due to the fact that family and friends know the student more thoroughly and thus are more sensitive to his/her needs making them more effective as sources of support. There is no evidence that this is not the case, however, with most students living far away from home and having only each other for support, this support might be as good as that of family and outside friends.

Aysan, Thompson & Hamarat (2001) in their study of coping strategies and perceived health status of students with test anxiety found that these students tended to use ineffective coping strategies. The students tended to utilize self-blame, wishful thinking and avoidance more, while students without test anxiety used active problem solving as well as seeking social support. Students without test anxiety also reported a

number of health problems before and after the test. They tended to report experiencing low energy levels, problems with sleep and other physical symptoms.

A study by Blankstein, Flett & Watson (1992) also had results similar to those found by Aysan et. al. (2001) Students with test anxiety avoided active problem solving strategies. This avoidance of the problem was found to be due to a perceived lack of ability to cope and feeling out of control over the outcomes. This group of students significantly lacked self-confidence which further increased their anxiety as they felt helpless in the situation.

Stober (2004) found that students generally used social support to deal with test anxiety. However, when the different dimensions of test anxiety were assessed, it was found that the worry and emotionality component were related to task-oriented coping and test preparation. The interference component was related to avoidance and was inversely related to task orientation and preparation. Lack of confidence was related to avoidance behaviours only. This might explain why some students with test anxiety use more task-oriented coping methods while others opt for the less effective avoidance coping.

It appears that while there is a wide range of coping methods that are used by students to curb the effects of test anxiety, students with high levels of test anxiety tend to use the methods that are least effective and as a result feel powerless in the situation. These are usually the students with more cognitive interference and less confidence. Also, these students tend to have a wide range of negative self perceptions which can only act to make them feel worse about the whole test situation.

Ways of coping have a major effect on test anxiety. Some coping methods appear to be effective while others appear to be less so. Overall, findings show that high levels of test anxiety are predominantly related to emotion-focused coping and avoidance coping (Stober, 2004). It is thus important that students with test anxiety are made aware of this and are taught the coping methods that have been found to be effective.

2.5 Theoretical Framework

For test anxiety to be effectively treated, one needs to have an in-depth understanding of the phenomenon. This understanding will help guide treatment.

Traditionally, two models existed which attempted to explain and guide treatment for test anxiety. These are the Interference Model and the Deficit Model. These models will be explained below as they have played a major role in the understanding of this phenomenon. Other perspectives will also be briefly defined to illustrate some of the newer developments that have taken place over the years in the understanding of test anxiety.

2.5.1 Interference Model

According to the Interference Model, test anxiety is a situation specific personality trait. It has two psychological components, worry and emotionality. As previously mentioned, the worry component represents the negative preoccupations and thoughts about how poorly one is performing in comparison to others and the emotionality component represents the physical changes that are associated with anxiety such as an increased heart rate, sweating, trembling and so forth.

The interference model suggests that in test situations, students with test anxiety get overwhelmed by physiological arousal and worrisome thoughts. As a result, students fail

to fully concentrate on the test as their attention is divided among the actual test, the physiological arousal and the negative self preoccupations. Invariably this would impact negatively on their performance in the test. There is evidence that students with lower levels of test anxiety devote a bigger portion of their attention to the test and the tasks at hand (Sarason, 1980; Wine, 1980) as they do not have the distracting negative self-preoccupations and the physical arousal.

Negative self preoccupations are thoughts which hold a negative view about the self such as “I am a failure”, “I won’t get through this”, “Everybody is doing better than I am” and so forth. It has been reported that these kinds of thoughts distract the individual as they interfere with being fully attentive. The physical symptoms are also a major concern. It is suggested that test anxious students get so overwhelmed by their sweating, increased heart rate and difficulty breathing that this also interferes with their test taking.

From this perspective, interventions for test anxiety need to focus on helping students redirect their attention to the test and not to their negative thoughts and negative self-talk. Those who take the cognitive approach to understanding test anxiety assume that thinking errors that occur during test situations are the primary source of anxiety. Methods aimed at correcting the thinking errors such as Rational-Emotive Therapy and Cognitive Restructuring Training in task oriented self talk are employed (Deffenbacher, 1980; Kondo, 1996) Also, relaxation techniques are recommended as methods that can be taught to students so they can apply them while they are in the test to minimize physiological arousal thus minimizing the re-direction of attention (Deffenbacher, 1980).

While the Interference theories suggest that the way to help test anxious students perform better is by teaching them skills to avoid external stimuli and cognitions from

interfering with their test taking, there is some strong evidence suggesting that at times, test anxiety results from the inadequate studying prior to the test as well as inadequate test taking skills. This is the core element of the Deficit Model.

2.5.2 Deficit Model

According to the Deficit Model, reduced performance in students with test anxiety is a result of a deficit in students' skills. This suggests that students who lack the necessary skills to study effectively become anxious as they are aware that they have not used study time fruitfully. This leads to poor performance as the student is more anxious and they also would not have acquired a sufficient amount of work to get them through the demands of a test.

Thus the core of this model is that poor performance of students with test anxiety is due to less thorough acquisition and storage of information during studying and is not a result of interference in the retrieval of information as suggested by the Interference Model (Tobias, 1985).

In arguing against the Interference Model, Burns (2004) maintains that if students acquired all the material required for the test during their studying they would be more comfortable and confident in the test situation, which would minimize their physiological arousal and negative cognitions about the test. This means that intervention should be aimed at improving study skills rather than controlling the secondary effects, which are negative cognitions and the physiological responses.

In support of this view, a study by Ng and Mitchell (1972) found that treatment methods aimed at helping students restructure their thoughts about the test situation as

well as help them relax during the test did not help improve test performance if the students' study skills were inadequate.

Besides the inadequate study skills, test-taking skills have also been identified as another area where deficit can lead to poor performance and even an increase in drop out rates (Carter, Wehby, Plank, Barton, & Lunsford, 2005). Students not equipped with knowledge of how to tackle different test questions and also how to manage their time during the test suffer the negative consequences of test anxiety. The Deficit Model suggests that if students are equipped with the necessary skills for studying as well as for taking tests, they will perform better and might even have lesser physiological responses to tests.

2.5.3 Other Developments

The later developments in the field of test anxiety have proved to be wider than the Deficit Model and the Interference models. Deffenbacher's (1980) was amongst the first theorists to state that test anxiety is more than interfering thoughts or a deficit in skills. He maintained that test anxiety did not merely appear at the time of the test as suggested by the Interference Models. He recognized that there was some disturbance even in the preparation stage. His stance was that worry about the test as well as physiological arousal start appearing during the study period as students already feel anxious at this stage. He suggests that interference occurs even at the time of studying meaning that the students do not get most of their study times. This means that treatment programs should be tailored in a way that they provide students with coping skills that they can use even prior to the test situation. He maintained that this would improve students' performance in two ways. Firstly, the worry would be removed from the

preparation stage, which would remove avoidance behaviours and improve learning and rehearsal of the material. Secondly, the worry would be reduced during the exam, which means that it will not interfere with the recall of the information.

Tobias (1985) suggests that these two models are not to be viewed as mutually exclusive but rather as two contributing factors in the phenomenon. He provides a Limited Cognitive Processing Capacity Formulation which suggests that all people have a limited cognitive capacity to process information. According to this formulation adequate study skills allows people to organize material in a manner that they require less cognitive capacity in retrieval than those with inadequate study skills. He also recognizes the role of interference in reduced test performance. He maintains that as people have a limited capacity; irrelevant thoughts as well as preoccupation with the physiological responses during the test utilizes the cognitive capacity that should be reserved for the test thus resulting in poor performance.

He maintains that students with worry and emotionality as well as a deficit of skills are more likely to perform poorer on tests as they have more external elements demanding cognitive capacity that is needed for the test.

Tobias' formulation is one of the few models that view test anxiety as possibly a result of a combination of both the worry and emotionality stressed in Interference Models but at the same time not downplaying the importance of study skills. Meichenbaum & Butler's (1980) conceptual model of test anxiety is one other such model of test anxiety. This model will be discussed later in this chapter, as it is the model that is used for the understanding of test anxiety in this study due to its comprehensive nature as well as simplicity.

2.6 Conceptual Model of Test Anxiety

Meichenbaum and Butler's (1980) conceptual model for test anxiety will be used as a framework for this study. According to this model, test anxiety is a combination of physiological arousal, negative self preoccupation and poor study habits. This model suggests that there are four components, which contribute to test anxiety. These are internal dialogue, cognitive structures, behavioural acts and behavioural outcomes. They are interwoven and interdependent thus treatment approaches need to take all these factors into consideration for an effective intervention. The four components of this theory will be discussed below.

Internal Dialogue

Internal dialogue refers to the conscious thoughts that one holds about the self as well as the test. According this model individuals with test anxiety tend to react to test situations with negative thoughts, which direct attention away from the task at hand.

These individuals tend to:

- a) Worry about their performance, including how well others are doing as compared with oneself
- b) Spend too much time trying to decide on an answer and an alternative one
- c) Worry excessively about physiological arousal that is due to anxiety
- d) Worry and think about what is going to happen if they perform poorly
- e) Have thoughts and feelings of inadequacy, including active self-criticism or self-condemnation, considering oneself worthless etc.

These thoughts are concerning the self rather than the task, which serves to direct attention away from the task to the self. They are also negative, which makes them decrease the individual's levels of motivation which increases anxiety.

Behavioural Acts

As internal dialogue involves the content of the individual's thought patterns, the behavioural acts focuses directly on one's observable behaviours. According to this model there are three classes of behavioural acts. These are study habits, interpersonal behaviour in preparation for stressful evaluative situation and test taking behaviour.

- a) This component maintains that poor study skills are related to poor academic performance.
- b) It is important that test taking skills are viewed as important particularly for university students who get confronted with test situations that require complex and sophisticated test taking skills such as multiple choice strategies, selection of essay questions organization of material and so forth.
- c) Within this component, it is suggested that it is important to maintain interpersonal relations in preparation for the test. This includes, consulting lecturers and peers in relation to the test. Students need to curb their anxieties by getting information about the exam form the lecturers and seeking social support from peers. These are said to be important factors in determining the extent of anxiety in testing situations.

Behavioural Outcomes

Closely related to the behavioural acts are behavioural consequences. These are a wide range of events that the individual cognitively or behaviourally responds to. They

may include feedback one receives on an examination as well as other positive or negative social reinforcement for example, praise, respect, criticism and so forth.

Behavioural outcomes may also refer to internal events such as physiological reactions and mood states.

Cognitive Structures

Cognitive structures represent the way that the individual thinks about the situation. They account for the motivation, direction and organization of behaviour. According to this component, students with test anxiety have a variety of concerns that influence their behaviours when writing tests. Examples of these are the student's concern over loss of control, fear of being overwhelmed by anxiety, concerns about gaining the admiration of authority figures and/or peers, concerns that academic achievement might jeopardize social relations with members of the opposite sex, concerns about the negative implications of poor performance and so forth.

This model suggests that these components of test anxiety are interconnected and influence each other at different levels and together they contribute to test anxiety. As a result, treatment approach should influence all components, which are the internal dialogue, meaning system, behavioural acts and interpretation of behavioural outcomes rather than focusing on only one aspect of the process. This would mean a more comprehensive approach to test anxiety treatment which will be more likely to be a success as all contributing factors are taken into consideration and addressed. According to Meichenbaum and Butler (1980) one such treatment approach is Stress Inoculation Training.

2.7 Stress Inoculation Training

2.7.1 Description of Stress Inoculation Training

Stress Inoculation Training is a cognitive behavioural treatment approach developed by Meichenbaum (1977). Its modifications are used for the treatment and prevention of a host of psychological disorders. It has three components: (1) an educational component which provides the clients with an understanding of their response to stress including, for example its relationship to irrational thinking and possible ways to reduce it at both physical and psychological levels. (2) a rehearsal component which consists of coping skills directed towards specific stressors for example relaxation techniques and cognitive restructuring and (3) the application phase in which the clients can practice the acquired cognitive and behavioural skills in either real or imagined stressors.

Stress inoculation training is effective because it has a number of techniques and coping methods that one can draw from at times when they are feeling overwhelmed by stress (Meichenbaum, 1996).

2.7.2 Stress Inoculation Training Vs other treatment methods.

A number of studies have been conducted over the years that look at the effectiveness of Stress Inoculation Training in a number of anxiety disorders. In one study, it was used in the treatment of a woman who had an emergency hysterectomy three weeks after delivering her first child. At the time when she was first seen, she reported experiencing sleep disturbance, flashbacks, prolonged crying, avoidance of things that reminded her of the surgery and so forth. A single case experimental design was used to evaluate this case. The researchers/therapists found that SIT was effective in the

treatment of Post Traumatic Stress Disorder as her symptoms decreased significantly after the treatment (Trzepacz & Luiselli, 2004)

In a study by Foa, et al. (1999) SIT was used in the treatment of PTSD in a group of women who were victims of assault. The study was aimed at comparing the effectiveness of SIT with Exposure therapy as well as the combination of these methods. The results revealed that both Stress Inoculation Training and Exposure Therapy were effective and that the combination of these methods did not produce results better than either method used independently.

In another study, Stress inoculation Training was administered to 62 students who were assessed to have speech anxiety. The results of the study showed that SIT was more effective in the reduction of speech anxiety than no treatment (Jaremko, 1980)

Fontana, Hyra, Godfrey and Cermak (1999) conducted a study examining the effectiveness of Stress Inoculation Training procedures on anxiety among college students. Thirty six students were treated for anxiety with SIT and were then randomly divided into two groups of eighteen. One group was a treatment group and the other group was a control group. The participants were then exposed to a stressor which was an anxiety provoking subtraction task. This group was later assessed on whether they had used the SIT procedures and whether any of them were useful. The results showed that students who had been on SIT and used its procedures had experienced lower levels of anxiety. The heart rate monitors also showed that they had lower heart rate levels. This study seemed to confirm that SIT was useful in minimizing the effects of stress among the participants.

A study by Sheehy and Horan, (2004) looked at the effectiveness of SIT on the anxiety, stress, irrationality and academic performance of first year law students. The results of this study proved to be promising for SIT as participants in this group had decreased levels of personal, emotional and general stress. When they conducted additional analysis it was found that the students in the SIT group displayed lower levels of test anxiety over time. This proved to be promising for SIT as participants in this group had decreased levels of personal, emotional and general stress. Finally, the academic results of these students showed a significant improvement following the intervention.

The abovementioned are some of the studies that have been done to assess the effectiveness of Stress Inoculation Training in a number of anxiety disorders. The results that have been found over the years suggest that SIT is useful in helping individuals who are anxious. This suggests that SIT is potentially useful in the treatment of test anxiety as suggested by Meichenbaum & Butler (1980).

SIT has been found to be advantageous in group settings as it can be easily modified to suit the needs of a group (Keyes & Dean, 1988). SIT also has preventive properties which means that it not only helps in the treatment of existing anxiety symptoms but subjects are also armed with techniques that they can use in the prevention of anxiety.

Interestingly, SIT components are similar to the coping methods that Kondo (1996) found to be effective in coping with test anxiety. This means that SIT is a good method for teaching students with test anxiety effective coping methods as part of a structured program.

2.8 Conclusion

It is evident that test anxiety is an area of concern for students, lecturers and counselors. Lecturers need to assess and evaluate the academic performance of students mainly by means of tests. Students need to write and do well on these tests. However, test anxiety may hamper students' preparation for tests as well as their performance. A situation arises where a lecturer is burden with having to re-set a test for those students who were too anxious to write and therefore 'missed' the test or he/she may need to explain and justify poor performance by students which can create its own anxieties for lecturers.

Meichenbaum and Butler's (1980) model of test anxiety encapsulates essential features in providing insight into test anxiety. Unlike the Interference Model and the Deficit Model, it is more comprehensive in its understanding of test anxiety. It appears that test anxiety results from a combination of physiological and cognitive interference as well as a deficit in skills associated with test preparation. It is then appropriate for treatment to address all these aspects adequately. Stress Inoculation Training is one treatment method that is appropriate for this. It has been found to be useful in the treatment of a number of anxiety disorders and it is thus assumed that it will be as useful in the treatment of test anxiety as well as it has aspects that address all issues that are a concern in test anxiety.

This study looks at the effectiveness of SIT in comparison to Skills workshops and no treatment at all, in the treatment of test anxiety. The next chapter will look at the methodology that was used in conducting this study.

Chapter three

Methodology

3.1 Introduction

This chapter provides an overview of the methodological approach used in this study.

The procedure followed in conducting this study as well as the methods used to analyze the data are discussed.

3.2 Design

This study is a true experiment. A true experiment involves a design where a control group is similar to the experimental group in every way except that the experimental group receives a treatment that the control group does not (Christensen, 2001). In this study the participants were randomly assigned to the control group or the experimental groups from the same pool of students. This was the method used to ensure that the groups were similar or that any student had an equal chance of being in either group.

A three group pretest-posttest design was used. The pretest-posttest design consists of a minimum of two groups. One group receives a certain treatment and the other group receives a different treatment or no treatment at all. The essential feature of this design is that subjects are tested before and after the intervention. Thus the effect of the intervention/treatment is reflected in the amount of change from pre to post intervention assessment. In this kind of design subjects are assigned to groups either before or after completion of the pre-test. In this instance, the subjects were randomly assigned to the experimental groups and control group after the pretest. This design is the one mostly

used in clinical research where the aim is to evaluate the effectiveness of a clinical programme or training (Kazdin, 1980)

In this study, this design allowed for the assessment of the participants' levels of test anxiety prior to the interventions as well as after the interventions. The aim was to determine the differences between the three groups.

3.3 Participants

The sample was recruited from the University of KwaZulu-Natal. A letter was written to the psychology department seeking permission, which was granted, to approach the first year class with a request to participate in the study. The students in the psychology class were informed of the study and asked to volunteer. Initially 103 students volunteered to take part in the study. All students who volunteered to participate signed an informed consent form (See Appendix C) which explained the purpose of the study, its voluntary nature and time commitment. At the beginning of the study, participants were issued with the Test Anxiety Scale (TAS). Some students dropped out of the study for various reasons and some students' information could not be used in the study because they did not meet the criteria for participating in the study. The final sample constituted of 75 students who, according to the TAS results fell in the moderate to high levels of test anxiety.

The demographic information of the participants are analyzed below. The sample constituted of 27 males and 48 females. Fifty-two participants in the study identified themselves as African, 10 identified themselves as White, eight identified themselves as Indian and five identified themselves as "Coloured". Thirty two of the participants reported they had attended a model C school, forty had attended a township school and

three participants described their high schools as rural. None of the participants had received any treatment for test anxiety in the past. The ages of the participants ranged from 17 to 35 with a mean age of 20 years.

The sample was randomly divided into three groups of 25. The three groups were randomly assigned to the three treatment groups which are Stress Inoculation Training, Skills Workshops and the waiting –list control group.

3.4 The Facilitator

The facilitator of the interventions was the researcher in this study. She is a student currently completing her M.A clinical psychology degree who has completed the course work and the internship. She has experience in Stress Inoculation Training and conducted this intervention under the supervision of a qualified psychologist. She also received guidance regarding the skills workshops from a qualified psychologist who conducts these workshops at the university.

It would have been ideal to have someone who did not know the study to do the intervention as this would eliminate the experimenter effect (Christensen, 2001). However, this was not achievable in this study as the researcher could not find anyone who was suitably qualified to do justice to the interventions at minimal costs. This resulted in the researcher having to conduct the interventions herself.

3.5 Instrumentation

3.5.1 Biographical Questionnaire

A Biographical Inventory (Appendix A) constructed by the researcher of the study was used. This inventory served to ascertain relevant demographic information such as

gender, age and whether the participant had received any treatment for test anxiety in the past or was receiving any treatment at the time of the study. This information was used in the selection of the final sample.

3.5.2 Test Anxiety Scale

The Test Anxiety Scale (TAS) (Sarason, 1960; Sarason, 1973; Sarason, 1980) (Appendix B) was used in this study. The TAS consists of 37 true or false items which assess the subjects' reaction before, during and after taking the test. The present TAS represents a transformation of a graphic rating scale the Test Anxiety Questionnaire (Mandler & Sarason, 1952) into true or false terms. Earlier versions of the TAS initially consisted of 16, then 21 items. According to Sarason (1973) the revisions of the scale involved "pruning" which means that correlating items were dropped. The current 37 item scale was developed because its length increased sensitivity and reliability. Sarason (1973) states that the 37 item TAS has a .93 correlation with the earlier 16 item version, which means that they measure the same construct.

Scoring: In scoring the TAS each "true" or "false" response is allocated a value of either one (1) or zero (0) depending on the item number. The final score is determined by adding up all the 1s. It is stated that a score of 12 or below ranks in the low test anxiety range. A score of 12 to 20 ranks in the medium range. Any score above 20 signifies high test anxiety. Scoring 15 or greater is a good indication you experience considerable discomfort about taking tests (Sarason, 1980).

Reliability: The test-retest reliability of the TAS is reported to be .91 (n =70) and the split half reliability is .91 (n = 100) (Sarason & Ganzer, 1962). According to Sarason (1973) a study conducted on the TAS with 283 male and 237 female undergraduate students at the University of Washington and found a test-retest reliability coefficient of .87.

Validity: The relationship between the TAS and other measures such as Spielberger's (Retrieved 22/02/06) Test Anxiety Inventory (TAI) as well as Liebert and Morris' (1967) Worry and Emotionality Questionnaire all provide evidence of similar validity. The correlation between the TAI and the TAS was sufficiently high (.82 to .83) to suggest that the two scales measure essentially the same construct (Spielberger, Not dated – Retrieved 22/01/06)

3.6 Procedure

The final sample of 75 participants was randomly divided in to three groups of (n = 25). One group received Stress Inoculation Training, the second group received skills workshop and the third group was a waiting-list control group where no intervention was offered in the duration of the study. A detailed presentation of the interventions and their contents follows below.

3.6.1 Stress Inoculation Training

For this study, SIT was conducted in a group setting. It was conducted in five 1 hour sessions. During the first session, participants and the facilitator introduced themselves to one another. The importance of maintaining confidentiality and respect for each other within the group was emphasized. Meichenbaum & Butler's (1980) model of test anxiety was introduced and test anxiety was conceptualized. This involved the discussion of the four components of test anxiety. Participants were encouraged to share their experiences of test anxiety. The group also discussed the different methods they have used to cope with their experiences in the past and how effective they found these methods to be. The group was then led through a rapid relaxation exercise (Ottens, 1991) and was given pamphlets to guide them with practicing this exercise at home. This session constituted more of the educational phase in SIT.

In the second session, rapid relaxation was reviewed. Participants were then led through Progressive Muscle Relaxation to help them deal with the physiological arousal of test anxiety. The participants' responses to these exercises were discussed. This session was also used to introduce problem focused coping as well as cognitive restructuring.

The third session was used to help participants familiarize themselves with skills already learnt through role playing and rehearsal of coping methods with imagined stressors. Cognitive restructuring focused on negative self talk that was related to test taking, the self, competition, value conflicts and other thoughts that could interfere with test preparation and test taking. Participants' received homework assignments that involved practice in identifying and disputing their irrational beliefs.

The fourth session was used to educate participants on the practical skills they need to help themselves cope better with tests to feel adequately prepared prior to the test. This included skills such as time management, good note-taking, consulting with lecturers and classmates prior to the test and so forth. Participants were asked to construct a schedule of their planned activities related to preparing for the examinations. The coping skills and application phases overlapped. As cognitive restructuring began, that is, as each skill was presented in session, role play facilitated their application to real life experiences when taking tests.

In the fifth session, the specific SIT techniques presented were reviewed. The participants' reactions to the group experience were discussed. The participants spoke about what their expectations were before the group, whether their expectations were met as well as how they felt about being in the group. Participants were then scheduled for their post treatment assessment session.

3.6.2 Skills Workshop

This intervention was a single one-hour session. Participants were equipped with practical skills for test preparation. These practical skills included such things as the importance of proper note taking, consolidating notes before the test, time management, using study time table and methods of revision. The workshop also involved skills for tackling different types of exam questions such as essay, multiple choice questions and so forth. The workshop did not look into the cognitive and physiological processes that occur during the test in test anxious students. It is mentioned to students in these workshops that they must remain calm in a test but they are not taught how to do it.

3.6.3 The Waiting-list Control Group

Participants in this group did not take part in any intervention during the course of the study. These participants were informed that more students had shown interest in the study than was expected and that their treatment would be delayed by six weeks and that at the end of the six weeks they will be invited back to participate in the study. After the six week delay, the participants in the waiting list control group were invited to take part in the study. Treatment was given to this group of participants following re-testing their levels of test anxiety.

All three groups were asked not to divulge any information to other participants or any other person about what they were doing in the study as this might influence the results. The intervention was conducted before first semester exams. After the test, the TAS was re-administered to the participants to assess their perceived/subjective anxiety levels associated with the exams.

3.7 Statistical Analysis of Data

The Statistical Package for Social Sciences (SPSS) programme, version 13 was used to analyse the data in this study (Brace, Kemp & Snelgar, 2000). For the purpose of this study, a one-way ANOVA with three levels was used to test the hypothesis. This is a test that is used to compare means of several groups. It is an extension of the independent group's t-test to accommodate multiple groups. It tests the assumption that several groups are equal and it is a statistical method that determines whether a significant relation exists between variables.

The results of this study as well as the discussion are presented in the next chapter.

Chapter four

Results

4.1 Presentation of results

4.1.1 Pre-treatment Data of the Test Anxiety Scale

The results of the pre-treatment data suggest that there were no differences between the three groups prior to the treatment. These means show high levels of test anxiety amongst the groups.

Table1: *TAS means and standard deviations before treatment*

Type of treatment	Mean (Standard deviation)
Stress Inoculation Training	23.52 (5.15)
Skills Workshops	23.16 (4.28)
Control Group	23.20 (5.00)

The data was further analyzed using the ANOVA. The mean square among the groups prior to the treatment is .973; F (0.42) (see Table 2 below).

Table 2: *Analysis of variance of test anxiety scores pre-treatment*

	Sum of Squares	df	mean square	f	sign
Between groups	1.947	2	.973	.042	.959
Within groups	1679.600	72	23.382		
Total	1681.547	74			

4.1.2 Post-treatment Data of the Test Anxiety Scale

To ascertain whether there existed any differences in the groups prior and after treatment, data was compared. Tables 3a, 3b and 3c (below) show the means and standard deviations of the three groups before and after treatment.

Table 3a: *Test anxiety levels in the Stress Inoculation Training group before and after treatment.*

	n	Mean	Std. Deviation	Std Error Mean
TAS Score (Pre-treatment)	25	23.52	5.157	1.031
TAS Score (Post-treatment)	25	15.80	5.730	1.146

Table 3b: *Test anxiety levels for the Skills Workshops group before and after treatment.*

	n	Mean	Std Deviation	Std Error Mean
TAS Score (Pre-treatment)	25	23.16	4.288	.858
TAS Score (Post-treatment)	25	16.88	5.578	1.116

Table 3c: *Test anxiety levels for the Waiting-list control group before and after treatment.*

	n	Mean	Std Deviation	Std Error Mean
TAS Score (Pre-treatment)	25	23.20	5.000	1.000
TAS Score (Post-treatment)	25	22.72	4.748	.950

The data was further analyzed using the ANOVA to ascertain whether there existed any differences in the anxiety levels between the three groups.

Table 4: *Analysis of variance of test anxiety scores post-treatment*

	Sum of Squares	df	mean square	f	sign
Between groups	692.987	2	346.493	12.019	.000
Within groups	2075.680	72	28.829		
Total	2768.667	74			

The results of the post treatment data show an F-ratio of $F_{(2,72)} = 12.019$, $p < 0.0005$), which is significant. The hypothesis was that students who receive Stress Inoculation Training will have lower levels of test anxiety than those who were in the skills workshop and that those who were in the skills workshop will have lower levels of test anxiety than those in the waiting-list control group. This prediction was upheld. Also, the three means are significantly different after the intervention which is not the case before treatment was administered (as seen on Tables 3a, 3b and 3c). The differences in means are also in the predicted direction. The null hypothesis is thus clearly rejected.

4.1.3 Gender Differences

The next part of the data analysis focused on establishing whether there were any gender differences in test anxiety levels. Firstly, the means were compared for the gender differences looking at the average test anxiety scale scores between the two genders. The results showed that females tended to report higher levels of test anxiety (mean = 24.69) than males (mean = 20.81) prior to treatment. (See Table 5a). The differences in the reports of test anxiety levels post treatment were not as apparent as they were pre-treatment. Post treatment, the mean for males was 17.48 while it was 19.02 for females

Table 5a: *Means of test anxiety scores pre- and post treatment for all three groups combined.*

Gender of participants	N	Mean Pretreatment	Mean Post-treatment
Male	27	20.81	17.48
Female	48	24.69	19.02

Table 5b: Means, *t* value(degrees of freedom) and *P* values of Test anxiety levels by type of treatment and gender pre-treatment

Treatment	Gender	N	Mean	t(df)	p
SIT	Male	4	18.50	23 (-2.308)	.030
	Female	21	24.48		
Workshops	Male	13	23.00	23 (-.190)	.851
	Female	12	23.33		
Control	Male	10	18.90	23 (-4.928)	.000
	Female	15	26.07		

Table 5c : Means, *t* value(degrees of freedom) and *P* values of Test anxiety levels by type of treatment and gender pre-treatment

Treatment	Gender	N	Mean	t(df)	p
SIT	Male	4	14.75	23 (-.393)	.698
	Female	21	16.00		
Workshops	Male	13	17.46	23 (.534)	.598
	Female	12	16.25		
Control	Male	10	18.60	23 (-5.021)	.000
	Female	15	25.47		

The results show that there was a 16% improvement in the levels of test anxiety among males following treatment while females had a 23% improvement. This suggests that on the general females in this study benefited more from treatment, regardless of the type of treatment, than their male counterparts.

An ANOVA was then conducted to assess the significance of the gender differences pre- and post treatment. The results show that there was a significant gender difference in test anxiety levels pre-treatment with an $F(1,73) = 13.301$ $P < 0.05$ (See Table 6 below) suggesting that female and male scale scores on test anxiety differed. However, there were no significant difference in test anxiety post-treatment with an $F(1,73) = 1.096$ $p > .05$ (See Table 7 below) suggesting that after treatment test anxiety scores had reached similar levels.

Table 6: *Analysis of variance of gender differences pre-treatment*

	Sum of Squares	df	Mean Squares	F	Sig.
Between Groups	259.160	1	259.160	13.301	.000
Within Groups	1422.387	73	19.485		
Total	1681.547	74			

Table 7: *Analysis of variance of gender differences pre-treatment*

	Sum of Squares	df	Mean Squares	F	Sig.
Between Groups	40.947	1	40.947	1.096	.299
Within Groups	2727.720	73	37.366		
Total	2768.667	74			

These results suggest that overall female students benefited more from test anxiety treatment than their male counterparts.

Chapter Five

Discussion

5.1 The effectiveness of Stress Inoculation Training

Previous research has often found SIT to be highly effective in the treatment of a number of anxiety disorders (Trzepacz & Luiselli, 2004; Fontana et. al. 1999). It appears that the multidimensional nature of SIT taps into the different components of anxiety such as physical arousal, emotionality and negative interfering thoughts while other treatment methods fail to address all the components (Sheehy & Horahan, 2004).

In the current study, students who had taken part in either Skills Workshops or SIT showed improvement on test anxiety levels following treatment. However, SIT seemed to be a more superior treatment method. Students who had been on SIT had lower test anxiety than that of students who were on the Skills Workshop group when treatment was completed. These results are in support of those reported by other studies looking at the effectiveness of Stress Inoculation Training in comparison to other treatment methods when treating anxiety disorders (Trzepacz & Luiselli, 2004; Fontana et.al, 1999), suggesting that SIT is a highly effective treatment method. The fact that there were no significant differences between the test anxiety scores of the students in all three groups as well as that test anxiety scores of students in the control group remained unchanged in pre-test and posttest suggests that the differences noted can be attributed, to the type of treatment method used.

SIT involved teaching participants skills such as practicing relaxation, cognitive restructuring, study skills and seeking social support to help them handle the stress. The participants in the SIT groups rehearsed the skills learned in sessions and were encouraged to use and practice these skills in anxiety provoking situations. The ability of students taking part in SIT to relax themselves in stressful situations, think positively about the situation as well as feel supported at the time of stress over and above being adequately prepared was more powerful than only being adequately prepared for the test and knowing how to tackle questions. This seems to support the Interference Theories (Sarason, 1980; Wine, 1980) stating that there are interfering thoughts in test anxiety which negatively affect students with test anxiety and that these can be rectified through methods that address thinking errors and allows the students to re-direct their attention to the test (Deffenbacher, 1980).

SIT provides students with an opportunity to develop a social network. In the SIT groups, students met other students with similar problems over a number of occasions and they talked about their anxieties. This helped them feel less alienated and they found solace in knowing that there are other students who share their experiences. This is in support of Sarason's (1981) assertion that social support is a strong buffer of stress for students with test anxiety.

SIT encompasses teaching coping methods generally used by people who cope effectively with test anxiety. Kondo (1996) found that students who (1) used relaxation techniques aimed at decreasing physiological arousal, (2) used positive thinking techniques, (3) used concentration as a way of minimizing cognitive interference and (4) adequately prepared for the test to increase their confidence, were the ones with lower

anxiety and higher academic achievement. It is thus important for counselors working with students with test anxiety to teach students these effective coping methods to decrease the negative impact of test anxiety on students' academic progress.

These findings confirm that SIT is an effectiveness treatment method for test anxiety. However, scientists warn that the changes in the subjects' state are not always a result of the study variables but may be due to a placebo effect (Hart, 1999). In this study it can be argued that a placebo effect was not the cause of the differences as both groups received treatment and were not aware of what treatment the other group was receiving and which one was hypothesized to be better. Also, the waiting-list control group provided the opportunity for measuring whether the changes observed in students were as a result of the treatment and not caused by some random event not related to the study.

It is thus plausible to assume that the differences in post treatment scores between the SIT and the Skills Workshop groups are a result of the coping skills afforded by SIT.

5.2 Effectiveness of the Skills Workshops

The wide spread use of the Skills Workshop suggests that much faith is placed in them by counselors and educators. The counselors and educators are in need of a treatment method that can be administered fast and effectively to a large number of students at the same time.

The results of this study showed that the Skills Workshops are effective in the reduction of test anxiety. The individuals who attended these workshops benefited from them as they experienced lower levels of test anxiety following treatment. Students attending the workshops were taught skills on how to prepare for tests as well as how to

answer different kinds of questions. The workshops make students feel confident after attending and feel that they possess adequate skills to prepare and tackle usually stressful test situations. Students use the skills learned in the workshop to prepare for the test which makes their test preparation more endurable. Past research has suggested that feeling adequately prepared for a test lowers levels of anxiety by boosting one's confidence (Stober, 2004) thus increasing one's ability to focus attention on the test (Palmer, 1999). This is the mechanism that makes these workshops effective in the treatment of test anxiety.

The fact that there were no significant changes in test anxiety levels of students who were in the waiting-list control group suggests that the differences noted in test anxiety levels are a result of treatment. These findings stress the importance for students with test anxiety to receive treatment to deal with their test anxiety problems. It is thus worthwhile for institutions to invest in methods designed to help students with test anxiety cope better with their studies as this might increase the retention of students long enough to complete their degrees.

Due to time constraints, the current study did not examine the effects of test anxiety or the different treatment methods on test performance. However, previous research has suggested that high levels of test anxiety negatively affect academic performance of students in testing situations (Zeidner & Schleyer, 1999) while low or moderate levels may be required to enhance performance (Mwamwenda, 1994). As testing is the most commonly used method of assessing whether students understood the work covered in class, it is important that students perform to their optimal levels in tests so that their true capacities are assessed without being confounded by other factors such as high levels of

anxiety. It is thus important that students with debilitating test anxiety are adequately treated.

5.3 Gender Differences

A number of researchers have identified gender differences in the levels of test anxiety, (Mwamwenda, 1994), as well as in the way the different genders cope with test anxiety (Stober, 2004; Bale, 2006). Gender differences thus became a point of interest in this study as well.

The results of this study showed that female students more often reported experiencing anxiety than their male counterparts. Also, in instances where males reported experiencing anxiety, their levels were lower than those observed in females. This is a commonly noted trend with anxiety and other neurotic disorders (Bale, 2006). More females admit to having neurotic disorders and they also tend to report higher intensity than males. While research has often shown that females generally have higher levels of test anxiety (Alansari, 2006); it is difficult to pinpoint the cause of the gender differences in test anxiety and other anxiety disorders.

The reluctance of males to report experiencing psychological problems noted in other studies (Bale, 2006; Arthur, 2005) was apparent in the current study through the small number of males who participated in the study and sought help in comparison to the number of females. It has been suggested that males use other ways to deal with their emotional or psychosocial difficulties. These methods involve such things as excessive alcohol consumption, illicit drug use, aggression and so forth (Deering & Gannon, 2005). As a result there are only a few males presenting themselves to mental health workers

with the actual problem. They are often seen much later with substance abuse problems which sometimes start as a way of dealing with stress, depression, anxiety or loss (Arthur, 2005).

The results of this study showed that fewer males than females sought help. Some researchers like Palapattu, Kingery and Ginsburg (2006) have identified and attributed the male tendency not to seek help due to their socialization. The male gender role encourages men to be macho and non-feeling thus minimizing their ability and willingness to express discomfort, pain and fear as these are viewed as inconsistent with being masculine (Deering & Gannon, 2005).

Another possibility is that males and females use different coping methods to deal with test anxiety. Research has shown that females are more likely to use emotional focused ways of coping which include resignation, procrastination and so forth while males tend to use problem focused methods thus *doing* rather than *feeling* (Stober, 2004; Winkler, et al. 2004). Thus, males spend less time nursing the negative feelings and quickly engage in tasks that will supposedly rectify the situation.

Males with test anxiety might study harder for tests to increase confidence and reduce anxiety. If this is the case, it might mean that men truly experience lower levels of anxiety because their coping mechanisms are much more effective. This idea is also supported by Martin (1997) who states that the generally high levels of confidence and boldness in males make them less susceptible to anxiety about situations. This confidence might also be the reason males are less likely to seek help as they tend to feel adequately equipped to deal with whatever situation they encounter.

On the other hand, epidemiological studies show that males and females differ in their presentations of psychological problems. This might suggest there are as many males with test anxiety as there are females. The difference might be it manifests itself differently in males, such as through early dropping out of school, aggression or the abuse of substances (Strebel, Stacey & Msomi, 1999). These could be their unconscious “cries for help” or could be conscious attempts to cope with academic stress.

More research is needed to investigate why these gender differences exist. It is possible that males are not receiving the help that they desperately need because they are not seeking help due to a lack of insight into their problem or are not getting the help they need because they are being misdiagnosed by their counselors and other professionals. At the same time counselors could gain invaluable knowledge about the male psyche that might make them less susceptible to debilitating test anxiety which they could pass onto their female clients to help them cope better with test anxiety.

5.4 Gender Differences and Response to Treatment

There seem to be a relationship between gender and response to treatment. In this study, although female students started out with higher levels of test anxiety, they also showed a higher level of improvement following treatment. Male students, on the other hand, started out with lower levels of test anxiety but they also had a lower level of improvement following the intervention. This seems to suggest that females responded better to treatment than males. This is in support of the findings by Ogrodniczuk, Joyce & Piper (2005) who found that males and females respond differently to treatment. Females generally commit more to therapy. They follow the therapist’s suggestions, do the

homework suggested in therapy and have faith in the therapists and the therapy process. Males generally harbour some reservations to therapy although they might be willing to give it a try. Females as a result of their commitment, show more improvement following therapy. Deering & Gannon (2005) also found similar results thus bringing this study to the conclusion that the women in this study gave more commitment to the treatment thus reaping more benefits from it. It is thus important that clients be committed to therapy and to believe that it will help them to increase their benefits from therapy.

5.5 Conclusion

The results show that SIT is more effective than Skills Workshops in the treatment of test anxiety. It is also noted that both treatment methods are better than no treatment at all. An interesting finding, though not unexpected, was that there was a gender difference in the levels of test anxiety reported, with males reporting less test anxiety than females. Another interesting finding related to gender was that females seemed to respond better to treatment than their male counterparts. It is still unclear why these differences exist, thus more research is needed to help in the understanding of the cause of the gender differences in test anxiety.

Chapter Six

Conclusion

6.1 Introduction

This chapter concludes this study. An overview of the study, followed by a summary of the findings and the limitations of SIT are presented. The chapter ends with the limitations of this study as well as directions for future research in this area.

6.2 Overview of the study

This study was undertaken to compare the effectiveness of Stress Inoculation Training and Skills Workshops in the treatment of academic test anxiety amongst first year university students. According to Meichenbaum & Butler's (1980) model, test anxiety has four components and treatment needs to take all four components into consideration to be complete. SIT is a treatment approach that takes these components into consideration.

The total sample consisted of 75 first year psychology students. These students were selected as the final sample based on the information they had provided in the biographical inventory as well as their Test Anxiety Scale scores.

The participants were randomly separated into three groups. The three groups were randomly assigned into three different treatment conditions. The three treatment conditions were Stress Inoculation Training, Skills Workshop and a Waiting-list control group. Stress Inoculation Training is a cognitive behavioural treatment approach which was aimed at teaching students practical skills for preparing for tests and taking tests, as

well as cognitive strategies to reduce anxiety in the test. The Skills Workshop was aimed at teaching the students practical skills for preparing for tests as well as taking tests. These workshops did not include the cognitive strategies afforded by SIT. The study hypothesized that due to its inclusive nature, SIT is more effective than a Skills Workshop in the treatment of test anxiety.

6.3 Summary of the findings

The results of the investigation showed that both SIT and the Skills Workshop were effective in the reduction of test anxiety. However, SIT was found to be superior to the Skills Workshop. This suggests a need for treatment to be comprehensive and address all components of test anxiety. SIT provides students the practical skills for preparing for tests as well as taking tests. It also arms them with the skills to minimize physiological arousal at the time of the test to allow the students better concentration on the task at hand. The cognitive restructuring aspect of SIT ensures that the students can control their negative thoughts and teaches students skills of disputing the negative beliefs they hold about themselves and tests. This ensures that the students are positive about writing the test and are confident in themselves and their abilities. SIT also provides students with an opportunity to get in contact with other students who have test anxiety over a number of sessions. As a result, students have an increased sense of being supported as they share their experiences with one another.

A further finding was concerning gender differences. Females reported higher levels of test anxiety than males but also responded better to treatment than their male counterparts. Females generally have higher levels of anxiety because they are less self-

confident than males. They feel that they cannot cope with the test and as a result have increased anxiety levels. Males on the other hand are confident in their abilities and generally minimize the negative feelings by paying more attention to the task or studying harder. Males believe that they are the only people who can help themselves as a result they resolve to doing things for themselves such as studying harder or redirecting their energies to other activities that they believe they are good at and they avoid the “problematic situations” thus maintaining their confidence levels. At times, this might result in them completely dropping out of school or changing courses to accommodate what they perceive as their abilities. This can be problematic as males with test anxiety might opt for “easier” degrees when they could cope with the “harder” degrees if they had sought help and treated the anxiety.

The unwillingness of males to seek help and the belief that only they can help themselves might also have resulted in their benefiting less from therapy sessions. The males were less committed to therapy than females and had less faith on the therapist and the therapy process as a whole. As a result they gained less from therapy than their female counterparts. Also, the fact that the facilitator was female, might negatively influence the males willingness to commit to therapy as they could have undermined her ability to facilitate a process that would help them. This could have happened with and/or without the awareness of both the facilitator and the participants.

These results are relevant as they provide more insight into test anxiety and its treatment. There has been a shortage of studies looking at the effectiveness of test anxiety treatment methods in the past particularly the commonly used Skills Workshops. The results obtained in this study supported the hypotheses that were made by the researcher.

This study further stresses the need for treatment to be made available to students as test anxiety has a negative effect on one's performance on tests as well as one's general experience of tertiary education. SIT has been found to be more effective than Skills Workshops.

6.4. Limitations of Stress Inoculation Training and Recommendations

6.4.1: SIT is a time consuming program as it is conducted over a number of sessions.

This might result in a high drop-out rate meaning that students give up treatment before it comes to an end due to other time commitments.

6.4.2. It is important for counselors using SIT to plan ahead as it is not an ideal programme to be implemented a few weeks before tests as this will not allow students adequate time to attend all sessions and students will be more resistant to participate in anything other than studying for tests if there are tests approaching. Study skills workshops, on the other hand, measure quite favourably in terms of time. Students might be more willing to attend a once off workshop as it does not distract them from their normal routine.

6.4.3. SIT cannot be administered effectively in large groups like the workshops. As with any group therapy approach, the recommendation is around eight to ten participants (Corey, 2000). This would mean that the therapists would have to break down the participants and have different groups

6.4.4. SIT uses more resources. Most institutions do not have enough counselors to allow for running of small groups. This is because the available counselors see students for other "more urgent" mental health issues. As a result therapists and

counselors might also favour workshops to address test anxiety as they demand less of their time

6.5. Limitations of the study

- 6.5.1. The sample was very exclusive and small. This means that the results found in this study cannot be generalized to all students as the sample was not representative of the general student population.
- 6.5.2. The scale used in this study is somewhat dated. Also, it does not have clearly defined subscales which represent the multi-component nature of test anxiety. Based on the assumption that test anxiety is a multi-component construct, it would have been ideal to use a multi-component scale to determine which subscales are escalated which ones are not amongst the tested individuals. This could have allowed the researcher to be able to determine which test anxiety subscales are influenced by the different components of treatment.
- 6.5.3. The facilitator of the workshops and groups was the researcher in this study. This might mean there is an element of experimenter effect on the outcomes of the study.
- 6.5.4. Previous research has constantly referred to the effect of test anxiety on test performance. Due to time constraints as well as rules regulating access to student records, the effects of test anxiety treatment on performance could not be investigated in this study. It would be interesting to look at the effect of test

anxiety on performance as well as the effectiveness of SIT in enhancing students' academic performance.

- 6.5.5. Due to time constraints, SIT had to be compacted to six sessions. It might have been useful to administer SIT over an even longer time period to slow the pace and ensure that all participants reap its full benefits.
- 6.5.6. The study did not assess the significance of all the components of Meichenbaum & Butlers' (1980) model in treatment. The study did not look at the effectiveness of only the cognitive aspects of treatment as it did with the behavioural skills.

6.7 Direction for Future Research

It is recommended that more research is done on test anxiety as well as its treatment methods.

- 6.6.1. Future studies in the area should have bigger samples consisting of students from different disciplines to ensure that the results can be generalized to other student populations.
- 6.6.2. Future studies should use a double-blind experiment method in order to ensure that the experimenter does not unknowingly give clues to subjects with regards to what the hypothesis is thus distorting the comparison of the treatments.
- 6.6.3. The students' test performance is very significant to research of this nature. It is thus important that future research in the area looks at the effects of the treatment approaches on the students' test performance.

6.6.4. Future studies should look at the effectiveness of cognitive restructuring without the other skills afforded by SIT to determine the exact combination of skills that works best for treating test anxiety. This is because it is possible that cognitive restructuring on its own is as effective as SIT as a whole in the treatment of test anxiety.

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Appendices**Appendix A**

Biographical Inventory

Appendix B

Test Anxiety Scale

Appendix C

Informed Consent Form

Appendix D

Criteria for Selection of participants

APPENDIX A

Dear participant

Kindly furnish the information requested below. Should you have any questions, reservations or concerns about any of the questions, feel free to speak to the researcher.

DEMOGRAPHIC INFORMATION

Student Number:
Age:

Ethnic Group
(Please Tick One)

African		Coloured		Indian		White	
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Gender
(Please Tick One)

MALE		FEMALE	
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Have you sought any help for Test Anxiety in the past? If yes please specify:
Are you currently receiving any extra tuition? If yes, please specify:
Have you received any extra tuition in the past?
Have you had any contact with a psychologist/psychiatrist in the past?

Educational History

What high school did you attend?(Public/private; Model C/Township)
Matriculation points obtained
Modules Currently Registered For: (and marks obtained last term)

APPENDIX B

TAS

	True	False
1. While taking an important exam I find myself thinking of how much brighter the other students are than I am.		
2. If I were to take an intelligence test, I would worry a great deal before taking it		
3. If I knew I was going to take an intelligence test, I would feel relaxed and confident beforehand.		
4. While taking an important examination I perspire a great deal.		
5. During course examinations I find myself thinking of things unrelated to the actual course material.		
6. I get to feel very panicky when I have to take a surprise exam.		
7. During tests I find myself thinking of the consequences of failing		
8. After important tests I am frequently so tense that my stomach gets upset.		
9. I freeze up on things like intelligence tests and final exams		
10. Getting a good grade on one test doesn't seem to increase my confidence on the second.		
11. I sometimes feel my heart beating very fast during important tests		
12. After taking a test I always feel I could have done better than I actually did.		
13. I usually get depressed after taking a test.		
14. I have an uneasy, upset feeling before taking a final examination		
15. When taking a test my emotional feelings do not interfere with my performance.		
16. During a course examination I frequently get so nervous that I forget facts that I really know.		
17. I seem to defeat myself while working on important tests		
18. The harder I work at taking a test or studying for one the more confused I get.		
19. As soon as an exam is over I try to stop worrying about it but I just can't.		
20. During exams I sometimes wonder if I'll ever get through college.		

21. I would rather write a paper than take an examination.		
22. I wish examinations did not bother me so much.		
23. I think I could do much better on tests if I could take them alone and not feel pressured by a time limit.		
24. Thinking about the grade I may get in a course interferes with my studying and performance on tests.		
25. If examinations could be done away with I think I would actually learn more.		
26. On exams I take the attitude "If I don't know it now there's no point worrying about it."		
27. I really don't see why some people get so upset about tests.		
28. Thoughts of doing poorly interfere with my performance on tests.		
29. I don't study any harder for final exams than for the rest of my course.		
30. Even when I'm well prepared for a test, I feel very anxious about it.		
31 I don't enjoy eating before an important test		
32. Before an important examination, I find my hands or arms trembling.		
33. I seldom feel a need for "cramming" before an exam.		
34. The University should recognize that some students are more anxious than others about tests and that this affects their performance.		
35. It seems to me that examination periods should not be made such tense situations.		
36. I start feeling very uneasy just before getting a test paper back.		
37. I dread courses where the instructor has a habit of giving "pop" quizzes.		

APPENDIX C

CONSENT FORM

Date: _____

Dear Participant

I am presently a M.A. (Clinical Psychology) student at the School of Psychology, University of KwaZulu-Natal, Howard Campus. For the purpose of my degree, I am required to complete a research project. The focus of my study is on academic test anxiety among first year university students.

TERMS OF AGREEMENT

By signing below:

I agree to participate in a maximum of four, one hour long, group session.

The information I provide will remain confidential and will not be accessed by any person other than the researcher and supervisor of the research project.

I understand that my identity will remain anonymous in the reporting of any research findings.

I agree to keep the identity of my fellow group members confidential.

I agree not to discuss any details of group sessions activities to members outside of my assigned group.

My participation is entirely voluntary, and I am entitled to withdraw from the study at any time.

DECLARATION

I _____ (full name of the participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT: _____ DATE: _____

If you require any additional information, please feel free to contact myself, Londiwe Madikizela on 0762409795 or my supervisor, Lucinda Johns on (031) 2607423 / 2607620.

RESEARCH STUDENT: _____ DATE: _____

Londiwe Pride Madikizela (Student Number: 200000339)

APPENDIX D

Criteria for selection to participate in the study

1. First year university student.
2. Test anxiety scale score of above 12
3. Not having received psychiatric or psychological treatment for anxiety in the past
4. Not receiving any other treatment for anxiety at the time of the study