TEST ANXIETY:
THE VOICES OF THE STUDENTS
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Abstract

This paper examines the issue of test anxiety and its impact on Grade 7 students. Test anxiety may impact negatively on academic performance. While this topic has been well researched in the past, the focus of those studies have traditionally been college-age and adult students. Focus group interviews were used to conduct this qualitative research. The participants' own words were used in order to understand the issues from their perspective. Overall this study found that test anxiety impacted some of the students in a variety of ways, on both cognitive and physiological levels. Three themes were gleaned from the data they were Internal Influences, External Influences and Strategies. A number of pedagogical implications were extrapolated from the data that may help support students who are negatively affected by test anxiety.
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Introduction

General Statement of the Problem and the Context

Test anxiety appears to be a significant problem for students and seems to be exacerbated as students get older (McDonald, 2001). Test anxiety may have a negative impact on academic performance. This topic has been well researched but the vast majority of studies focus on college-age students and adults. The implication to be drawn from these studies is the likelihood that high school students suffering from severe test anxiety may not choose to continue their education past high school graduation. There appears to be a need to examine this issue with younger students to begin to understand the outstanding issues at an earlier time.

Research Context

This topic is relevant given the relatively recent shift back to high-stakes testing in North America. British Columbia has followed this trend and there has been a significant increase the amount of high-stakes testing conducted in the school setting. More recently the provincial government instituted a program called the Foundation Skills Assessments in grades 4, 7 and 10 as an attempt to increase accountability in the education system. As a result, school districts, schools and individual students receive feedback regarding their performance based on these tests. Further, the Fraser Institute publishes the high school results in the provincial newspapers. Schools are then rated according to their average marks on provincial exams. As a result of this “test mentality” students are now required to write even more high-stakes tests at younger grades. With increased testing comes the increased pressure on the students to perform well. This pressure could come from the school, the families, or the students themselves. This pressure tends to increase as the students move through the school system and the testing
becomes a more central part of their education. More and more the students’ futures are dependent on the results of these increasingly formal and intense tests. According to Ollendick and Meyer (1999; in Beidel & Turner) these factors may lead to students’ suffering test anxiety. In its most extreme form test anxiety may result in either task or possibly school refusal. In other words, students who are suffering from extreme test anxiety may drop out of school rather than attempt to deal with the amount of stress and emotional distress that these situations cause them.

Review of Literature

This literature review primarily focuses on the small amount of research that has been conducted with younger students, both elementary school-aged and high school. It was necessary to include some studies with college-aged students in order to fully discuss this topic. It is important to examine this problem in the context of the elementary school in order to understand some of the underpinning causes of test anxiety and to possibly prevent it from becoming a problem for students. The issues surrounding test anxiety will be examined, including its possible origins, some models to help understand it, the impact it has on student performance and modifying factors.

Defining Test Anxiety

Test anxiety is the emotional mental reaction one experiences in a testing situation. Beidel and Turner (1999) define test anxiety as “an extreme fear of performing poorly on examinations” (p. 2). They state that this problem can affect children at all academic achievement and intellectual levels and does not appear to be dependent on race. Test anxiety can also have a negative impact on student performance.

Birenabaum and Pinku (1997) identified the two dimensions of cognition and emotionality to the construct of test anxiety. According to Birenabaum and Pinku, worry refers
to the cognitive aspects of the anxiety experience and emotionality refers to the physiological. A physical reaction can include “high arousal of the autonomous nervous system and an unpleasant affective state characterized by nervousness and tension” (Friedman & Bendas-Jacob, 1997, p. 2). According to these authors, this bodily reaction is a response to a sense of danger that is non-specific. Maher (1966; in Friedman & Bendas-Jacob, 1997) states that three components are often present in an anxiety riddled situation:

(a) a conscious feeling of fear and anticipated danger without the ability to identify immediate objective threats that could account for these feelings, (b) a pattern of physiological arousal and bodily distress that may include miscellaneous physical changes and complaints, and (c) a disruption or disorganization of effective problem-solving and cognitive control including difficulty in thinking clearly and coping effectively with the environmental demands (p. 1035).

McDonald (2001) adds a social context aspect to the dimension of worry. He states that the anxiety is a result of the students’ concern over a negative evaluation. In his research this researcher argues that “the thoughts of an anxious child who expects to perform poorly on a test may be characterized by unfavorable comparisons with others, doubts about their ability and negative beliefs about the consequences of poor test performance” (p. 3).

Friedman and Bendas-Jacob (1997) also focused on the social aspects of test anxiety, particularly during adolescence. According to these researchers, test anxiety is heightened by the “worry of suffering a reduction in one’s self image and self-efficacy, particularly its reflection in the eyes of significant others, concurrently with obstruction of cognitive processes and outstanding physical and mental discomfort” (p. 7). These findings could partially explain why test anxiety seems to worsen as students get older. Adolescents may be particularly vulnerable to
this issue because of the increased need to fit into a peer group that often becomes heightened during the teen years. It is impossible to ignore the fact that students in the public school system are not undergoing these tests in isolation.

**Potential Origins of Test Anxiety**

While most of the research points to the significance of test anxiety, its origin is a basis for debate. Some possible sources include the personality characteristics of the individual, their classmates, parental pressures, or school pressures including teachers (Eaton, 1978; Lin & Qinghai, 1995; Meuler & Dweck, 1998; Middleton & Midgley, 1997; Mine, et al., 1987; Sass & Meyer, n. d.).

**Personality Characteristics.** Some individuals may be predisposed to developing test anxiety. The field of psychology recognizes two different types of anxiety, *trait* and *state*. According to Stipek (1988) trait anxiety is a stable personality characteristic; state anxiety is a temporary emotional state. It is trait anxiety that is believed to potentially interfere with learning and performance when a given situation creates a state of anxiety in the individual. As a result, while some students are more prone to anxiety than others, they can be less anxious under certain contexts; for example, when they feel confident, when they have the expectation of success, or when they know their performance will not be evaluated. Conversely, individuals who have either or both low confidence or self-esteem issues are more prone to test anxiety in a threatening situation.

Eaton (1978) looked at the relationship between test anxiety and the personality characteristic of defensiveness among five elementary school groups of different ages in a series of one-year longitudinal studies. Eaton suggested that many children are reluctant to admit they are anxious and this defensiveness is a significant problem when they are asked to fill out self-
report measures of anxiety. As a result he decided to measure the level of defensiveness of the students with the Lie Scale for Children (LSC), developed by Sarason and his colleagues. Eaton also used the Test Anxiety Scale for Children (TASC) to measure the students' perceived level of anxiety. He expected that patterns would emerge within the five same-age groups and between the groups. Although he did not specifically state a hypothesis he did report that another study found anxiety scores increased and defensiveness scores tended to decrease as students moved through the elementary school system from Grades 1 to 6. Eaton found gender differences existed in anxiety levels and defensiveness: females reported higher anxiety levels than males and males reported more defensiveness.

The anxiety scores did not follow the pattern reported in the earlier study (Hill & Sarason, 1966; in Eaton, 1978). The youngest group and the oldest group reported the lowest levels of anxiety while the middle group reported the highest anxiety levels. As expected, the defensiveness levels steadily declined from the youngest to the oldest group. Within the groups there was a similar pattern involving anxiety; anxiety levels decreased throughout the year, with the exception of the youngest group. Eaton found no developmental patterns for the construct of test anxiety only a pattern with defensiveness; it tended to decrease over time. He concluded that based on the evidence, anxiety is more a result of the situation and defensiveness is a function of developmental factors. He attributed the pattern to the changes of cognitive capability of the students.

While Eaton's (1978) study does not provide any obvious information about test anxiety his conclusion that test anxiety is situational rather than developmental supports Stipek's (1988) findings. Eaton's study points out the confounding problems that can be associated with students filling out self-report scales. Other studies, however have found a developmental pattern.
regarding test anxiety. As a result, conducting further research using the LSC and the TASC may provide more definitive results.

Middleton and Midgley (1997) looked at the goal of the individual as a possible cause of test anxiety. This study focused on the perceived goals of academic behavior. Traditionally, goal-oriented research has looked at motivation and the desire to attain success or avoid failure. This study however, looked at the goal of avoiding demonstrating a lack of ability. The researchers identified this focus as being unique as it had not been the subject in studies that had used a goal theory framework. The study focused on three goals: task goals, performance-approach goals and performance avoidance goals. This study was conducted in classrooms with 703 Grade 6 students.

In past studies task-goals had been positively correlated to student perceptions of academic efficacy, a strong positive predictor of adaptive help-seeking behavior and unrelated to test anxiety (Middleton & Midgley, 1997). According to these researchers performance goals are related to less adaptive outcomes in educational settings. With performance-approach goals the individual tends to become more focused on self than the task. Middleton and Midgley found the studies on performance goals contradicted as some of the existing research that these types of goals tend to undermine intrinsic motivation (Harackiewicz, 1995; in Middleton & Midgley, 1997). The researchers postulated that avoiding work or asking for help might be a more powerful predictor of test anxiety than the performance-approach orientation.

As a result of their study, Middleton and Midgley (1997) found task goals were positively related to academic efficacy and task engagement, as predicted and supported by previous studies. They also found that performance-approach goals were not related to academic efficacy and were positively related to avoidance behavior and test anxiety. Performance-avoidance
goals were positively correlated to test anxiety, as expected, and were the strongest predictor of avoiding seeking help in the classroom. Given the findings, these researchers suggested that the important distinction, in terms of student performance, was between the performance goals and the task goals. But they also recognize that more research needs to be conducted on the two performance goal orientations.

*Parental Pressures.* Another possible source of test anxiety may be found in the parent-child relationship. While this area has not been well-researched, Stipek (1998) points to three studies that have looked at the issue of anxiety. The first study argued that parents of very anxious children held unrealistically high expectations of their children and were very critical of their performance. The hypothesis was that the children internalize negative evaluations and believe that they will perform poorly in learning situations, including testing, regardless of their actual performance. These types of children tend to internalize their anger towards their parents rather than externalize it to others (Sarason et al., 1960; in Stipek, 1998, p. 192). Another study (Krohne, 1992; in Stipek, 1998) demonstrated that negative parental feedback, inconsistent child rearing, and the tendency to control and restrict their children was related to high anxiety in the children.

Another study focused on the effects of parental attitudes and how they relate to the degree of test anxiety experienced by the children in the families (Mine, et al., 1987). This large study included more than 500 students and was conducted in Japan with a group of undergraduate students. The researcher hypothesized that supportive parents who were accepting and encouraging would result in the child’s exhibiting a decreased threat under evaluation situations. In contrast, restricted, inconsistent, blaming, overprotective or rejecting parents would result in the child being more anxious in testing situations. The study found that
as expected the children of the restrictive, blaming parents were indeed more anxious in evaluative situations. Another finding was that praise of a child’s behavior was correlated to the child being very tense and worried about possible failure in future test situations. This was an unexpected finding as the researchers expected that all supportive acts of parents would decrease test anxiety among the children. However, they found that parental support showed a significant correlation only with task irrelevant thoughts and more significantly with the female subjects of supportive fathers. The major finding of the study was that supportive behavior on the part of the father leads to a decrease of irrelevant or escape thoughts of females children in test situations.

This study had numerous problems and limitations that the researchers failed to recognize. Firstly, the study was conducted using inventories and rating scales only. As a result there could be numerous confounding variables involved in people filling out ratings on their parenting styles. The students’ perceptions of their anxiety levels were not measured against their performance on tests. The potential problem of the students filling out anxiety surveys inaccurately was not accounted for; cultural issues around reporting anxiety were also not explored. This study could have been more valuable if researchers used the same scales and compared them to student performance. Although this study was flawed it does point to the impact parental attitudes have on students and their test anxiety.

A later study conducted by Meuler and Dweck (1998; in McDonald, 2001) also looked at the issue of praise with younger students and found similar results as the Japanese study. They found that praising students, aged 10-12 years, for performing well on tests led the students to believe that the test scores were a measure of their intelligence. In this study, it was found that the students would lie to their peers if their test performance did not measure up. When students
who were praised for being intelligent for doing well on a test later failed a test, they perceived the failure was due to low ability. This belief of low ability could then leave these students more vulnerable to test anxiety than other students.

_School and Teacher Pressures._ Lin and Qinghai (1995) looked at the issues of parental and school pressures on students to succeed and perform well in test situations. This study looked at the double pressures of school and parents, faced by Chinese students from the point of view of the students. These researchers found that the pressure to succeed was found to have a negative impact on student health, psychological and intellectual development and led to a tendency to cheat on tests.

A unique study was conducted on the impact of the personality of teachers on students test anxiety. Sass and Meyer (n.d.) endeavored to discover whether there was a relationship between the anxiety levels of students and teacher personality characteristics associated with self-actualization. This large study involved 1,349 fourth- through eighth-grade students and 62 teachers. The method entailed a number of scales and personality inventories. The researchers concluded that teachers with high self-regard as well as those who have a positive view of humanity and those that were synergistic (i.e., able to see opposites as being meaningfully related) tend to have students who demonstrate relatively low-test anxiety. Conversely, teachers with low self-regard as well as those with a negative view of humanity and those who were not synergistic tend to have students with relatively high-test anxiety. They also concluded that the remaining teacher personality characteristics also associated with self-actualization were unrelated to student test anxiety. The researchers stated that this study had potential benefit to pre-service teachers of early adolescents. It is beneficial for teachers to be aware of the characteristics that lead to positive classroom climate and low-test anxious students. While this
study may have some problems it appears to be one of the very few that deals with the impact of the teachers’ personality on student test anxiety.

Models of Test Anxiety

Birenbaum and Pinku (1997) presented three models, from the information processing perspective, that are useful for explaining the effects of test anxiety on student performance. These models are *interference, skill deficit*, and the *integrated* model.

The interference model refers to the possibility that, during a test situation, anxious students are unable to retrieve information that they have learned because of cognitive interference. This model’s hypothesis is that the students’ cognitive capacities are being used to worry and this distracts them from being able to engage in the necessary task relevant responses needed to do well on a test. Stipek (1998) notes that “the research on anxiety and achievement provides strong evidence that anxiety interferes with both learning and performance. Thus, students who are highly anxious in achievement contexts have difficulty learning new material and often are unable to demonstrate what they have learned” (p. 11). According to Birenbaum and Pinku (1997) individuals who are highly anxious tend to perform better on multiple-choice exams than on the short answer and essay formats. The latter test types require a great deal more information retrieval than the former.

Conversely, the skills deficit model holds that highly anxious students experience difficulty learning the material in the first place. Since they have trouble encoding and organizing the relevant information, they develop a poor knowledge base prior to being put in a test situation. According to this model, test anxiety is merely a result of the student realizing they are not prepared for the exam and does not play a role in the student achieving poorly on the test (Birenbaum & Pinku, 1997).
The integrated model proposes that the two different models of test anxiety coexist but afflict different students. In other words, there are two types of individuals: One type is the academically successful student who prepares for the test but “during the test taking session they have a massive failure to recall what they learned originally” (Birenbaum & Pinku, 1997, p. 25). The other student-type has difficulty organizing information during the learning process and has poor study skills. These students have difficulty organizing information and are very distracted by external stimuli. They often ignore portions of problems that may be needed for their solutions. Birenbaum and Pinku note that there has been little research conducted on the integrated model.

The study conducted by Birenbaum and Pinku supports the integrated model. While the researchers identified some problems with confounding variables, such as the practice effects, they found that the high-test anxious students who had high information organizational skills out performed students with low information organizational skills on both multiple choice and short answer formats in non-evaluative situations. In evaluative situations however, there was no significant difference between the two groups. Among the low-test anxious students the ones with high information organizational skills outperformed the students with low information organizational skills in both evaluative and non-evaluative situations.

The importance of looking at the models is that treatments of test anxiety are dependent on the model that the researchers are considering. A researcher who is simply looking at anxiety from a skills deficit model would teach the students study skills and content related skills. Conversely a researcher who was relying on the interference model would approach treatment from a more cognitive point of view that would include replacing the task irrelevant thinking with task relevant thinking. If however, the researcher were relying on the integrated model then
the treatment would involve both cognitive and behavioral components such as replacing irrelevant thinking and desensitization training. The treatments considered later in this paper all result from an orientation to one of the models of test anxiety.

**Mediators in the Test Anxiety and Performance Puzzle**

The impact of test anxiety on test performance has been widely studied; the majority of the studies however, have been conducted on college-aged students. Researchers seem to disagree as to the role of anxiety in a test-taking situation. It is arguable that a degree of anxiety could enhance test performance (Pier, Matti & Gerrit, 1994; Stipek, 1998). Without some degree of worry the students may not care how they perform and there could be a lack of motivation as a result. The lack of clarity regarding this issue lies with the unknown variable of how much anxiety is too much. When does anxiety go from being helpful, in terms of testing, and become hurtful?

Stipek (1998) examined the issue of individuals that have subject specific anxiety. These students may perform well in some areas but have more difficulty performing in a particular domain. For the purposes of this study, Stipek’s conclusions about writing will be examined. Stipek defines anxiety in writing to “writer’s block.” This problem is related to low expectations for success and lower writing quality. One study cited by Stipek found that high school students with high anxiety in writing self-reported that they had experienced more criticism for their writing and less encouragement when compared to low anxiety students. They also sought help for writing problems less than students with low anxiety in writing (Daley, 1985; in Stipek, 1998). Other research suggests that problems associated with writing have varied and complex causes that are often rooted in early familial experiences and related to the context in which writing is occurring (Rose, 1985; in Stipek, 1998). Stipek’s discussion of writing anxiety
addresses the issue of gender differences. Her research indicated that boys suffer from writing anxiety more than girls. She further reported that individuals with high anxiety in writing also tended to have anxiety in reading, public speaking and interpersonal communication and also tended to have relatively low mathematics anxiety (Daly, 1985; in Stipek, 1998).

The issue of gender differences has been alluded to in other studies as well and the impact of gender appears to be inconclusive. McDonald (2001) reported that test anxiety tended to be higher for females but that the child's ability seems to have a mediating effect. He identified test anxiety as having the biggest impact on high ability girls and moderate ability boys (Gjesme, 1972; in McDonald, 2001).

Socio-economic status may also affect the level of test anxiety on individual experiences. McDonald (2001) reported a study that indicated that children from lower socio-economic and English as a second language backgrounds experienced more test stress (Hodge et al., 1997; in McDonald, 2001). Other researchers have stated that those students on the borderline of socio-economic groups experience the highest level of test anxiety (Willig et al., 1997; in McDonald, 2001). Other studies (Zeidner & Safir, 1989; Crocker et al., 1988; in Mcdonald, 2001) however, have not found these differences.

A number of studies have looked at the contextual factors in the testing situations and its impact on test anxiety. One factor affecting performance found in the research is the importance of the test. Among test anxious students, the perceived value of the test impacted on the level of the anxiousness they experienced. McDonald (2001) reported that students generally support the assertion that test-anxious individuals may not feel as much anxiety during a low-stakes test that they feel confident about, as they would if the test were more high-stakes. Studies that have set students up for success by employing measures such as removing the time pressures have shown
to benefit some test-anxious students. Students who were anxious were found to perform worse under formal exam conditions than those anxious students who were not under a time constraint (Plass & Hill, 1986; in McDonald, 2001). Although these researchers found a difference in the way boys and girls responded to the factor of time, the boys performed the best with the removal of the time factor while the girls performed better under timed conditions. Other researchers (Young & Brown, 1973; in McDonald, 2001), however, have not substantiated this finding. The context of the classroom environment has also been found to have an impact on test anxious students. Researchers have found that students who are anxious tend to perform worse in the classrooms that emphasized academic competition (Zatz & Chassin, 1985; in McDonald, 2001).

Alting and Markham (1993) looked at the impact of test anxiety and distractibility. They hypothesized that the reason test anxious students scored poorer on tests was because they were more easily distracted than students who were not anxious. They proposed two reasons for anxious students being more distracted; the first was that these students are searching the environment for potential threats. The second reason was that these students are highly aroused (HA) due to emotionality and the bodily reaction caused students to be more distracted. While the results of the study were inconclusive they did find that highly anxious individuals were significantly more distractible than low anxious students but only in very specific situations. The HA students were much more distracted when they were under an “evaluative threat, but only if there was a distracting stimulus present in the room” (Alting & Markham, 1993, p. 136). The removal of evaluative instructions had only a small impact on both groups but it was enough to reduce the off task glancing between the two groups when a distractor was present (Alting & Markham, 1993). The surprise of this study was the fact that the HA subjects viewed themselves as more distractible than the low anxious (LA) subjects whenever there was a distractor present,
but the correlation showed a relationship between these perceptions of distraction and behavior for both groups only when non-evaluative instructions were given. There was a failure to find a significant relationship when evaluative instructions were given (Alting & Markham, 1993). The study concluded that HA students were likely more distractible because of high arousal, although this was a tentative finding. Only HA subjects who were given evaluative instructions to induce state anxiety were more distracted by the environmental stimulus than were LA subjects. Alting and Markham suggest that when considering the detrimental effects of test anxiety a consideration of the role of distractibility would be valuable in addition to the interference from worry.

Prins, Groot and Hanewald (1994) conducted a study that looked at cognition and the level of stress in the test situation. They replicated an earlier study that was conducted by Zatz and Chasson (1985). The hypothesis was that the HA children would perform more poorly in a threatening environment than LA children. This study found that HA children reported more negative self-evaluations and more off-task thoughts than LA children; interestingly they also reported more on-task and coping thoughts. The coping cognition (i.e., attempts to control anxiety and mind wandering) of HA children was negatively related to task performance and did replicate Zatz and Chasson’s earlier study. Prins, Groot and Hanewald (1994) proposed three possible explanations for the results. The negative nature of the self-help cognition employed by the children may have made them more sensitive to the unpleasantness of the test situation or having to remember to use self-instructions may have emphasized the evaluative potential of the task. The coping cognition may also have distracted the children from the test and therefore interfered with performance. Lastly, HA may have resulted from both the coping cognition and in the poor performance without a causal connection between the two. The last explanation may
be the most likely because coping cognition was not significantly related to task performance at all for the low and moderate anxious children. There was no real support found for the role of positive thinking during a test situation although positive self-evaluations were positively related to performance. The self-evaluative remarks likely did not distract the child from the task. However, whether positive self-evaluations affected performance or were affected by performance is unknown due to the correlational design of the study (Prins, Groot & Hanewald, 1994). The results provide only limited support for the idea that positive cognition helps students to successfully complete tasks under certain conditions. The two major limitations of this study were that students were grouped according to their ability and this assessment was based on a grade given by their teacher, which is inherently subjective. Also there may have been a problem with the exam-stress variable as the relationship between ability, level of anxiety, cognition and task performance were similar in the high and low threat conditions (Prins, Groot & Hanewald, 1994). The context of low threat may also have led to low motivation among the students and the researchers suggest that threat manipulation is an area that needs to be examined in future studies.

Clearly, the literature demonstrates that test anxiety is a real condition that affects students in a myriad of ways. This problem appears to manifest itself both physically and cognitively in those individuals that are afflicted. There are a number of mediators evident in the literature that can exacerbate test anxiety.

**Problem Statement**

It has been my experience, as a classroom teacher for fifteen years that test anxiety is an important issue at the elementary school level. The last year of elementary school is a particularly important year to consider, for the most part this is the first year that students are
required to write formal, high-stakes tests in most subject areas. In my classroom I have had many students outwardly exhibit some of the classic symptoms of test anxiety. I have observed students demonstrate the symptoms of test anxiety on a continuum from minor stress to full-blown physical and cognitive distress. A particular problem over the years has been students who are high achievers on assignments but then do very poorly on formal high-stakes tests. Since students move into a more test-oriented system at the secondary level it is important for these students to do well on high stakes tests in order to earn the grades they are capable of achieving.

According to the literature (Birenbaum & Pinku, 1997) test anxiety is a real problem that manifests both cognitively and physically in students. This is also an issue that appears to become exacerbated as students become adolescents. There may be a number of reasons to explain this including the students' concern regarding how they are perceived by their peers (McDonald, 2001; Friedman & Bendas-Jacob, 1997). The influence of teachers and parents may also be factors that impact on the test anxious students, although the research in this area is sparse. Stipek (1998) looked at the issue of parental expectations and found that critical parents that held unrealistically high expectations tended to have children that were more test-anxious than children of parents that did not hold these expectations. Other researchers (Sass & Meyer, n.d.) have examined the role of teachers. They found that the personality of the teacher may have an impact on the test anxiety of students. Overall, test anxiety appears to be a complex issue that affects students on a continuum with many possible mitigating factors.

Given the complexity of this issue there are a number of questions that I have been interested in investigating in order to help all students with the stresses associated with formal test-taking, as well as the students that seem to suffer from more pronounced test anxiety. Do
the students themselves recognize any cognitive and physiological changes that occur when they are faced with writing a high stakes test? If so what are the changes that they notice? Are there particular points in time throughout the test taking process that these symptoms are more or less pronounced? What strategies do they use, if any to calm themselves? Finally, what test taking strategies do they employ to help themselves succeed on tests, if any?

In order to gather information regarding the issues surrounding test anxiety from the students, focus groups will be used. Since many of the symptoms of test anxiety involve the individual’s perceptions the only way to determine whether this is a real issue for Grade 7 students is to ask them directly. The qualitative approach seems to make sense for the purposes of this study. It will enable the researcher to gather information from the student’s personal experiences. According to Patton (1987), “In collecting qualitative data, the evaluator seeks to capture the richness of people’s experiences in their own terms. Understanding and meaning emerge from in-depth analysis of detailed descriptions and verbatim quotations” (p. 10). Since this research is aimed at understanding more about test anxiety from the point of view of Grade 7 students this method makes sense as it enables the researcher to go directly to the source and gather information using open-ended questions. Patton (1987) further highlights the value of qualitative techniques when he states,

The open-ended response permits one to understand the world as seen by the respondent. The purpose of gathering responses to open-ended questions is to permit the evaluator to understand and capture the perspective of program participants without predetermining their perspective through prior selection of questionnaire categories.

Direct quotations are a basic source of raw data in qualitative evaluation. Direct quotations reveal the respondents’ levels of emotion, the way in which they have
organized the world, their thoughts about what is happening, their experiences, and their basic perceptions. (p. 11)

Since investigating the thoughts and feelings of the students is the goal of this research the use of the qualitative method is the most practical approach given the information that needs to be collected.

The Grade 7 students will be divided into three groups and the same questions will be posed to each group. The questions will be based on the test-taking process. First, how do you feel right before a high-stakes test? Second, how do you feel during the test-taking situation? Third, how do you feel after a high-stakes test? What do you do to keep from being too nervous before a major test? Lastly, what strategies, if any do you employ to help yourself succeed on high-stakes tests?

**Significance of Proposed Study**

This research adds to the knowledge base and provides implications for educational practices. After reviewing the available literature a number of areas of deficit have emerged. This is an area that has been researched for more than thirty years but most of the studies have been conducted with college-aged and adult students and therefore, have very limited application to students at the elementary school age. These studies are further limited by the possibility that students’ suffering from test anxiety may not choose to continue their education past high school. This study focused on students in Grade 7, aged 12 and 13. Very few of the studies to date have focused on this age range. This is an important age because students are in the process of developing their study and test taking skills. This is also an age when students are writing more formal tests than ever before. Further, they are moving into the secondary system and will be expected to write more lengthy tests for increasingly higher stakes as they move from grade to
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grade. In some cases their futures options are tied to how well they perform on high stakes tests. Their performance will have an impact on the future programs, colleges or universities that are available to them.

Another notable admission in the research is the lack of qualitative studies that look directly at the experiences of the students. While some of the research includes having students' complete surveys to chart their perceptions there is a lack of information directly from the students themselves. It is important to dialogue with students directly as this is the only way to gather their unique perceptions regarding the experience of testing. This research used Grade 7 students as the direct source of information regarding the issues surrounding their test taking experiences.

Based on the information gathered from the students strategies for teachers and students have become apparent. As a result there is information that leads to implications for teachers' and educational practice.

Design and Methodology

Site Selection

The research took place in an average sized elementary school in the small northern, interior city of British Columbia. The families that live in this area tend to be of lower socio-economic status, although there are some exceptions. The school includes students from Kindergarten to Grade 7 with a population of approximately 250 students. The school has one of the largest concentrations of Aboriginal students in the city although the rest of the population of the school is not ethnically diverse. The school is located just outside the city limits and feeds into a junior high school that includes grades 8 to 10. After completing grade 10 students then choose from two secondary schools. The targeted student population are the Grade 7 students at
the elementary school. Twenty-four of the students are in a Grade 7 class and the remaining 9 are in a Grade 6 and 7 split class. The site was selected due to convenience, as the researcher teaches at this school.

**Purposeful Sampling Strategies**

Prior to the initiation of the research a letter was sent to the School District Superintendent, the School Principal and the UNBC Ethics Committee to ask for consent to conduct the study at the proposed site. Following this approval all Grade 7 students at the school and their parents were contacted and given the opportunity to volunteer to be a part of the study.

This is a sample of convenience, as the researcher teaches at the school where the students have been selected. Each student received a letter that delineated the nature of the study and clearly indicated that they were free to volunteer or not with no penalty. This letter was read to the Grade 7s as a group, questions were answered and clarifications were given to ensure understanding. The letter then went home to the students' families and included an explanation of the research, how students could terminate participation at any time and how the results would be shared with the participants and their families. The students who wished to volunteer signed the letter along with their parent. It was also made clear to the group that individuals were free to withdraw from the study at any time. There are currently 33 Grade 7 students in total at the site and 23 students volunteered to be in the study and returned the permission slips. On the day that the study was conducted 21 of the 23 students were present.

Once the student volunteers were established they were randomly assigned to one of the focus groups. The permission slips were simply shuffled and sorted into three groups, similar to a deck of cards. There were three groups made up of the same number of students, seven.
All of the information gathered from the focus groups including the audiotapes, observer’s notes, and chart paper containing the brainstormed information were kept in a locked filing cabinet in the school office. The researcher was the only individual with access to the materials. Due to the sensitive issues that could have been raised as the students discussed the problems surrounding test anxiety the school counsellor agreed to be available to the students who required support. The school counsellor was known to all of the students and has spent time in both classrooms. She was willing to counsel the groups or individuals if necessary.

Researcher’s Role

The researcher’s role for the study is that of insider-observer and interviewer. The researcher teaches the students in the Grade 7 class. Therefore, there is a pre-existing relationship that has been established with all of the students who will be included in the focus groups. The researcher led the discussions and brainstormed information was recorded on chart paper. A volunteer was also present during the group sessions in order to help gather information that the interviewer may have missed. The volunteer helped to keep a speaker’s list and helped time the sessions. The sessions were audio-taped in order to preserve the information gathered.

Procedure

Each of the sessions was divided into four parts. These sections looked at the issues and concerns of students prior to writing a test, during a test, and after a test. In order to fully understand the impact of the test taking process on students it is important to break it up into distinct pieces. It is important to investigate how students are thinking and feeling at all of points in the process. This may add important information to the research in this area. Additionally, the issue of how students keep themselves from getting too nervous before a test was examined.
Prior to beginning the discussions it was stated that during the session questions will be asked in order to fully understand the topic and what each person is communicating. It was stressed that there were no wrong answers and that everyone’s participation was valued. Each discussion began with an open-ended question: What are your thoughts and feelings just before a major test? Probes following every open-ended question were used to illicit specific thoughts and feelings and to increase participation in the discussion as needed. After the responses were made a second question was posed: What are your thoughts and feelings during a test? Next, the students were asked: What are your thoughts and feelings after a test? Lastly, the students were asked: How do you keep yourself from being too nervous before a test? Following each focus group the students were thanked for their participation and given refreshments.

Data Collection Strategies

The focus group sessions occurred during the school day and were conducted in the school library. Each group was pulled out of class during the same day. Each session lasted approximately 45 minutes. The students were asked to keep the discussions confidential so as not to influence other students who had yet to take part.

Information was gathered from the focus groups in three ways in order to corroborate the data. Firstly, the researcher led the discussions and as responses were elicited from the group they were recorded on chart paper by the researcher. A volunteer was present in order to record any information that was overlooked or missed by the researcher. This included both verbal and non-verbal information from the subjects. Information regarding individuals dominating the discussion and other factors that may have influenced the data collected. The sessions were also audiotaped to ensure accuracy of the information gathered and to provide direct quotations from the participants.
Once each of the interviews was completed the researcher and the volunteer summarized the key ideas that the group generated; this provided preliminary themes for later analysis. The audiotapes were transcribed and the charts and notes were promptly transferred to a computer while the information was still fresh in the researcher’s mind. The researcher was responsible for completing this process.

**Inductive Data Analysis**

Once the information was transcribed the researcher used the key ideas that were identified immediately following the focus groups in order to identify strong themes from less significant ones. This process provided the framework for the development of findings later in the process. This is an important step according to Vaughn, Schumm and Sinagub (1996) because “much of what occurs in later steps requires unitizing the data. Such unitization may require the researcher to think about smaller bits of data, and thus the researcher could subsequently ‘miss the forest for the trees’ ” (p. 105). After the initial data analysis three themes were identified from the focus group data and served as the framework for the categorization process that followed.

The next step in the process was coding the responses from the subjects and the field notes according to the themes that were identified. This technique has been used by researchers such as Bertrand, Brown, et al. (1992, in Vaughn, Schumm & Sinagub, 1996) who “use an approach referred to as margin coding. Themes are identified, and then the numbers and letters are used to represent the themes. The analyst reads through the transcript and writes the appropriate thematic code next to comments that relate to each of the themes” (p. 107). Letters were used to code the data according to the themes. The information was then categorized under the themes. Each focus group was coded and categorized separately.
Criteria for the initial categories were described on a piece of paper and put in a labeled envelope. The coded information units were then placed into the appropriate envelopes. During this process the criteria for the categories were revised a number of times. Once this step was completed the information in the envelopes was analyzed closely to look for units that did not fit the category. According to Vaughn, Schumm and Sinagub (1996) the purpose of categorizing is to bring together "those information units that are related to the same content. Categories are superordinate headings that provide an organizational theme for the units of data" (p. 107). Additional categories and subcategories became apparent and were included and the data resorted. Any information that did not fit the categories and did not lead to a new category was placed in a miscellaneous envelope.

Once the categories were established and the information sorted the researcher ensured that there were enough separate units of information in each of the categories to warrant keeping the category as a key idea or theme. Categories and criteria were rewritten and reorganized once more, similar categories were collapsed, and others were sub-divided.

The miscellaneous envelope was then considered in light of the new categories to determine inclusion. New categories were created with some of this information. Information units that are not deemed relevant were discarded at this point.

Once this process was completed for each of the focus groups separately the information was then looked at across the groups. Commonalities between themes and categories were identified and noted. This process continued until all of the categories were considered and was the suggested practice of researchers Vaughn, Schumm and Sinagub (1996). According to these authors,

First, it is helpful if the same data analysts have attended all of the focus groups and
therefore can complete data analysis on all of the focus groups. Second, the same procedures identified above for a single focus group are completed separately for each of the additional focus groups. Once the themes, categories, and supporting evidence have been decided for each individual focus group, then all of the data analysts meet to code data across focus groups. Their goal is to identify common themes and categories across focus groups. The number of focus groups that support those themes and categories are noted. This process continues until all themes and categories have been accounted for. (p. 111-2)

The next step in the process included looking at the key ideas and themes that were developed initially following the interview sessions. A decision was made as to whether these themes were supported by the categories that were generated. These key ideas needed to be restated or reframed in light of the data. This is an important last step according to Vaughn, Schumm and Sinagub (1996):

The first step in the data analysis process was to consider the big ideas. Essentially, Step 5 reexamines the ideas generated in the first step. Consider if any of the big ideas established in the first step are supported by the categories generated. In light of the work done with the information units and categories, how should those big ideas be reframed and restated? We refer to these refined ideas as themes. The themes consider the big ideas from the focus group data as well as the information units and categories. The researcher's role is to identify the themes and determine the extent to which categories support these themes. (p. 112)

Lastly, the coded information units from the envelopes were glued onto pieces of paper according to category and subcategory and then paper clipped together according to themes.
Limitations of the Design

There were a number of limitations due to the design of this study. First, the fact that the researcher had a prior relationship with the participants may have impacted upon the sessions in a number of ways. There was an already established power relationship and this may inhibit some participants during the discussion, conversely other participants may wish to please the moderator. Also the moderator/researcher may be biased, certain students may be given more chances to respond than others. Since the researcher will be conducting all of the focus group interviews there may be an inadvertent tendency to influence a group to respond similarly to previous groups. It is also a relatively small sample size; therefore it is not possible to generalize the results beyond this particular group of students. Lastly, there is the possibility that students who attended the first and second interview reported the questions and discussion to other students who had not yet been interviewed. This could have biased the results, as some students would have more time to think about the questions than others.

Results

The data for this research project was gathered from focus group interviews. The participants were divided into three equal groups of seven. After a thorough analysis of the data a pattern of three themes arose. The themes that were identified are as follows: Internal Influences, External Influences, and Strategies.

Internal Influences

The students identified a number of internal influences that affected them before, during and after the test taking experience. This theme includes two categories, psychological reactions and physiological reactions to testing. The psychological reactions include the following subcategories: generalized worry, positive feelings and thoughts, an inability to focus, relief, a
desire to quickly complete the task, and avoidance. The psychological internal influences accounted for the majority of the overall comments while the physiological responses accounted for a much smaller portion of the comments.

Psychological Reactions

Generalized Worry. The majority of comments gathered from the focus groups referred to worry as a common response to a high stakes test. The most common concern cited in the worry category was a fear of failure, especially prior to writing the test. There were more specific comments about the fear of failure than any of the other worries in this subcategory. Some typical comments from the students included:

- “I’d have to say that waking up in the morning, knowing that there is a test that day, I’m thinking if I studied enough, if I’m going to do good or if I am going to fail.”
- “But then you are all worried about failing and then you don’t do good. It makes you do worse because you are not thinking of what the questions, are you’re thinking of how you are going to fail.”
- “Say you spent all night studying and then you get the test and you forget everything, and you like totally fail it.”

There are links between fear of failure and some of the research that has been conducted. Birenbaum and Pinku (1997) presented three models of test anxiety in their research. The interference model may have some relevance to the fear of failure. The hypothesis for this model was that cognitive capacity is used to worry and this distracts the student from engaging in the necessary behaviors that would allow them to be successful on tests. From some of the comments it appears that even though students may have studied for the test their thoughts and
worries distracted them. Their concern regarding potential failure may be blocking their cognitive ability to focus on the test.

Another possibility is that adolescents are more susceptible to the fear of failure because of developmental issues. Friedman, Bendas-Jacob (1997) and McDonald (2001) have all examined test anxiety in the social context and have argued that the anxious student is worried about performing poorly because of the possibility of an unfavorable comparison with their peers. Since these students are at a developmental stage where their peers and how they compare are extremely important the fear of failure may be exacerbated. The fear of failure was only one of the many types of worries the students articulated.

Another concern that was mentioned was the feeling of the students’ that they had not studied enough or were not prepared for the test prior to writing it.

- “I always spot a question that I did not study enough for.”
- “I feel guilty because I did not study.”

Other worries tended to occur during the test taking process. These comments illuminate the level of anxiety some of the students’ experience:

- “(You are) worried that your pencil will break or that you don’t have the tools you need.”
- “The first part wasn’t so bad but the rest might be worse, worried about what is coming up.”
- “It destroys my confidence if I don’t know the first few questions, it makes the rest of the test harder.”
- “Oh my god I don’t know any of this!”
- “I’m panicking about losing marks and getting a bad mark on the test.”
• “(I’m fine) until I find a question I don’t know, I try to find the answer but I can’t.”
  “(I’m) thinking about negative thoughts.”
• “(If I don’t know the answer) I think, oh no, I just start to panic and I just blank out, I
don’t remember it.”
• “Like, sometimes I’ll have a hard test and I will get through half of it and I’ll just get
to one questions and it’ll just stump me right away. And then I don’t know what to
do after that, I feel like I got no where to go.”
• “I would be feeling calm right up until the point that I found the question that I
couldn’t do and then I’d probably be sitting there for like another 10 or 15 minutes
trying to figure out that one question. I am more nervous again because I am looking
at that clock and the test is probably almost over.”
• “At first you look at it and then you get a hard question and you think. What am I
supposed to do now?”

Some students also reported that they continued to worry after completing the test. They
indicated that their anxiety did not cease with the test.
• “(I am) worried about how I did. Did I miss any questions?”
• “I always think about it for another hour or two, thinking oh, did I miss something?”
  “You think back to a couple of questions and you think, oh no, I got that one wrong.”
• “I usually have to wait till I get home to do something, then I’m alright.”
• “(You are worried) about your reaction when you get it back. When I get a bad mark
I just like think, oh well, it’s just one test or something. Or, oh, I’ve done bad, I can’t
believe I’ve done that bad.”
- "I'm pretty much like really nervous for about 10 or 15 minutes after thinking about the questions I think I got wrong."
- "But then you're worried about your marks afterward."

Another comment, expressed by a couple of the students, was a concern about handing in their paper first. Some of them mentioned that they would wait until others handed their work in.
- "If I hand it in first then I worry about having missed a couple of pages."

The worry dimension of test anxiety has been referred to widely in the literature. Birenabaum and Pinku (1997) researched this phenomenon and identified it as the cognitive aspect of the anxiety reaction. Based on the student responses worry is a significant issue in the test taking process. Students were worried about failing prior to the test, during the test they were concerned about how well they were performing and following the test they were worried about their marks. These comments clearly demonstrate the cognitive component of test anxiety. This phenomenon was evident, from the student comments, in all aspects of the test taking process. Not all students verbalized worries, however. A number of comments demonstrated that some students were unconcerned about the test or even looking forward to the experience.

**Positive Thoughts and Feelings.** The second largest subcategory, in the category of psychological reactions, was positive feelings and thoughts.

Some of the comments involved how the students were feeling prior to the test.
- "I usually don't even worry about it, not thinking about it because I usually do good and I have never studied for a test before in my life."
- "You feel more assured, being in the surroundings (at school) and you feel like you’ve done this before."
• “I don’t know, I never really get so nervous that I have to like stop being nervous. I just think it’s like another test, it’s going to be easy.”

• “If I feel that I’ve prepared for it, it’s just another assignment.”

• “Sometimes you are like excited because you know it’s a strong subject or something.”

Some of the positive thoughts occurred when the students were handed out the test and began to work on it.

• “It is probably going to be easier because you are going through the steps (instructions) and it sounds more reassuring.”

• “Feeling like this actually wasn’t that bad. It is easy, I can do this and do good on the test.”

• “It depends on like what the questions are like. If they are multiple choice or just true or false, those are easy.”

• “(If I know the answers I am feeling) good, glad that you studied enough.”

• “You know that you will have the full answers and are relieved, happy, glad that you know the answers.”

• “Less nervous (when the test is being handed out) because everything comes back to you and you like remember it all. But you were all worried before the test because you forgot it but once the test is handed out you remember it all.”

• “If you had a gut ache it starts to get better then you feel like, well I’m halfway through it.”

This is a significant category because of the number of comments that were generated regarding the positive thoughts and feelings that the students experienced prior to and during a
high stakes test. There was no mention of positive feelings in the literature, this is likely because the subjects of most studies tend to be test anxious individuals. Since this research involved a cross section of typical Grade 7 classrooms there were many positive reports. While some students did not exhibit test anxiety others articulated some of the symptoms, such as being distracted.

_Inability to Focus._ The third largest subcategory in the category of psychological responses was an inability to focus during the test or losing focus during the test taking process. Some of the comments regarding this problem articulated that it could happen prior to the students beginning the test or during the experience.

- “My brain has a spaz attack before I start a test, like it tries real hard to remember everything we did before I actually do the test. And then it goes wandering somewheres else, and then it comes and you say something else. It just won’t stop moving.”
- “Like when you hit a hard question, your mind goes blank. It’s like, ‘What was it? What was it? What was it?’ And you freak out and then you finally get it.”
- “Your mind all of a sudden goes blank and then you start freaking out because you think you can’t remember anything else.”
- “Like then you just try real hard and you end up forgetting all the other stuff, it’s like you push your mind too much.”
- “If you are trying to figure something out and then like so you are tapping your finger and then you just look at it and then its just, you can’t remember what you were doing.”
According to Maher (1966, as cited in Friedman & Bendas-Jacob, 1997) emotionality is a dimension of test anxiety. One of the components of emotionality identified by Maher (1966) was disrupted or disorganized problem solving and cognitive control that resulted in the students experiencing difficulty thinking clearly and coping in the situation. These comments appear to demonstrate disrupted cognition particularly the experience that the students' reported of not being able to recall critical information. While some students found it difficult to concentrate during tests some of their peers were relieved when the experience terminated.

Relief. A sense of relief when the test was over was the fourth most reported response in this category.

- "You feel more relaxed, like when you are doing your test you’re all like tensed up and scared but after it’s like it’s over finally and then you feel relaxed."
- "Well, I am glad that’s over, then you just want to drop down and sleep”; After you get the test done you are happy that you got finished in time but then you just think, ya, you did great and you don’t (want) to look over the test.”
- "I am feeling glad that the test is over and done with and then I would remember an answer to a certain question and I would think I was an idiot.”
- "At least its done and it wasn’t that bad.”
- "Relief, except for the fact that you’ve got an answer and you’ve got to fix it but it’s already handed in.”
- "I finished the test that’s all, that’s the important thing.”

A feeling of relief following an important test is not an issue that is mentioned in the current research but it does demonstrate that the test taking experience is stressful to
students. The experience seemed to be so stressful to some students that they simply wanted to get the test over with as quickly as possible.

*Desire for Quick Completion.* A smaller number of students expressed a desire to complete the test as quickly as possible. This was the fifth most reported subcategory under psychological reactions. Some seemed to want to finish rapidly for strategic reasons.

- “I want to get it done as fast as I can and then look it over.”

Others seemed to want to quickly get the experience over and done with.

- “It doesn’t look too hard so let’s just do it.”
- “I am even more nervous but I want to get it done”
- “You are here anyway and you might as well do it.”
- “Like if you are going to do something with your friends after school and you’ve got a test you just figure, get that test done and the sooner you get that done you can go out with your friends.”

Based on most of the comments in this subcategory, completing the test quickly seems to be a reaction to an unpleasant experience. These students indicated that they wanted to get the experience over with as quickly as possible. Conversely, other students verbalized the desire to avoid the experience instead.

*Avoidance.* The smallest subcategory under psychological reaction to testing was the issue of avoidance.

- “I go to the bathroom and hide out (when there is a test).”
- “(I) feel like I don’t want to do it.”
- “When you have so many tests in a week its like you don’t even want to go to school.” “and some people are like, screw the hard ones.”
• “Sometimes I skip the hard ones.”

These comments demonstrate the desire that some students expressed to avoid the situation when they are feeling anxious. Middleton and Midgley (1997) theorized that avoiding work or avoiding asking for help might be a powerful predictor of test anxiety, based on their study. Individuals in this study referred to avoiding the test or portions of the test and this may indicate particularly test-anxious students.

**Physiological Reactions**

This category garnered fewer comments than did the category of psychological reactions. The students reported experiencing physiological reactions before, during and after testing. Some of the physical symptoms, identified by the students prior to taking the test included a feeling of butterflies in the stomach; several students referred to this sensation as a “gut feeling”.

- “Well, usually when you wake up in the morning you’re okay and then you get to school and then you see it, then you get that gut feeling.”
- “(When the desk is upside down on the desk) that’s when you get the gut feeling.”
- “You get that gut feeling, butterflies in your throat.”

Having a headache, sweaty palms and the need to go to the bathroom were also common statements.

- “I think about it (the test) lots, I get a headache.”
- “If I am tired and I’ve got a test the next day, if all the lights are on in the classroom and someone is hyper I just get a pounding headache, just from everything around me.”
- “and then you get this feeling, like you have to go to the bathroom.”
• “Before a test you always have to go to the bathroom.”
• “You get like sweaty palms.”
• “My hands start to sweat when I’m in the middle of a test.”

During test taking students described an increased heart rate and expressed the need to fidget.

• “Your heart is pounding really fast.”
• “My foot is always tapping during tests or I fiddle with my pencil.”
• “You start shaking.”
• “You like start tapping your pencil and fingers on your desk.”
• “You start fidgeting when you are trying to think.”

A number of the students stated that when they encountered an unknown question they would feel shaky, start to panic, feel claustrophobic and their heart rate speeding up.

• “(When you don’t know the answer you feel) panicky, heart speeds up, rushy and scared.”
• “Adrenaline is running, your heart rate is up.”
• “You feel like you don’t have enough air.”
• “And your hand gets all shaky (when you don’t know the answer).”

Following a high stakes tests students reported a variety of physical sensations. The common ones were a feeling of being cold, tired, thirsty and weak.

• “I would probably be feeling weak, like it would be pretty nerve racking (during the test).”
• “really tired.”
• “When I do a test I feel like going home (afterwards).”
• “I get hungry.”

Another feeling some of the students' articulated was that of being energized.

• “After writing a test I usually feel energetic.”

• “I don’t know, I get hyper, I want to do something. I want to go outside and bike or something.”

Birenabaum and Pinku (1997) researched the dimension of emotionality. Emotionality refers to the physical reaction that individuals can exhibit in response to a high stakes test. These authors stated that the body reacts to a sense of non-specific danger. This response, according to Maher (1966, in Friedman & Bendas-Jacob, 1997) can include physiological arousal, bodily distress with physical changes, and complaints. Clearly these comments demonstrate physiological arousal including an accelerated heart rate, sweaty palms, an upset stomach and shakiness. All of these physical responses are mentioned in the literature (Birenabaum & Pinku, 1997; Maher, 1966). An interesting phenomenon that the students articulated that is not in the literature is the feeling of being energized following a high stakes test.

There seems to be a significant amount of data that indicates there are many internal influences evident when students are involved in the test taking process. The sheer number of responses from the students regarding this theme demonstrates what an important factor it is in the test taking experience.

External Influences

The second theme that was extracted from the focus group data comprised the influences that come from outside the individual. These influences originated with their peers, teachers, parents and other miscellaneous distractions. This theme accounts for significantly fewer comments than did the first theme.
Influence of Peers

The most significant external impact appears to come from peers in the classroom. The data from the focus groups indicate that, given the volume of comments that referred to peers, peers have a considerable influence in the test-taking situation. Many of these comments involved the distractions caused by peers during the test, but there were also comments that demonstrated the influence that peers have on the individual both before and after the test experience.

Some students indicated that prior to a test their peers can influence how they feel about their potential performance.

- “A whole bunch of people are talking about the test and they are saying, ‘Oh, I am going to fail, I am going to fail.’ And it makes you even more nervous. It makes you more nervous than you were before.”
- “I think I would be feeling more nervous (in the classroom) because everyone will be like talking about the test and saying how they are going to do and they are like saying they are going to fail it. Then I think that I am going to fail it. And then I think about how I am going to try my best.”

Other students shared that their peers impacted them during the test, there were a common set of distractions that bothered the students in the focus groups. These distractions involved other students singing or mumbling, sharpening their pencils, sniffling, erasing, or their turning around and looking at them during the test.

- “When you can hear someone else’s music playing (it distracts you) because you are trying to figure out what song it is and you’re not concentrating.”
- “When people are singing and mumbling (it is distracting).”
• “And then during the test when you have like (student’s name) or (student’s name) like talking and stuff you just want to yell. ‘Shut up’!”
• “Like when they turn the pages and get up and walk and start talking to other people.”
  “And say you look up and someone looks at you.”
• “People staring at you (is distracting).”
• “When people have runny noses. It was like a symphony one day, you couldn’t go a minute without someone doing it. ‘Shut up’!”
• “Or if you are sitting there trying to do a test and someone is sitting there with an eraser and they are like erasing their paper so much, it annoys me.”

A number of comments involved the impact that peers, finishing and handing in their tests, have on those still writing.

• “People handing in their tests and walking around (is distracting) and you feel you have to get it done and you rush.”
• “Thinking that you have to get done because everybody else is finishing.”
• “(As others are finishing) I’m thinking that I won’t finish.”
• “The noise (is distracting) when everyone else is finished and I am still working on it.”

One comment demonstrates the concern about potential judgements that peers may be making in the situation.

• “And when you are done before everyone else is. You do your test and then you are done and you walk out and then you think in your mind. Well, you know, you don’t really know what people think. OK, this person might think that they are done before everyone else they must have guessed, he’s failing.”
Peers were also reported as having an impact on test taking after the tests were written. Students stated that:

- "(Talking to peers after the test) makes it worse because they are talking about what they had and you know they probably got the right answer because they studied so much. It makes everything go worse cause then you think, oh, I did so bad now."
- "Talking to people doesn’t always make it worse cause you could be talking and you remember an answer and you got it right"
- "You know what I hate about after tests? I hate it when someone gets either a B or an A and walks around and brags and shows everybody. And I am sitting there with my big F. Wow that’s great! It sucks."
- "Like usually if you are on a test and you get stuck and you start to go off track or after you are done a test and you think you’ve done well, but you probably didn’t. You don’t want to talk to people about it."

One student discussed feeling better about tests knowing that everyone is going through the same experience as he was at the same time.

- "Like, I don’t like it when I don’t show up on a day because then I have to come back and I know that everybody else has already done it, and I got to do it by myself. But then if I am in the room with everyone else doing it, it feels like everybody else is on the same thing as me and other people are stuck to."

Another student shared that she thinks about how she did on the test in relation to how other students performed:

- "You feel like how did I do on the test? Did I do good? How did everyone else do?"
There is some information in the literature regarding the social context of test taking although the research in this area is quite limited. McDonald (2001) found that test anxious students who were concerned about a negative comparison with others tended to perform more poorly on tests. Some of the comments exemplify this concern and could partially explain why some students expressed a lack of desire to talk to their peers following testing. Friedman and Bendas-Jacob (1997) also focused on social issues regarding this topic in the adolescent child. According to this research, test anxiety was worsened by a concern of how others will view their test performance, particularly others that have a significant role in the individual’s life. Since peers are so important in the lives of adolescents it is no surprise that it is the largest category in this theme. Peers were a significant distraction to some students but there were other distractions in the classroom setting that were also discussed.

Miscellaneous Distractions

The second largest category in the theme, external influences, involved outside influences that distracted the students during tests. Several students stated that they did not like it when it was too quiet in the room during a test, this was a distraction to them.

- “Sometimes just all quiet bugs me, we are used to a noisy classroom, everybody is working and everything. It’s different, weird.”
- “I get frustrated because of all the silence and I wish that people would put on music or something.”

The majority of students however stated that they needed it to be quiet in order to concentrate.

- “I like when it is quiet.”
- “When I do a test then there has to be no noise.”
• “Or if it’s all quiet and someone just walks up out of the blue and starts sharpening their pencil.”

• “Every little sound seems so loud, it’s like a tap dripping when you have a headache.”

Some of the common sources of noise were vehicles outside the windows, classes walking in the halls, and people going in and out of the building.

While the types of distractions that bother students during testing is not mentioned in the literature the problem of distractibility is discussed. Alting and Markham (1993) examined this issue and found that test-anxious individuals were more distractible than individuals who were not test-anxious. The distracters mentioned indicate that, for some students, there was a myriad of possible distractions in the classroom setting including that of the teacher.

Influence of Teachers

The third largest category reported in the theme of external influences was that of the teacher. Comments directed at the impact of the teacher accounted for significantly less than the number of comments regarding peers.

Some of the comments discussed how the teacher might be supportive in the test-taking situation.

• “It’s like we get help with tests but it’s help that makes you understand the work but it’s not help that tells you how to do it, not the answer.”

• “If the teacher is walking around and I need help on a question, then it helps me out because she will see me for sure.”

The more common comments, however, discussed the concern that the teacher was judging them.
• “Ya, because you think that they (the teachers) are looking at your work. Like when you come up to me and stand beside me in front of the classroom. I like try to cover up my work so you don’t see it to make sure that you don’t know that I am going to fail.” “While you are doing a test and she walks by you and you just say, oh, she saw something on your paper that’s not right. And now you feel stupid.”

• “You feel even more nervous (when the teacher is walking around) because you might think they will come over and watch you. Like when people watch me when I am doing my test it gets me really nervous.”

• “When they come and walk by you it’s like they are thinking, you can tell that person’s not going to pass.”

Another comment referred to the teacher as a distraction.

• “Like when someone needs help and the teacher explains it and you end up listening and then you forget what you were doing.”

There are few studies that have examined the impact of the teacher during the testing process. Sass and Meyer (n.d.) looked at the personality of teachers and how this impacted on student test anxiety. They found teachers’ who were synergistic (i.e., had the ability to see opposites as meaningfully related) with high self-regard and a positive outlook tended to have students who demonstrated low-test anxiety. Teachers who demonstrated opposite personality traits tended to have students with higher test anxiety. These students appear to be concerned about being judged negatively by the teacher and this could be another indication of their level of test anxiety. In addition to the teacher having an influence on test anxious individuals parents also had an impact on a few students.

*Influences of Parents*
The fewest number of comments in this theme referred to the influence of parents in the test-taking situation. The majority of the comments discussed a concern about what parents would say if the student did not do well on a test.

- “Also when you do get a test you always think about what your parents are going to say if I do bad. So you are thinking about something else and you’re not concentrating. Like you are worrying about your parents and what they are going to say.”
- “(I am) thinking about what they (parents) will say if I fail.”
- Other comments indicated that thinking about their parents helped to motivate some students and distract others.
- “(Thinking about my parents) makes you want to do better.”
- “(Thinking about my parents) makes you want to do better but you can’t always do better because you are concentrating on something else.”

While this is an area that has not been well researched there have been some studies that have looked at the link between the parent-child relationship and test anxiety. Stipek (1998) looked at some studies in her research that indicated if parents held unrealistically high expectations of their children then the children tended to be more test anxious. Another study found that negative feedback from parents, inconsistent child rearing, and a need to control and restrict their children led to highly anxious students. A couple of the comments indicate a concern about parental reactions to a bad test score. Other students appear to be either motivated by parental interest or distracted by it.
During the focus group interviews the students shared many strategies that they employ during the process of test taking. These strategies involved both self-calming and test taking strategies. This theme accounted for the fewest overall comments. The comments in each of the two categories were about equally distributed.

Self-Calming Strategies

It became evident that the students used a number of techniques in order to help themselves stay calmer and reduce their stress level during high-stakes testing situations. Some of these behaviors involved chewing on a pencil, breathing deeply, stomping a foot, making jokes or pulling hair.

- “I chew on my pencil.”
- “When I’m nervous I’ve got this habit. I stomp my foot. I know it distracts people but I can’t stop. It helps me a little bit cause it makes me think.”
- “I just try to get as much oxygen into my body as I can, just to calm myself down.”
- “We make jokes sometimes before the test. We make jokes to help with the stress.”
- “It’s like when you pull your hair, stress is coming out through the strands.”

The second most common method that students employed to keep themselves calm was to put their mind on something else, or engage in an alternate activity.

- “Try not to think about it, like just think about something else.”
- “I like to think about a nice book that I am going to read after.”
- “Think about something funny that happened to one of your friends.”
- “(If I am nervous) forget about it, just like make yourself feel that there is no test today and you are going to have a good day. You’re just blocking it out.”
• “Don’t think about it, try thinking about something else. Like if you are playing a sport, think about that.”

• “I just try not to think about it until it comes. Go outside and do something, go biking.”

The third strategy that the students reported was that of thinking positively about the experience.

• “You try and think of something happy, like it’s not that bad of a test.”

• “Think about positive stuff, not negative.”

• “You think of an alternative, like you could pass it.”

• “(You think) there could be a chance that you could pass it.”

• “You think about how after the test you are going to think that was not a big deal. You did good on it.”

• “Just think positive and know that when the test is done you will be free to do what you want.”

• “You think of all the other tests that you were freaked out about and you think of how they went. And if they went good then it reassures you that like maybe you won’t do so bad.”

A couple of students shared how they keep calm after the testing experience.

• “Sometimes I want another test, if there is something that I don’t want to do next then I want another test to do something else. But by getting another test it would keep me from being distracted or anything because then I have to be doing that test right away and know what I am doing. And that helps me out sometimes.”
“I would go and get the text book and look at all the answers to see the ones I got right. So you would have an idea of how you did.”

Very few studies have looked at the issue of stress reduction in order to relieve test anxiety. Stipek (1998) reviewed some of the rare studies that looked at cognitive therapies as a treatment. Some of the strategies in this study involved focusing on positive thoughts; this was also a common strategy employed by the students in this research. Wine (1974) also conducted a study that involved training students to be more task, rather than self-oriented during testing situations. While this training did not seem to improve the subjects’ reading scores there was a reduction in anxiety levels. This is interesting since many of the students involved in this research project indicated that they used the strategy of attending to task-irrelevant thoughts as one of the major techniques to calm themselves. The fact that the students were able to articulate so many self-calming strategies it is evident that they have needed to employ them to combat the stress related to test taking. The vast majority of students indicated that they needed to use these types of strategies.

Test-Taking Strategies

The students shared many strategies that they employed prior to tests and during tests. However, there were four comments from students who stated they did not use strategies or they forgot about the strategies when they began to write the test.

- “I’m not even thinking about strategies.”
- “I try to think of strategies but it doesn’t work.”
- “Sometimes when you are writing the test you forget the strategies.”
- “No, I am not really thinking about strategy, after so many tests you just get used to it.”
A couple of the strategies that students shared included how they prepared for tests.

- "(I like to) get a second look at the textbook."
- "Review the work."

However, the vast majority of the comments regarded strategies that were used, by the students, while they were writing the test. Some of these strategies included: writing as much as you can, taking a guess if you do not know the answer, skipping the hard questions and doing the easy ones first.

- "So if it (the question) is out of 5 or something, I write more than that so then if you get a couple wrong you could still get 5 out of 5."
- "Write as much as you can, answer all the questions, and if you don’t know it, take a guess."
- "I just think about what I reviewed in the book and if it is something I don’t know I take a wild guess…"
- "I would be scanning through the questions, taking the test page by page. And if I came to a question I would find out if I knew the question or not, and if it was easy or hard. If it was too hard for me I would skip it and go onto the next one."
- "If you are stuck on a question, go onto an easier one until the end of the test and then check it over to see if you have the answer. That’s what I do."

Conversely, two boys shared that they liked to do the hard questions first:

- "I do the hard ones first, “I stress my mind in the beginning so after I don’t have to think as hard.”
- “I go through the whole test and if there is a question I don’t know I focus on it and try to figure it out.”
There were also comments regarding the format of the tests. A couple of students mentioned that they liked the true or false questions the best. Their strategy included attempting to do these types of questions first, even though they sometimes did not do as well on these types of questions as they anticipated they would, while they were writing the test.

- “Well, true or false tests, like if we’ve got two pages of true or false and then we went to questions. Like true or false you can pass those and you think you are going to get everyone right. And then you get to the (short answer) questions and you think you are not going to get too many right. Then usually when you get your test back all the true and false ones are wrong and most of the questions are right.”

Most of the research regarding reducing test anxiety involves skills-based programs and these programs have yielded inconsistent results. The programs tend to focus on improving the students’ academic skills to help them feel more confident when writing tests. This remains an area, however, that is lacking quality research particularly with elementary or high school aged students. Vispoel (2000) conducted a study that looked at the issue of reviewing the information prior to tests. His results were inconclusive, but he did mention that the students with high anxiety strongly desired this review. He cautioned that a review component added to the test should not take up too much time or it would defeat the purpose because of the increased time expenditure. Interestingly, “reviewing information prior to a test”, was only mentioned by two students as a test-taking strategy.

The research thus far has also been inconclusive on the issue of using classroom time to specifically teach test-taking strategies and study skills to students. Uziela (1996) conducted a study that focused on teaching students study skills and test taking skills. She found no significant difference between the group that was getting the training and the control group. On
the other hand Beidel and Turner (1999) conducted a study that taught study habits, study skills and test-taking strategies. While this study was flawed, (i.e., the students knew the test was not going to affect their grade) the researchers found that the students were less test anxious and performed better after taking part in the program. The focus group data demonstrated that the students employed many test-taking strategies already although it is debatable as to whether these strategies are as effective as they could be.

Overall, these three themes reflect the content of the focus group interviews. The students were very interested in sharing their experiences and provided a great deal of information about the test taking process and how it affects them on a number of different levels.

Interpretation of Data

When interpreting the data it is important to note some of the limitations of the study that impact on its validity. Firstly, this research involved using a convenience sampling. The site was chosen because the researcher works at the school. The participants were volunteers from the grade sevens that attended the school. According to Patton (1987), convenience sampling “is probably the most common sampling strategy—and the least desirable” (p. 58). This limitation affects the ability to generalize the results. An additional limitation is the fact that the researcher was the current teacher of most of the participants in the focus groups. As a result the students may have withheld information due to the fact that they knew the researcher. Had the facilitator been unknown to the students there may have been more students willing to share this type of information. A third possible limitation is researcher bias since the researcher knew the subjects. The researcher used several techniques in order to avoid researcher bias. Firstly, the sessions were audio-taped and the quotes were transcribed from the tapes verbatim. Also an objective person, who was not known to the students, was chosen as an assistant. The assistant also took
notes on the student responses. The researcher was also careful to continually check with the students to ensure that the meaning of their statements was clearly understood, both during the data collection process and while writing the report.

*Internal Influences*

The data gathered in the focus groups gave a great deal of information regarding what these Grade 7 students experienced during high stakes tests. Many of them articulated some of the classic symptoms of test anxiety. In the literature authors such as Birenabaum and Pinku (1997) discussed the two dimensions of cognition and emotionality and they appear to be weighted equally when defining test anxiety. In the data the students verbalized a great deal more information about the cognitive aspects of anxiety. The emotionality or physical arousal component was a much smaller category in the theme of internal influences than the psychological influences. This may show that these students need more support in the cognitive domain when addressing test anxiety. Another important note is that not all of the students experienced anxiety prior to high stakes tests. The fact that the second largest subcategory in psychological reactions was positive thoughts and feelings shows that a significant number of students were not anxious. The comments ranged from students not being worried at all to students being excited about writing the test. These students appear to find a high stakes test motivating, while others found the experience extremely stressful.

The data showed that most of the students were heavily influenced by internal factors before, during and after the test taking experience. While one of the category demonstrated positive influences the rest of the categories in this theme describe a negative toll that test taking has on many of these students. The largest subcategory involves generalized worry, the most common psychological reaction. The most common worry, in this category was the fear of
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failure. This result seems to relate to the interference model of test anxiety. Birenabaum and Pinku (1997) described three models to help explain test anxiety. The interference model postulates that the test anxious student is unable to retrieve information during a test due to cognitive interference. This model states that the students are using their cognitive abilities to worry and this distracts them from engaging in task relevant behaviors. Given the quantity of comments that the students generated regarding cognitive internal influences there appears to be a great deal of interference present during the test taking process.

The second model discussed by Birenabaum and Pinku (1997) was the skills deficit model. This model is based on the theory that the students experience difficulty learning the information in the first place; the test anxiety is a result of the students' not being prepared for the test. In this model, test anxiety does not play a direct role in the student doing poorly on the test. While at first glance it may appear that this model fits because the number one worry is fear of failure. However, the fact that a number of students articulated that many of the symptoms of anxiety actually diminished once the test was handed out and they were able to begin to working on it, shows this model does not completely fit. One example, is the student that stated they had a 'gut-ache' prior to the test but as they are writing the test they began to feel better. While the skills deficit model may hold for a few of the students it does not appear to work for the majority.

The third model postulated by Birenabaum and Pinku (1997) is the integrated model. This model combines the first two models and states that there are two different types of individuals. The first type is able to learn the necessary skills but do not due well on tests due to cognitive interference and the second type that have difficulty learning the information and have poor study skills. This model was supported by the research conducted by Birenabaum and
Pinku (1997) and it may be the most helpful model when looking at the results from this research project. A couple of students mentioned that part of their anxiety was based on the fact they felt they had not adequately prepared for the test. This could indicate poor study skills. Other students discussed that they felt fine during testing until they get to a question that they did not know the answer to and at that point some of them had a physiological reaction, such as shaking. Still other students discussed that they started to panic and blank out when they found a question that they did not know the answer to. This type of student seems to fit the profile of the successful student that at some point in the test runs into cognitive interference, triggered by an unknown question. This type of model leads to a particular treatment strategy that includes both cognitive and behavioral training.

External Influences

The focus group data also points out the external influences that tend to distract or, in some cases motivate the students. The majority of comments in this theme reflected the negative impact of external factors. The students cited numerous areas of distraction from outside of themselves. The biggest impact in a testing situation appears to be that of peers. This is not surprising given the subjects were all in their early adolescence. There are few studies that examine the role that peers’ play in the test-taking puzzle. Friedman and Bendas-Jacob (1997) focused on the social issues regarding test taking and found that anxiety is heightened by a concern, of the individual, that they will not measure up to their peers or that they will lose status in the eyes of significant others. Some of the comments demonstrate a fear of judgement. Particularly regarding the issue of timing, when completing the test. Some students commented that when their peers were finishing the test they felt rushed and concerned that they were taking too long. Another comment highlights the potential of negative judgements: “And when you are
done before everyone else is. You do your test and then you are done and you walk out and then you think in your mind. Well, you know, you don't really know what people think. OK this person might think that they are done before everyone else they must have guessed, he's failing.”

However, most of the comments regarding peers centered on the distractions caused by peers in the classroom. This is not surprising given the crowded nature of classrooms. This issue is not specifically commented on in the literature. It could be argued that since test anxious students are more distractible, it makes sense that peers would be the main source of the distraction. Another interesting issue not mentioned in the literature is the impact that discussing the test with peers has on the students' test performance. A number of students mentioned that if their peers were talking about how nervous they were prior to the test it would make some individuals much more anxious. Other students shared that they did not want to talk to their peers after writing a test. One student mentioned that the comparison with their peers in terms of their marks was part of the discomfort. Others indicated that when answers were discussed they felt that their peers probably got the correct answers and they did not. Overall, peers had a significant impact on the students given the number of comments this category generated. It is helpful for the teacher to note this influence in order to attempt to address it during testing situations. Some of the concerns raised by the students, especially in terms of some of the distractions, can be addressed in the classroom setting.

The influence of teachers and parents in the test-taking situation was interesting. Depending on the students perspective the teacher walking around the classroom was either comforting, because students could ask for help, or threatening. A number of students mentioned a fear that the teacher was looking at their papers and being critical of their responses. The impact of the teacher and parent, however was minimal in relation to the impact of peers
based on the number of comments. This is another area that could be addressed by the teacher possibly by opening up discussions with their classes regarding the role of the teacher in testing situations. Only a few comments referenced the influence of parents. Some students mentioned that thinking of their parents was distracting another comment mentioned that they felt motivated.

Given the number of distractions cited by the students both internal, in terms of cognition interference and emotionality and external, it appears that many of the students in these focus groups had difficulty concentrating throughout the testing experience. Alting and Markham (1993) proposed two reasons for students being distracted during testing. They hypothesized that anxious students were searching the environment for potential threats. This may explain the feeling that some students had of the teacher judging them. These individuals may view the teacher as a potential threat as opposed to a support. Their peers finishing early or making noise during testing may also be viewed as a threat. The second reason for distractibility cited by these authors was the fact that the students were highly aroused due to emotionality and the bodily reactions. This could be true for some students but not as many students mentioned the emotionality component. These authors further mentioned that the highly anxious students were even more distracted when the students felt that they were under the threat of evaluation. But this distraction only occurred if there were distracting stimuli in the room. Since the comments from the students were in relation to high stakes tests the threat of evaluation could definitely have had an impact on their distractibility.

**Strategies**

The students made many comments regarding self-calming strategies that have implications for potential treatment for test anxiety. The number of self-calming strategies and
the numerous internal and external influences all point to the fact that some of these students were very anxious. Given that the students generated so many comments regarding self-calming strategies, it appears that stress reduction could be a key component to treatment. The most common self-calming strategy the students’ employed involved deep breathing, fidgeting as well as other techniques. This may have some implications for teaching stress reduction strategies in order to reduce the emotionality component of the anxiety reaction. There are no studies to be found in the literature regarding the impact that stress reduction strategies have on the test taking process.

The second largest subcategory regarding self-calming was thinking of something else besides the test. The student shared that they thought of all kinds of other things such as reading a book, thinking of other activities they had done or were going to do with peers as well as others. According to Wine (1974) engaging in task irrelevant thoughts does not help the students perform well on tests. The goal of the cognitive treatment for her study was to eliminate task-irrelevant thoughts and replace them with task-relevant thoughts. While this study was not conclusive it did show promise. As a result, the desire that students have to calm themselves by not thinking about the test may be counterproductive.

The third most common self-calming strategy cited by the students was thinking positively about the task and reflecting on past successes. This is the type of task-relevant thinking that could enhance performance. While some students naturally engaged in this behavior other students may benefit from learning to do this.

The students also shared numerous test-taking strategies. Only a couple of the strategies involved test preparation, however. This may mean that test preparation is an area that these students may need to be taught. The majority of the strategies involved how they approached the
test itself. Some students shared that they do not think of strategies when writing a test. This could be an argument for specifically teaching these skills. A couple of the studies in the literature included a test taking component. Udziela (2000), Beidel and Turner (1999) conducted the studies with mixed results. It is hard to determine how effective the test taking component itself was because it was included with study skills training in both studies.

Pedagogical Implications

Overall there are some useful recommendations that can be extrapolated from the data. First, some students encountered the symptoms of test anxiety at both a cognitive and physiological level this could distract them from concentrating fully on high stakes test. The students appear to suffer from these symptoms on a continuum. Some of the students indicated that they looked forward to the test situation and were not negatively impacted, conversely they were motivated. While others students were mildly cognitively affected still other students suffered from both cognitive and physiological symptoms. Treatment for some of the students therefore needs to address both the cognitive and physiological components. Treatment is also dependent on the model of test anxiety that the researcher is using. In order to properly treat test anxiety the underlying cause needs to be analyzed. Whether the student is lacking skills to begin with or unable to retrieve learned information during the testing process has important implications as to the treatment necessary.

There appears to be a number of general tips in the literature as to how to reduce test anxiety but relatively few studies have been conducted on potential treatments. Some of the studies on the impact of test anxiety have made recommendations for partially alleviating the problem but there are few practical applications to school situations. Many of the tips and treatments tend to be aimed at the integrated model of test anxiety. This model suggests that test
anxiety is either a result of a high achieving student that is unable to recall what they have learned or a student that has difficulty learning the material to begin with and then is anxious when presented with a test. While other suggestions involve helping students to learn study skills it is assumed they are lacking. Still other treatments focus on reducing the stress or worry during the test to enable students to retrieve the information they have learned, suggesting an orientation to either the skills deficit or the interference models.

Considering the cognitive component of test anxiety Vispoel (2000) conducted a study on the comparison between the review and no-review conditions on computerized fixed-item vocabulary tests. While this study did not produce statistically significant differences in the number of correct scores under the two different conditions the university students who participated in the study indicated a strong desire for review. His study did show that there were modest performance gains after review for examinees that were of higher ability and the participants desired that review more with higher test anxiety. Vispoel noted that the review component was so strongly desired by the students with high anxiety that leaving it out would result in a test-taking situation that was more stressful than necessary. Further, the exclusion of review would be more detrimental to the high ability and high anxiety students than to other groups. The caution that Vispoel issued on the variable of review was that it should not take up too much time. He found that including a review component increased the testing time by 35%, which did not negatively impact on this study because the test was relatively short, with the review the total test time was only 20 minutes. On a longer test a 35% increase could negatively impact on the testing situation by extending the time frame too long. This would have a particularly negative impact on younger students. This study is of limited value because it was conducted on a very specific computerized test, which makes generalization a problem.
Stipek (1998) also reviewed some of the cognitive therapies designed to address the worry aspect of test anxiety. Individuals develop coping strategies to deal with their anxiety and task-irrelevant thoughts. Some of these strategies may involve focusing on positive thoughts prior to a test and teaching themselves to attend to the task while preparing for or taking the test.

The problem with the strategies proposed by Stipek (1998) is the fact that they are more adult-oriented techniques and would have to be modified in order for them to be applicable at the elementary level. Another drawback is the fact that the desensitization training and the cognitive therapies need to be administered by a professional counselor. Few classroom teachers or school personnel possess the skills necessary to use these techniques in a school setting and gaining access to an outside specialist could be very costly.

One example of using a cognitive approach can be found in a series of studies that were conducted on test anxiety and self-attention by Wine (1974). This researcher viewed test anxiety from the cognitive-attentional interpretation and seems to be aligned with the integrated model. In her study Wine stated that the treatments for test anxiety have been mostly directed at the emotional arousal component and not enough attention has been given to the cognitive component. Wine argued, “treatment approaches that combine systematic desensitization with procedures that deal directly with the cognitive dimension of test anxiety, e.g., study counseling much more consistently improve cognitive performance” (p. 3). Wine’s paper described three separate studies, one of which is applicable to this paper. The study involved an ongoing treatment program that involved 48 third and fourth graders identified as test anxious. According to Wine, “The primary therapeutic goal was to train students to eliminate self-irrelevant thinking and increase task relevant thinking, i.e., to turn their attention from the self to the demands of the external situation” (p. 4). In this study 16 students were given Task-
Attending training; 16 were placed in a placebo treatment group and 16 were placed in a no-treatment control group. These students were basically equal in terms of IQ, their performance on the TASC, and socio-economic levels. The treatment groups met for six twice-weekly hour-long sessions. The students were also pre-and post-tested in their regular classrooms with a general ability test (IPAT Test of G), a reading test (Gates-McGinitie Test of Speed and Accuracy) and an anxiety scale (TASC). The training that the treatment group was provided dealt with the emotionality and worry components of test anxiety (Wine, 1974). The purpose was to train the students to attend fully to task-relevant variable while they were working on cognitive tasks. The training also involved some basic training in self-instructions that would be useful for approaching tasks. Additionally the students were taught to structure tasks and progress through them in a systematic way as well as relaxation exercise. The placebo group engaged in imaginative activities such as drawing pictures and telling stories about them. The control group received no special attention.

The results of this study showed that the test anxiety levels of the students who were given the task-attending training were significantly reduced and their cognitive performance, indicated by the IQ scores, was significantly improved. However, no improvement was shown in reading by any of the three groups. The test anxiety levels of the students in the placebo group were also significantly reduced but their cognitive performance on the IQ test was not improved. These results suggest that attentional training designed to increase task-relevant thinking and reduce self-relevant thinking shows some promise in reducing anxiety and improving cognitive performance (Wine, 1974). This study is a particularly valuable one because it was so well controlled. More studies need to be conducted in the area of reading performance.
A second recommendation focuses on the issue of distraction. Many students seem to be easily distracted and there are numerous distractions in the classroom. Knowing the source of distractions can help teachers and students mitigate their impact during testing. Their peers seem to have the largest impact on the testing experience after the internal influences. Peers can be both a distraction and a source of stress when the test is discussed. If peers are nervous and talk about their nervousness others tend to get more nervous as well. Teachers and parents have a smaller impact during the testing experience. The teacher can be viewed as a support or a threat depending on the students' point of view. It would be helpful for classroom teachers to recognize this and attempt to put themselves in the role of supporter rather than a threat. Possibly not walking around and looking at papers would help students feel more comfortable but being available for questions.

Thirdly, given the number of self-calming strategies classroom may benefit from stress reduction exercise training that could then be employed prior to high stakes tests. Training may be necessary, so students are able to use strategies to calm themselves that impact positively on their test performance.

Stipek (1998) suggests a number of ideas from past studies that can be employed by classroom teachers to help students. She suggests that introducing tasks in a non-threatening manner is a good start. When tasks are introduced as a test of ability or when the evaluative aspects of the tasks are highlighted the highly-test anxious students are likely to have more task-irrelevant or self-deprecatory thinking (Sarason, 1993, 1974; Sarason & Sarason, 1990, in Stipek, 1998). A study that illuminates this point involved college students who were given a serial learning task of meaningless words (Sarason, 1961; in Stipek, 1998). Some students were told that the task was a measure of intelligence and other students were only given the instructions...
necessary to complete the task. It was found that highly anxious students who felt that their intelligence was being measured performed significantly worse than the highly anxious students who were given neutral instructions. The instructions had no effect on the performance of the low-anxious students. Another study was designed to eliminate the performance differences between high and low anxious students by suggesting to the highly anxious students who they should relax; since the task was very difficult it would be fine if they did not learn the task right away (Sarason, 1958; in Stipek, 1998). This study found that these instructions worked for the highly anxious individuals but the less anxious students performed better without this reassurance.

Fourthly, the students had numerous test taking strategies that are valid such as doing the easy questions first, guessing if you do not know the answer and giving a lot of information in their answers. Perhaps these students and the students that admitted they do not use strategies would benefit from more test preparation and study skills training in order to help them feel more confident when approaching test.

Studies that have focused on the skills deficit model and looked at improving study skills as a method to reduce test anxiety have yielded inconsistent results. Udziela (1996) conducted a study on the effects of teaching study skills to sixth grade students on their reading achievement. While the focus of this study was not specifically based on reducing test anxiety, the study skills that were taught included a test-taking component. This study was conducted as a result of a need, identified by the researcher, due to students found to be lacking basic study skills. For the purposes of this research, study skills were identified to have ten or more skill areas and the researcher identified one of the key areas to be test anxiety. Since the research on study skills is so limited, and it is so rare for researchers to use intermediate-aged students Udziela identified a
strong need for such a study. The researcher hypothesized that “sixth grade students taught formal study skills would not obtain significantly higher reading achievement scores than those not taught formal study skills” (p. 4). Udziela found that her study supported the null hypothesis. There was no statistical difference in the academic achievement scores of the students who were taught study skills. The researcher concluded that the inconsistent findings in the present literature could be explained by the different ages of students who have been used as subjects. Udziela concludes that older students (post secondary) tend to be more able to transfer the study skills that have been taught to different situations. The results of this study show the need for further research particularly with students at the intermediate age level. This researcher points out that it is at this age when study skills begin to develop.

Beidel and Turner (1999) conducted another study involving the teaching of study skills and they found dissimilar results. This study was based on a pilot program to reduce test anxiety and socio-evaluative concerns called The Testbusters Program. This program was designed specifically for students in elementary school from grades 4 through 7 and involved teaching study habits, study skills, test-taking strategies and included a student contract to encourage consistent use of study behavior. A variety of assessment tools were use including a self-report, a behavioral assessment and the students’ grade point averages. The study was designed to administer the treatment to a group of students; a weakness was the lack of a control group.

Beidel and Turner (1999) concluded that this program might be effective for decreasing test anxiety. While the program itself did not include any specific anxiety-reduction strategies or coping skills the children indicated that their test anxiety was decreased significantly after treatment. Academic achievement also showed significant improvement post treatment. They found that grade point averages across the five subjects improved significantly. The behavioral
data showed that anxious children were less anxious when taking an age-appropriate vocabulary test. The researchers found this to be statistically significant. However, a confounding variable was the fact that the students knew this test was not going to affect their grade so the threat level of this test was lessened and therefore less applicable to a realistic classroom context.

Student pulse rates were used as one of the measures of anxiety during testing. The researchers point out that technological advances have made it possible to unobtrusively collect heart rate data in a natural setting. This could have a positive impact on future research, as this is a relatively objective measure of anxiety.

A particularly interesting finding from this study was the fact that the students did not show any improvement in their perceptions of their cognitive, social and physical competence or in their self-esteem post treatment. This is curious since they did exhibit improvements in anxiety and performance levels. Beidel and Turner (1999) explain that this oddity is probably related to the time period of the treatment, 11 weeks. They felt that this was likely too short a period of time for perceptual changes to occur. They also noted that it is possible that behavioral changes precede internal cognitive changes.

While this program shows promise the researchers are aware of the limitations of the study, such as having no control group. Also after the treatment and the 6-month check up the students were 9 months older at the end of the study; therefore, maturation may have played a role in the results. The researchers also stated that the subjects selected for the study were a homogenous group of Caucasian students of average ability. The authors noted that 50% to 60% of students with test anxiety also have other anxiety disorders such as social phobias. They feel this program would be inappropriate for such children, as it does not address these co morbid
fears. Beidel and Turner (1999) recommend more controlled trials be conducted of the Testbusters program.

While the Testbusters program focused on a lack of study skills, Stipek (1998) reviewed literature that directly addressed the emotionality component of test anxiety through desensitization and relaxation techniques. A counselor typically conducts these sessions in a group setting. The participants begin by imagining the teacher announcing that there will be a test and from there they gradually begin to imagine more and more threatening situations. There is some evidence in the literature that these techniques work to reduce anxiety and improve performance (Hembree, 1988; in Stipek, 1998).

Other simple suggestions found in the literature involves giving students opportunities to correct their own papers and redo errors prior to submitting their work for a grade. Planning review time daily and weekly, using study groups and specific test taking strategies could all work for students who are anxious. Sometimes individualized intervention is necessary for extreme cases of test anxiety that cannot be addressed in the classroom. As previously suggested, eliminating time constraints may be helpful in some situations as well as ordering the test material from easy to more difficult. One study found that anxious students performed better on tests that began with easier problems and gradually became more difficult than on tasks where some of the more difficult questions were placed earlier in the test (Lund, 1953; in Stipek, 1998). Another study showed that children's IQ test performance improved when the order of the questions were changed to ensure that an easy question followed several incorrect responses (Zigler & Harter, 1969; in Stipek, 1998). Also, the test format and instructions can have an impact on the test performance of anxious students. Unfamiliar formats, or aspects of standardized tests, can be intimidating to students who are more anxious. One researcher found
that students performed more poorly on standardized tests because they did not understand the instructions or did not know how to use the answer sheets (Hill, 1984; in Stipek, 1998).

Generally teachers can help students a great deal by creating a positive and supportive atmosphere.

Stipek (1998) cautions that some of the recommendations that can help highly anxious students may in fact undermine the performance of students who have a low level of anxiety. She notes that for some students some anxiety helps motivate them and facilitates their performance. Reducing the anxiety level to the point that it interferes with motivation defeats the purpose. Not all students in these focus groups exhibited test anxiety. The danger of employing too many strategies to reduce the stress and pressure is that for some students this would also reduce the motivation. Stipek (1998) noted that students with low anxiety need a level of stress to enhance their motivation to do well on the test. There needs to be a balance struck that enables the highly anxious students to be calm while not undermining the motivation levels of the less anxious students. The difficulty translating this to the context of the classroom is the level of anxiety that is helpful or harmful likely varies from individual to individual.

Lastly, Birenbaum and Pinku (1997) suggest that more fundamental change is necessary in order to prevent test anxiety in the first place. Rather than find treatments to cope with the effects of anxiety they suggest that schools change their emphasis from that of testing to a culture of assessment. They encourage the use of portfolios, revision, reflection and self-evaluation to assess student learning.

**Recommended Areas of Further Research**

First, more research is needed to determine whether specifically teaching stress reduction techniques and test taking techniques to students helps to lower their test anxiety. These two
areas have not been researched specifically. Second, the three models of test anxiety should be researched more due to their implications for treatment. Third, more of the studies need to be conducted with older intermediate students. Most of the current studies involve college-aged students but undoubtedly the anxiety originates at a much younger age. If strategies could be put into place in the elementary schools then possibly students would be able to show their ability level more accurately on the tests that they encounter as they get older and the ‘stakes’ increase. Fourth, very few studies have dealt with the impact of the teachers’ personality on student test anxiety. It therefore may be beneficial for researchers to consider an updated study on this issue. Last, not all students in these focus groups articulated test anxiety. In fact the second largest subcategory in psychological reactions was positive thoughts and feelings. This is an area that has not been researched at all. Possibly these students that are not test anxious have strategies that can be investigated to potentially help their more anxious peers.

Conclusion

Overall conducting this research has given me a great deal of insight into the experience of test taking from the students’ perspective. I was impressed with the openness with which the students were willing to discuss this issue. As the focus group interviews progressed the students became more animated. Obviously this is an important issue to them and one for which the students seemed very interested in discussing. I realized as I conducted the interviews the level of stress that some students endure during high-stakes tests. I was surprised how articulate the students were when discussing the cognitive and physiological symptoms they experienced. As a classroom teacher I will be much more cognizant of the stress that some students experience. I will also be much more likely to have a dialogue with students that seem to be suffering from similar symptoms the students in these focus groups highlighted.
Another insight that I was able to glean from the data was the role of the teacher and parent in the test anxiety puzzle. I am aware that some individuals may view the teacher as a threat during the testing process and I will be looking at ways to avoid this scenario. I think that having an open dialogue with all the students regarding the role of the teacher during testing would be valuable. I will be able to give important information to parents as well regarding the potentially motivating role they can play when their child has a high-stakes test looming.

The test taking and self-calming strategies that students in these groups employed surprised me, in terms of the volume. Many of the strategies would be worth sharing with other students. Other strategies, such as focusing on irrelevant thoughts, need to be addressed given it was such a common strategy with the focus groups. Yet it may be a self-defeating technique.

Lastly, I am aware that the insights that I was able to gather from these focus groups cannot be generalized to other Grade 7 classes. But given this information I feel that I am more informed about some of the potential experiences that subsequent students may share with the students in these focus groups.
References


Appendix A
March 15, 2002

Dear Mr. Napier:

I would like to request your permission to conduct my Masters Degree research project with the Grade 7 students at Red Bluff Elementary School.

My plan is to use three focus groups in order to identify the pertinent issues surrounding test anxiety, from the students' point of view. The students will be pulled out of the straight Grade 7 classroom and the 6/7 classroom. The focus groups will engage in a brainstorming session with me as the facilitator. Themes from each of the three sessions will be collated in order to determine the major factors that impact students before, during and after the test-taking process.

Each focus group will meet once for one hour. I plan to conduct the sessions during my preparation time when Leanna Gamer teaches in my classroom. The students will lose minimal instructional time since lessons missed by the students can be made up. Prior to conducting the sessions a permission letter will be sent home to all parents of students involved. Only those students with returned and signed consent forms will participate in the study. Students will of course remain anonymous throughout the study and be able to drop out at anytime without penalty.

The topic of student test anxiety is one of ongoing concern to classroom teachers as they are expected to perform well on more and more formalized tests. The issue is especially critical in Grade 7, as they move into the secondary system and to higher-stakes tests. I hope the results of my research project will offer some insights into the thought processes and anxieties of students. Ultimately, I am hoping that recommendations can be made to enable teachers to assist students with some of the issues.

Thank you for your time. I look forward to hearing from you.

Sincerely yours,

Teri Mooring
Red Bluff Elementary School

cc: Leanna Garner
School Principal
Dear Parent/Guardian:

I am conducting a research study into the issues surrounding test anxiety as a part of my Masters Degree program. The purpose and goal of the research is to help teachers to better understand the issues and concerns students have regarding the process of writing formalized tests. I hope that this research will enable teachers to improve their test preparation techniques and help their students to perform successfully on these tests. The issues surrounding writing formalized tests successfully will be an increasingly bigger concern to students as they move on to high school.

I would like to give each Grade 7 student the opportunity to join the focus groups. I plan to divide the students into three groups of ten for a single one-hour session during the school day. The students will be given refreshments following the session of juice and donuts. They will not miss any instructional time and will be given time to make up for the hour, in class. What your children say in the focus groups will be kept confidential and every attempt will be made to maintain this confidentiality and anonymity. Although, this is sometimes difficult due to the fact they will participate as a part of a group. No one other than myself will examine the materials and no names of individuals will appear anywhere in the research. The audiotapes and notes from the sessions will be stored under lock and key in the school filing cabinet for the duration of the study. Participation is purely voluntary and students may withdraw at any time. The research poses no risk of any kind to the student and will have no effect on the student’s marks. Students can leave the study at anytime without penalty.

I would greatly appreciate your cooperation in signing this form below authorizing your son or daughter to be a part of this study. If you are interested, a photocopy of the study’s results will be made available to parent in the office by late spring. If you have any questions do not hesitate to contact me at 747-2634. If you have any concerns regarding this project please contact the Vice President of Research at UNBC (960-5820). Thank you.

Sincerely your,

Teri Mooring

__________________________  ______________________
Signature of Parent         Date

__________________________  ______________________
Signature of Student        Date

Please return as soon as possible.
Student Informed Consent Form

I ________________________________
(print your name)

have been told that Teri Mooring, a student at the University of Northern British Columbia is doing a project on test anxiety and the problems that it can cause for students. I have been asked to be part of this project. Students who agree to be part of the project will participate in a focus group interview with T. Mooring.

I know that whether or not I take part in the project is up to me and that whatever I decide will not affect my grades or what my teacher thinks of me. The discussion, during the group interview will be kept confidential. I know that the audiotapes and papers with my answers will be kept without my name on them until the project is finished. I also know that even if I decide to be part of the project now, I can change my mind at any time and this will not affect my grades of anything else at school.

I want to be part of this project. I agree to take part in the group interview.

______________________________  __________
Sign your name                  Date
Focus Group Questions

Major Question #1:
How do you feel right before writing the FSA?

Probes:
What are you thinking and feeling when you wake up in the morning?
What are you thinking and feeling when you get to school? walk into the classroom?
What are you thinking and feeling as the test is being handed out? as instructions about the test are being given?

Major Question #2:
How do you feel during the test-taking situation?

Probes:
What are you thinking and feeling as you look at the first page of the test?
What are you thinking and feeling if you do not know the answer to the first question?
How does your body feel? What are some physical reactions your body is having?
What are you thinking as you are writing the test? What thoughts are going through your head?
What strategies are you using during the test?
What kinds of things in the classroom distract you while you are writing a test?

Major Question #3:
How do you feel after a major test?

Probes:
What are you thinking and feeling as you hand in your test?
How do you feel physically? How does your body feel?
What are the thoughts that are going through your head?
Major Question #4:

**How do you keep yourself from being too nervous before a major test?**

What are you thinking and feeling before test?

What strategies are you using?