

## **Anxiety and Learning**

**Peiqi Li**

School of Air Transportation, Shanghai University of Engineering Science, Shanghai, China

lipei@peggy@163.com

**Keywords:** Anxiety, Learning

**Abstract:** Anxiety has been shown to negatively effect learning, especially in evaluative, and more specifically, testing situations. It has been demonstrated that test anxiety is a complex phenomenon and that there are different views as to its causes and treatments. This issue has very serious implications since examinations are a large part of education, and occur more frequently over the school years. This paper aims to discuss the practical implications for teachers with a focus on how classroom factors can influence anxiety levels with students.

### **1. Introduction**

Anxiety has been shown to negatively effect learning, especially in evaluative, and more specifically, testing situations. Zeidner defines test anxiety as “the set of cognitive, affective, and behavioral reactions that accompany concern over possible negative consequences contingent upon performance in a test or evaluative situation” This issue has very serious implications since examinations are a large part of education, and occur more frequently over the school years. In addition, test scores are used as the basis for which individuals are accepted into post-secondary institutions and for some employment positions.

It is the intention of this paper to review the different theories and research surrounding test anxiety. This will be followed by a number of different intervention strategies that have been used in order to decrease the level of test anxiety in students. Furthermore, some of the problems associated with the measurement of test anxiety will be pointed out. Finally, the practical implications for teachers will be discussed with a focus on how classroom factors can influence anxiety levels with students.

### **2. Dimensions of Test Anxiety**

Anxiety has been proven to be multidimensional construct that has both cognitive and affective components. Liebert and Morris were the first to distinguish between the worry and emotionality components. Worry is related to the cognitive and attentional cues associated with evaluation and failure. On study revealed that 80% of the types of worrisome thoughts held by test anxious students were highly concerned with earlier confrontations with similar exams, loss of self worth, and causing sorrow in parents. On the other hand, emotionality involves the automatic or affective reaction to the cues associated with evaluation. This may include responses such as increased heart rate, dizziness, feelings of panic and nausea. Emotionality is not only the physiological reactions but more importantly, the individual’s awareness of this heightened arousal.

### **3. Importance of the Appraisal Stage**

Test anxious students are characterized by having a low threshold for anxiety and the tendency to regard evaluative situations as being personally threatening. The significance that a student assigns to a test may be the major factor affecting their emotions and behaviour. The threat may be real or exaggerated, however, it is the perception of the threat to the individual, that will result in anxiety. How a threat is appraised depends on factors such as, the demands and constraints of the situation, personal experience in a similar situation, an evaluation of costs and even individual differences in aptitudes, skills and personality dispositions. The test anxiety will occur when we judge the test as

being significant to our personal goals. If the test is not judged to be relevant then the potential for anxiety diminishes. One of the options for the treatment of test anxiety suggests that if we change the way the situation is appraised, we can later the emotional experience which will result in lower levels of test anxiety. Further test anxiety treatments will be discussed in the following section.

#### **4. Intervention Strategies**

Early intervention strategies aiming to reduce test anxiety focused on the behavioral aspects, as most treatments targeted the emotionality component of test anxiety. Relaxation and desensitization were common test anxiety treatments. There has been a move away from this view and now it is assumed that a combination of treatments is most beneficial. Vagg & Spielberger suggest a two-stage program that should benefit students the most in the long-term. This would consist of a focus on reducing test anxiety first through using coping skills more effectively, followed by an improvement on study and test-taking skills training. There are varying views and mixed reports as to whether or not treatments are effective. Wigfield and Eccles suggest that this is because it is difficult to change behavior and because performance is influenced by a variety of factors, anxiety being only one.

#### **5. Measurement of Test Anxiety**

Over the years researchers have tried to understand test anxiety by measuring it. There are many different constructs available, such as the Test Anxiety Questionnaire (TAQ), the Test Anxiety Scale (TAS), the Worry-Emotionality Questionnaire (WEQ), the Test Anxiety Inventory (TAI), and the Reactions to Tests (RTT), to name some of the more popular ones. There quite a variety of different ways to measure test anxiety. In fact, it is suggested by Bedell & Marlowe that the controversy over the measurement of test anxiety has actually impeded progress in the area.

Most of the research conducted on test anxiety is based on self-report questionnaires. There are problems associated with relying on self-report measures. It has been suggested that students may answer in stereotypical or socially desirable manners, or that students may report anxiety as an excuse to cover up other reasons for doing poorly. The question has also been raised as to the problems with using measures in different demographic groups. A further constraint to assessing anxiety, in general, is put forth by Zeidner who suggests that it is hard to point out the exact stressor. It is rather difficult to identify additional stressors, other than the test at hand, which may be contributing to the students anxiety level.

#### **6. Implications for Education**

It is estimated that up to 10 million children suffer from achievement anxiety in the United States alone. This has serious implications for students and teachers. Intervention strategies for individuals have been reviewed in this paper; however, teachers can help to provide a learning environment that encourages low anxiety levels. It has been found that all students, but particularly test anxious students, performed poorly and were less motivated in classroom that are perceived as being highly evaluative. It has been suggested that students will benefit from teachers lessening their control over classroom procedures. There is a word of caution however, as Stipek points out, that recommendations for test anxious students are not always beneficial for low test anxious students. Some students need a small amount of anxiety in order to facilitate performance.

On a positive note, there are certain classroom environments that can be beneficial for all students. There is evidence that teachers who facilitate a classroom that has more of an emphasis on effort rather than students competing with each other will be less conducive to high test anxiety levels. This is similar to the earlier finding that the optimal motivation for most students occurs when their attention is focused on task-mastery, rather than competition.

A study that reinforces these suggestions was conducted in Germany by Helmke who looked at 39 math classes. It was found that there were differences between the manner in which the teachers

structured their classrooms. Those classes that had a high intensity with regards to the use of time “teaching” and little time left for reinforcing learning were associated with high incentive value on achievement. It seems that test anxious students need a classroom environment that permits them to review and reinforce learning, as well as an environment that is mastery oriented.

Furthermore, it has been suggested that there needs to be a change from a “testing culture” to an “assessment culture”, where teachers take part in on-going evaluations of student. The use of portfolio’s are proposed as a key to assessment that has the potential to reduce the threat of evaluations, and should reduce the effects of test anxiety in students. Another suggestion is allowing students the opportunity to retake a test. This has been found to enhance motivation and improve test performance.

With regards to testing, Hembree suggested that in order to reduce the effects of test anxiety, teachers should group students according to their test anxiety level. The groups would then receive test instructions and conditions that are suitable for them. This suggestion has obvious problems that teachers would point out, such as the time constraints associated with this approach. In addition, the question of how teachers would decide on who goes into which group arises. It has been proven that teachers are not always good judges of their students anxiety levels.

## **7. Conclusion**

It has been demonstrated that test anxiety is a complex phenomenon and that there are different views as to its causes and treatments. This paper has shown that test anxiety has both affective and cognitive components. Though a great deal of research has been conducted, it is still unclear why evaluations are more stressful and anxiety provoking for some individuals, and not for other. It is apparent that the test anxious student is not achieving the results that they possibly could be achieving and that this can impact them in many ways. Suggestions have been proposed as to how the classroom teacher can help created an environment that fosters low anxiety levels in students. More research in the area of test anxiety will be necessary in order to clarify the mechanisms that cause anxiety as well as to offer effective treatments to individuals.

## **References**

- [1] Cassady, J. C., & Johnson, R. E. Cognitive Test Anxiety and Academic Performance. *Contemporary Educational Psychology*, no.27, pp.270-295, 2002.
- [2] Zeidner, M. Adaptive Coping with Test Situations: A Review of the Literature. *Educational Psychologist*, no.30, pp.123-133, 1995.
- [3] Helmke, A. The Role of Classroom Context Factors for the Achievement-Impairing Effect of Test Anxiety. *Anxiety Research*, no.1, pp.37-52, 1988.
- [4] Hembree, R. Correlates, Causes and Treatment of Test Anxiety. *Review of Educational Research*, no.58, pp.47-77, 1988.