A Review of Test Anxiety Literature and Intervention Strategies

Michael Brom, mbrom@liberty.edu
Lewis-Palmer Middle School, Monument, CO
Doctor of Education Student, Liberty University

Socrative

Go to http://www.socrative.com/

Or you may download the App (there is an App for teachers and an App for students). To download the App, go to the bottom of Socrative.com

Go to "student login" (or use the student App)

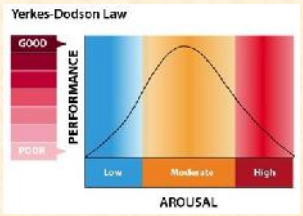
Enter "nctm" for the room

S1

History of Test Anxiety

Yerkes-Dodson Law (1908)

- Empirical relationship between arousal and performance
- Curvilinear relationship
- Rats in mazes



S2 and S3

History of Test Anxiety

- Mandler & Sarason (1952) – explored the presence or absence of debilitating test anxiety
- Alpert & Haber (1960) – bidirectional theory; there are debilitating AND facilitating test anxieties
- Liebert & Morris (1967) – identified two distinct aspects of test anxiety: worry (cognitive) and emotionality (affective)

Literature Review

Types of Anxiety
Trait vs. State

Types of Test Anxiety
Debilitating (negative) & Facilitating (positive)

Models of Test Anxiety:
a) interference (artificially lowered student achievement due to test anxiety's impact on measurement bias of test scores)
b) deficit (individuals who have lower ability levels tend to suffer from higher levels of test anxiety)

Meta-Analyses

Hembree (1988) – Correlates, causes, effects, and treatment of test anxiety.

Seipp (1991) – Anxiety and academic performance: A meta-analysis of findings.

Ergene (2003) – Effective interventions on test anxiety reduction: A meta-analysis.

Hattie (2009) – Visible learning: A synthesis of over 800 meta-analyses relating to achievement.

S4

Hembree (1988) Meta-Analysis

Correlates, causes, effects, and treatment of test anxiety.

- over 500 studies synthesized
- most studies were of high school & college students
- inverse relationship between achievement & anxiety
- inverse relationship between self-esteem & anxiety
- supports the Interference Model
- females have higher levels of test anxiety than males
- test anxiety increases in elementary grades, peaks in middle school, begins declining in high school, and levels out at the post-secondary level
- teacher test anxiety influences student test anxiety

S5

Seipp (1991) Meta-Analysis

Anxiety and academic performance: A meta-analysis of findings.

- over 150 studies synthesized
- variance in student achievement scores attributed to students' test anxiety levels
- supports the Interference Model
- test anxiety is more strongly correlated to student achievement if test anxiety is measured *after* a test
- females have higher levels of test anxiety than males
- students with low test anxiety levels scored 0.5 standard deviation higher than students with high test anxiety levels

S6 and S7

Ergene (2003) Meta-Analysis

Effective interventions on test anxiety reduction: A meta-analysis.

- over 50 studies synthesized
- negative association between anxiety and academic achievement
- mean age of students was 19
- individual therapy had a small effect size
- group therapy had a moderate effect size
- combination of individual and group therapy had a large effect size
- optimal time for test anxiety interventions was 201 and 350 minutes

Test Anxiety Scales

Early Test Anxiety Scales

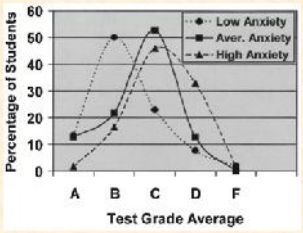
- Test Anxiety Questionnaire (TAQ) (1952)
- Test Anxiety Scale for Children (TASC) (1960)
- Test Anxiety Scale (TAS) (1975)

Multidimensional Test Anxiety Scales

- Worry Emotionality Questionnaire (1967)
- Test Anxiety Inventory (TAI) (1980).
- Children's Test Anxiety Scale (CTAS) (2004)
- Westside Test Anxiety Scale (2004)
- *Test Anxiety Scale for Elementary Students (TAS-E) (2011)*
- *Test Anxiety Inventory for Children & Adolescents (TAICA) (2008)*
- *TAICA-Spanish (2011)*

Cassidy & Johnson (2002)

- College students
- 7-8% variance in scores based on cognitive test anxiety
- Females had higher test anxiety than males
- Moderate physiological arousal associated with higher test performance



S8

Intervention Study

von der Embse, N., Barterian, J., & Segool, N. (2013). Test anxiety interventions for children and adolescents: A systematic review of treatment studies from 2000–2010.

- only 10 viable test anxiety intervention studies found
- 4 in the U.S. (3 high school; 1 grade 3); 6 internationally
- all test anxiety interventions grounded in cognitive or behavior therapy
- combined cognitive-behavior approaches are most effective
- interventions need to be differentiated
- students' test anxiety levels should be measured

Other Intervention Articles

- Salend, S. J. (2011a). Addressing test anxiety.
- Salend, S. J. (2011b). Creating student-friendly tests.

Intervention Strategies

- Identify students with test anxiety
- Teach study skills
- Teach effective test-taking skills with fidelity & systemically
- Teach/prompt the use of test anxiety reduction strategies
- Create accessible and student-friendly tests
- Memory dumping
- Involve students in the testing process
- Provide appropriate testing accommodations
- Employ technology-based testing
- Consider collaborative test-taking arrangements

** Salend's article also includes a list of test anxiety surveys

Salend, S. J. (2011a). Addressing test anxiety.

Intervention Strategies

- Make sure the tests are valid measures of content taught
- Address what was taught and *how* it was taught
- Make tests accessible – improve directions, format, readability, and legibility
- Check a test's readability
- Provide prompts to encourage and to help students focus
- Provide students with choices on the test
- Avoid trick questions

Salend, S. J. (2011b). Creating student-friendly tests.

Interventions

Effective intervention methods found in studies:

- combined individual-group therapy
- cognitive-behavior therapy
- combination of study skills with cognitive/behavior therapy
- between 4-5 hours of intervention
- interventions should begin in elementary grades
- one-shot test-taking strategy sessions are ineffective

** more test anxiety intervention studies are needed

References

- Alpert, R., & Haber, R. N. (1960). Anxiety in academic achievement situations. *The Journal of Abnormal and Social Psychology, 61*(2), 207-215. doi:10.1037/h0045464
- Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology, 27*(2), 270-295. doi:10.1006/ceps.2001.1094
- Ergene, T. (2003). Effective interventions on test anxiety reduction: A meta-analysis. *School Psychology International, 24*(3), 313-328. doi:10.1177/0143034303243004
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London; New York, NY: Routledge.
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58*(1), 47-77. doi:10.3102/00346543058001047
- Liebert, R. M., & Morris, L. W. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports, 20*, 975–978. doi:10.2466/pr0.1967.20.3.975

References

- Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *Journal of Abnormal and Social Psychology, 47*, 166–173. doi:10.1037/h0062855
- Salend, S. J. (2011a). Addressing test anxiety. *TEACHING Exceptional Children, 44*(2-), 58-68. Retrieved from http://cec.metapress.com.ezproxy.liberty.edu:2048/content/y22783k7628ptnh4/fulltext.pdf
- Salend, S. J. (2011b). Creating student-friendly tests. *Educational Leadership, 69*(3), 52-58. Retrieved from http://www.ascd.org/publications/educational_leadership/nov11/vol69/num03/Creating_Student-Friendly_Tests.aspx
- Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. *Anxiety Research, 4*(1), 27-41. doi:10.1080/08917779108248762
- von der Embse, N., Barterian, J., & Segool, N. (2013). Test anxiety interventions for children and adolescents: A systematic review of treatment studies from 2000–2010. *Psychology in the Schools, 50*(1), 57-71. doi:10.1002/pits.21660

Contact Information

- Michael Brom
- mbrom@liberty.edu
- (720) 675-8497

Dissertation Topic:

Correlation between test anxiety and response time on a cognitive adaptive math test for middle school students.

Tips for a great conference!

Rate this presentation on the conference app
www.nctm.org/confapp

Download available presentation handouts from the Online Planner!
www.nctm.org/planner

Join the conversation! Tweet us using the hashtag
#NCTMRichmond