Development of the Test and Examination Anxiety Measure (TEAM)

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ABSTRACT. Test anxiety (TA) is a multifaceted domain defined as "the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation" (Zeidner, 1998, p. 17). Despite TA being comprised of various components, current scales do not assess all aspects of TA because they were developed utilizing a theory stating that TA has only two components. Therefore, these scales lack content validity of this construct. The purpose of the present study was to create a scale that more comprehensively measured TA among students. The Test and Examination Anxiety Measure (TEAM) was developed and administered to undergraduate and graduate students ($N = 362$). The study examined convergent validity with measures of trait anxiety, TA, and academic performance. Results indicated that the TEAM produced optimal reliability ($\alpha = .90$) and validity. The TEAM had significant positive correlations with the State-Trait Anxiety Inventory ($r = .50$, $p < .001$) and the Test Anxiety Inventory ($r = .79$, $p < .001$) as well as a significant negative correlation with grade point average. These outcomes showed that the TEAM has promise. Recommendations to further strengthen the scale are provided.

Test anxiety (TA) is a debilitating response to examinations that often torments students (Salend, 2012) and has been referred to as "the most virulent impediment to effective role functioning in an educational setting" (Myers, 1986, p. 728). Between 25 and 45% of students report the effects of TA (Salend, 2012), and in today's arena of high-stakes testing, it is not surprising that many students report experiencing TA. In fact, high-stakes testing induces more TA for students than typical classroom testing (Segool, Carlson, Goforth, Embse, & Barterian, 2013). Stankov (2010) suggested that TA levels will rise as countries become more developed. This phenomenon is not going away and past findings disagree on whether TA causes error in the measurement of students' true ability on tests (Embse & Hasson, 2013; Putwain, 2008; Reeve & Bonaccio, 2008). Although there is disagreement about whether TA affects testing performance, previous empirical studies are in agreement that TA is related to reductions in academic performance as indicated by grade point average (GPA) and final course grades (Bembenutty, 2009; Chapell et al., 2005; Embse & Hasson, 2013).

TA is comprised of emotional, cognitive, and somatic factors, which occur before, during, and after an examination. A review of the literature defines TA as "the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation" (Zeidner, 1998, p. 17). The study and measurement of TA, initiated in the early 20th century, flourished between the 1950s and 1980s (Zeidner, 1998). Countless studies have been dedicated to this construct and have sought to conceptualize the domain of TA, provide treatments of TA, or develop assessments to measure the construct of TA. Currently, assessments are limited because TA was first described as being a bimodal dimension comprising of an affective and a cognitive component

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(Mandler & Sarason, 1952). This description was further expounded upon by Liebert and Morris (1967), who differentiated between the affective and cognitive components presented by Mandler and Sarason, referring to these components as *worry* and *emotionality*. According to Mandler and Sarason, worry is defined as the cognitive aspect of TA including negative self-evaluations, interfering thoughts of the consequences of failure, worrisome thoughts, ruminative negative thinking, and doubting one's ability on the performance of an exam (Enright, Baldo, & Wykes, 2000; Morris & Liebert, 1970). Emotionality is defined as the affective and physiological reactions experienced by the individual in response to the examination (Enright et al., 2000; Morris & Liebert, 1970). This conceptualization led many more test designers to only use that substantive theory as the basis and inspiration for their assessments and even the most widely known measure for assessing TA (Chapell et al., 2005), the Test Anxiety Inventory (TAI) by Charles Spielberger (Taylor & Deane, 2002). Although much empirical work exists to support that worry and emotionality are components of the domain of TA, there is just as much research supporting other components such as distractibility, self-efficacy, metacognition, and trait anxiety (Hodapp & Benson, 1997; Matthews, Hillyard, & Campbell, 1999).

Assessments that measure TA have been built upon the substantive theory provided by these theoretical models, but no one model accounts for the complexity of TA (Zeidner, 1998). If none of the theoretical models explain all of the components of TA, then as a result the assessments built upon these models will not fully capture this complex domain. Criticisms of previous TA measures offered by Zeidner (1998) are that (a) current scales are limited because they do not fully measure the construct of TA, (b) existing scales do not allow for clinicians to differentiate the types of TA, (c) these scales are not relevant for clinical purposes, and (d) current scales do not differentiate between adaptive and maladaptive manifestations of TA (1998).

The purpose of the present study was to address the shortcomings of previous scales and develop an assessment that more comprehensively measured the construct of TA. The scale developed in this study, the Test and Examination Anxiety Measure (TEAM), was intended to resolve these critiques of previous TA scales by measuring more facets of the TA domain, distinguishing the type of TA that an individual has, and allowing clinicians to discern between varying manifestations of TA. In the process of developing the TEAM, this study also provided evidence about TA levels among sex, ethnic group, academic performance, and validation of the short form of the TAI (TAI-5, Taylor & Deane, 2002).

Methods

Participants
The participants were 362 college undergraduate and graduate students from a university in the southeastern United States. Participants were recruited from 15 classes. Undergraduate students made up 77% of the participants and 23% were graduate students. Of the 362 participants, 80% identified themselves as European American, 13% as African American, 3% as Hispanic American, 2% as Asian American, and 1% as other. Men made up 77% of the participants, and the average age was 20.87 years old ($SD = 3.67$) with a range of 18 to 51 years. Participants were recruited from introductory level and required core courses to obtain more heterogeneity in the sample among college majors.

Measures
The measures used in the present study were the short form of the TAI-5 (Taylor & Deane, 2002), the trait scale of the State-Trait Anxiety Inventory (STAI-T; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), self-reported GPA, and the scale developed in the present study, the TEAM.

Past research and assessments have indicated that emotionality and worry are components of TA (Minor & Gold, 1985), but these components needed to be further subdivided and expanded upon to differentiate between types of TA. Worry and emotionality were further subdivided into self-efficacy, metacognition, and social humiliation. Also, trait and state anxiety were included as indicated by past research (Bembenutty, 2009; Bonaccio & Reeve, 2010; Chamorro-Premuzic, Ahmetoglu, & Funrham, 2008; Friedman & Bendas-Jacob, 1997; Hassanzadeh, Ebrahimi, & Mahdinejad, 2012).

In this study, self-efficacy referred to the students' belief that they could complete a task, in this case an exam. This was included because Hassanzadeh et al. (2012) and Bembenutty (2009) found that students with higher self-efficacy experience less TA. Metacognition was the "beliefs that thoughts are uncontrollable," which in this case referred to testing situations and was included in the TEAM because Matthews et al. (1999, p.124) proposed that TA traits are related to metacognition.

Social humiliation referred to the thoughts related to worry or fear that peers would mock or ridicule a student's performance on an exam. This was included because *social derogation* is a salient factor of TA (Friedman & Bendas-Jacob, 1997). Trait anxiety was how much anxiety a person generally experiences on a day-to-day basis. State anxiety was based upon how an individual feels in the moment due to their interaction with their current environment. Both were included because research has indicated that TA is comprised of trait and state anxiety (Chamorro-Premuzic et al., 2008; Head & Lindsey, 1983).

The next phase of the present study was writing the prompts for the TEAM and generating an item pool. Using the research as underlying theory, items were generated and written both positively and negatively (e.g., "I have effective test-taking skills" and "I lack effective test-taking skills"). The item pool consisted of 66 items and was reduced to 35 items to make the initial draft of the TEAM. After developing the TEAM, the scale was administered to the participants along with the STAI-T and the short form of the TAI-5.

TA
Developed specifically for students, the TAI (Spielberger, 1980) is a long-standing, extensive measure used in assessing TA (Taylor & Deane, 2002). It has demonstrated construct as well as content validity (Spielberger, 1980). The TAI consists of 20 items on a self-report inventory where participants respond to a 4-point Likert-type scale. Participants have four options for responses: (a) *almost never*, (b) *sometimes*, (c) *often*, and (d) *almost always*. It is based upon Liebert and Morris's (1967) conceptualization of TA as worry and emotionality, and it gives a total score that is determined by summing the subscale scores. The TAI has high internal consistency (α = .92), and generally takes 8 to 10 min to complete (Spielberger, 1980). Due to time constraints during the present study, the short form TAI-5 (Taylor & Deane, 2002), a 5-item inventory based on the TAI, was used because it correlates highly (*r* = .94) with the full 20-item inventory and has a high reliability coefficient (α = .87). Scores for the TAI-5 were calculated by summing the responses of the five items and multiplying the sum by four in order for the obtained value to be compared to the normative values of the full TAI (Taylor & Deane, 2002).

Trait Anxiety
The STAI-T (Spielberger et al., 1983) is used in measuring an individual's level of current anxiety (state anxiety) and their general level of anxiety (trait anxiety; Szafranski, Barrera, & Norton, 2012). The STAI-T is a 40-item self-report inventory where participants respond on a 4-point Likert-type scale (Julian, 2011). The STAI-T has two subscales: State Anxiety and Trait Anxiety (Bados, Gomez-Benito, & Balaguer, 2010). The Trait Anxiety scale (STAI-T) was used in this study because previous research has supported the notion that trait anxiety is a significant predictor of TA (Chamorro-Premuzic et al., 2008; Head, Engley, & Knight, 1991; Head & Lindsey, 1983). The STAI-T has a high reliability coefficient (α = .86; Julian, 2011). Scores for the STAI-T were derived by adding the scores of the 20 items, and the ones that were anxiety-present were scored 1 to 4. Items absent of anxiety were reverse scored 4 to 1 (Spielberger et al., 1983).

Grades
Participants' cumulative GPA was self-reported, and the range at the university participants selected from was 0.0 to 4.0.

TEAM
The TEAM (see Appendix) is a 26-item, reduced from 35 items, self-report inventory that measures students' anxious behaviors related to testing situations. The TEAM has five subscales that discern which manifestations of TA a student possesses. The five subscales of the TEAM are State Anxiety, Distractibility During Exams, Trait Anxiety, Worry, and Rumination. State Anxiety refers to the amount of perceived stress that an individual feels while being in a testing situation. Distractibility During Exams is the individual's behavioral response before and during an exam. Trait Anxiety in the context of the TEAM is conceptualized as how much anxiety the person experiences on a regular basis because it is a part of their personality. Worry measures how the individual copes with a failed testing situation and their concern of how a testing situation will affect their self-image. Rumination is the individual's repetitive negative thinking about how much they do not enjoy testing situations. Tables 1 and 2 outline the normative data and factors of the TEAM. Respondents rated their test anxious behaviors on a 5-point Likert-type scale from 1 (*uncharacteristic of me*) to 5 (*characteristic of me*). The TEAM produced a reliability coefficient of .90 and demonstrated concurrent validity with

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other measures of anxiety and TA. Scores were derived by adding the values of the 26 items of the TEAM. Prompts that had anxiety present were scored 1 to 5 and prompts free of anxiety were reverse scored 5 to 1.

Procedure

Prior to administering the scales, the institutional review board approved this project. Participants were administered the scales in class on days that the class was not scheduled for any type of assessment (e.g., no tests, exams, or quizzes) to not influence the participants' anxious behavior. At the beginning of the class, participants were given the informed consent document and the three assessment measures. After obtaining informed consent, participants responded to the prompts on the three assessments. All the data were collected and entered into Statistical Package for the Social Sciences for analysis. Scores from the TEAM, TAI-5, STAI-T, and GPA were evaluated using Cronbach's alpha, factor analysis, Pearson's correlation, independent-samples t tests, and an Analysis of Variance (ANOVA).

Results

Based on the results produced, prompts on the TEAM were evaluated, and the TEAM was reduced to 26 items. Items were removed based on the item's correlation with other factors and evaluation of the Cronbach's alpha value output, which reported what the scale reliability would be if the item was deleted from the scale.

Factor Analysis and Reliability

A component factor analysis (direct oblimin rotation) was conducted on the TEAM's 26 items to determine the components of the TEAM and which prompts loaded on each factor. As summarized in Tables 2 and 3, analyses of the 26 core items in the TEAM ultimately yielded five factors with adequate internal consistency in students who have TA. The Cronbach's alpha value of the five subscales ranged from .72 to .83. Preliminary analysis of the face validity of the factors suggested that State Anxiety, Distractibility During Exams, Trait Anxiety, Worry, and Rumination factors make up the TEAM.

To determine the reliability of the TEAM, the internal consistency measure of Cronbach's alpha was calculated on the TEAM scores. The TEAM had a reliability coefficient of .90. Cronbach's alpha was also calculated on STAI-T and the TAI-5. Those reliability coefficients were

.90 and .89 respectively (see Table 3).

Validity and Correlation

Construct and concurrent validity of the TEAM was established by correlating the total scores of the TEAM, TAI-5, STAI-T, and GPA with each other using Pearson's correlations. The TEAM significantly correlated with the TAI-5 at .79 ($p < .001$). The TEAM significantly correlated with the STAI-T at .50 ($p < .001$), and the TEAM, STAI-T, and TAI-5 all negatively correlated with GPA. A summary of these results can be found in Table 4. Table 5 outlined the five factors of the TEAM and their relationship to the TAI-5, STAI-T, and GPA.

Independent t Test and ANOVA

An independent t test was conducted to determine if TA differed among sex. Women had higher scores on the TEAM, STAI-T, and TAI-5 than men. There was a significant difference between men and women on the TAI-5. No significant difference was found between men and women on the TEAM and STAI-T. A summary of sex differences can be found in Table 6.

An ANOVA was conducted to determine if there were any significant differences in TA among participants' ethnic groups. The results of the ANOVA revealed no significant differences among ethnic groups in TA on the TEAM and TAI-5 (see Table 7). The results did indicate that participants who described themselves as Asian American had higher levels of trait anxiety based on their responses on the STAI-T.

Discussion

The purpose of the present study was to address criticisms of the previous TA scales by developing a scale that more comprehensively measured the construct of TA. Specifically, this study sought to address the criticisms that (a) current scales are

TABLE 1								
Normative Data (Means, Standard Deviations, Sample Sizes for the Measures Found in the Present Study)								
Measure	Total Sample			Men			Women		
	M	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*
TEAM	70.61	17.63	362	69.84	18.02	253	73.86	16.83	74
STAI-T	36.60	8.79	331	36.23	8.62	235	37.58	8.98	66
TAI-5	40.56	16.24	356	39.63	16.29	248	44.22	16.21	73

Note. TEAM = Test and Examination Anxiety Measure; STAI-T = Trait Scale of the State-Trait Anxiety Inventory; TAI-5 = Short Form of the Test Anxiety Inventory. The total sample size varies due to missing responses on the STAI-T and TAI-5. Men and women add to 327 because there were 35 participants with missing data for sex.

limited because they do not fully measure the construct of TA, (b) existing scales do not allow for clinicians to differentiate the types of TA, (c) these scales are not relevant for clinical purposes, and (d) current scales do not differentiate between

adaptive and maladaptive manifestations of TA, all offered by Zeinder (1998). To correct for these criticisms by developing a new scale was a daunting task, but the TEAM seems to be on the right path as indicated by the results of this study.

The Cronbach's alpha value for the TEAM of .90 shows that the scale can be used for clinical applications, the preferred alpha for clinical assessments being .90 or higher (Connelly, 2011; DeVon et al., 2007). The TEAM proved that it measures TA as indicated by its significant correlations with the TAI-5 and the STAI-T. The TEAM's significant correlations with the TAI-5 and the STAI-T provided support for the TEAM having construct and convergent validity due to the TAI-5 and STAI-T being previously validated measures of TA and trait anxiety. Further work could be done in this area to set clinical cutoff scores for the TEAM so that it may be used in formal clinical evaluations.

The TEAM corrected for some previous criticisms of TA scales by including more aspects of the TA domain, therefore measuring more manifestations of TA besides the worry and emotionality, as indicated by the factor analysis results demonstrating five factors. However, the five factors that the TEAM measured did not match up with the components of TA that the prompts were written for based upon the literature review. This indicated that TA is not only a complex domain to measure, but also a very convoluted construct. By including more aspects of TA, the TEAM was able to identify five factors: the type of State Anxiety that a student has when taking an examination, Distractibility During Exams, Trait Anxiety, Worry, and Rumination about examinations. State Anxiety due to examinations, the first factor of the TEAM, was represented by prompts that focused on the perceived stress the students experience when in a testing situation. The prompts of "The thought of an exam makes me anxious," "When I am faced with an exam, I become anxious," "Exams generally cause me more anxiety than other items in my life," "When presented with an exam, I do not sense any physical symptoms of anxiety," and "Exams do not cause me more anxiety than other things in my life" all demonstrated the theme of state anxiety related to testing situations.

Distractibility During Exams, the second factor found in the TEAM, focused on the behaviors of the students before and during the testing situation. Specifically the prompts of "I am easily distracted during exams," "I have a difficult time comprehending the instructions of exams," "I do

TABLE 2

Summary of the TEAM Prompts and Their Corresponding Subscale

Item	Corresponding factor	Factor loading	Communality
The thought of an exam makes me anxious.	State Anxiety	.75	.64
I often feel relaxed and laid-back.	State Anxiety	.65	.53
When I am faced with an exam, I become anxious.	State Anxiety	.76	.69
Exams generally cause me more anxiety than other items in my life.	State Anxiety	.68	.59
When presented with an exam, I do not sense any physical symptoms of anxiety (sweating, increased heart rate, muscle tension, difficulty breathing).	State Anxiety	.71	.59
Exams do not cause me more anxiety than other things in my life.	State Anxiety	.63	.45
When I am well-prepared for an exam, I do not feel anxious about it.	State Anxiety	.69	.48
I am easily distracted during exams.	Distractibility	.68	.48
I have a difficult time comprehending the instructions of exams.	Distractibility	.71	.53
I do not put in effort when it comes to exams because I know I will fail.	Distractibility	.66	.47
I avoid courses or professors that use a lot of exams.	Distractibility	.59	.37
I feel anxious the majority of the time.	Trait Anxiety	.72	.59
I am hypercritical of myself usually.	Trait Anxiety	.73	.54
After I have performed poorly on an exam, I have a hard time with coping and moving on from that experience.	Trait Anxiety	.69	.62
I worry about how others will view me if I do poorly on an exam.	Trait Anxiety	.61	.59
Doing poorly on an exam makes me feel dejected.	Worry	.74	.57
After an exam, I still continue to worry about how well I did on that exam until I find out for certain.	Worry	.74	.58
After I have performed poorly on an exam, I have a hard time with coping and moving on from that experience.	Worry	.51	.62
I worry about how others will view me if I do poorly on an exam.	Worry	.57	.59
I worry about how an exam will affect my success in the future.	Worry	.67	.52
I view exams as a negative part of the education system.	Rumination	.79	.66
Worrying about my performance on an exam affects my performance on an exam.	Rumination	.61	.53
I wish there were ways to measure my knowledge of material other than exams.	Rumination	.71	.58
Exams are a way for me to demonstrate my knowledge.	Rumination	.76	.65

Note. TEAM = Test and Examination Anxiety Measure. Factor loadings and communalities based on a principal component analysis with oblimin rotation for the items from the TEAM are also reported ($n = 362$).

not put in effort when it comes to exams because I know I will fail," and "I avoid courses or professors that use a lot of exams" displayed being unfocused or avoidance before or during the testing situation.

Trait Anxiety, the third factor of the TEAM, measured on the students' normal level of experienced anxiety on a daily basis. Prompts like "I feel anxious the majority of the time" and "I am hypercritical of myself" usually represented the students' typical level of anxiety. The fourth factor, Worry, was based on how the students coped with a failed testing situation and their concerns about how the situation would affect them. "Doing poorly on an exam makes me feel dejected," "After an exam, I still continue to worry about how well I did on that exam until I find out for certain," "After I have performed poorly on an exam, I have a hard time with coping and moving on from that experience," "I worry about how others will view me if I do poorly on an exam," and "I worry about how an exam will affect my success in the future" demonstrated how the students continue to experience anxiety after the testing situation. The students' concern about how the exam will affect how their peers view them and how the exam will affect their future is measured by this factor.

The last factor of the TEAM was Rumination, which centered on the students' negative thinking about examinations and how they do not enjoy testing situations. "Worrying about my performance on an exam affects my performance on an exam" focused solely on the students' negative thinking about examinations. "I view exams as a negative part of the education system," "I wish there were other ways to measure my knowledge of material other than exams," and "exams are a way for me to demonstrate my knowledge" represented how the students were pessimistic about testing situations. The preliminary results demonstrated that the TEAM measured several facets of TA, but further revision may be needed to enhance the TEAM ability to comprehensively measure the domain of TA.

More work needs to be done with the TEAM prior to being able to compete with the most widely used measure of TA, the TAI by Spielberger. The TEAM appears to measure more facets of TA when compared to the TAI, which measures only emotionality and worry (Spielberger, 1980). The TEAM also measures trait anxiety as well as state anxiety, and the TAI only measures state anxiety in testing situations (Spielberger, 1980). Another criticism of the TAI presented by Szafranski et al. (2012) is that the normative data for the TAI has not been updated since being published in 1980. Their study demonstrated that the norms published in 1980 are significantly lower than the college population now. Since then, academic settings have become far more diverse in all manners, and the TAI is falling behind in staying up-to-date with the changing times.

The present study provided evidence toward other findings in TA research. This study found

TABLE 3			
Descriptive Statistics for the Five TEAM Factors (*N* = 362)			
Factor	No. of items (*n*)	*M* (*SD*)	α
State Anxiety	7	19.73 (6.47)	.83
Distractibility During Exams	6	13.29 (4.53)	.73
Trait Anxiety	4	9.79 (3.81)	.72
Worry	5	15.36 (4.79)	.79
Rumination	5	14.14 (4.33)	.76

Note. TEAM = Test and Examination Anxiety Measure. The sum of the number of items is greater than the number of items due to multiple items loading highly on multiple factors.

TABLE 4			
Correlations Between the TEAM, the TAI-5, STAI-T, and GPA			
	TEAM	TAI-5	STAI-T	GPA
TEAM		.79**	.51**	-.23**
TAI-5			.46**	-.28**
STAI-T				-.14**
GPA				

Note. TEAM = Test and Examination Anxiety Measure; STAI-T = Trait Scale of the State-Trait Anxiety Inventory; TAI-5 = Short Form of the Test Anxiety Inventory; GPA = Grade Point Average. ** Significant correlation at the 0.01 level (1-tailed).

TABLE 5								
Correlations Between the Five Factors of the TEAM, TAI-5, STAI-T, and GPA								
	SA	DDE	TA	W	R	TAI-5	STAI-T	GPA
State Anxiety	1	.45**	.53**	.58**	.53**	.71**	.36**	-.08
Distractibility During Exams	.43**	1	.37**	.33**	.63**	.60**	.35**	-.43**
Trait Anxiety	.53**	.37**	1	.77**	.33**	.50**	.57**	-.00
Worry	.58**	.33**	.77**	1	.37**	.53**	.40**	-.06
Rumination	.53**	.63**	.33**	.37**	1	.68**	.33**	-.38**
TAI-5	.72**	.60**	.50**	.53**	.68**	1	.46**	-.28**
STAI-T	.38**	.35**	.57**	.40**	.33**	.46**	1	-.14*
GPA	-.08	-.43**	-.00	-.06	-.38**	-.23**	-.14*	1

Note. TEAM = Test and Examination Anxiety Measure; STAI-T = Trait Scale of the State-Trait Anxiety Inventory; TAI-5 = Short Form of the Test Anxiety Inventory; GPA = Grade Point Average. * Significant correlation at the 0.05 level (1-tailed). ** Significant correlation at the 0.01 level (1-tailed).

a significant difference in TA levels among sex indicated by scores on the TAI-5, which is consistent with past literature finding that women exhibit higher levels of TA (Akanbi, 2013; Akca, 2011; Chapell et al., 2005; Hembree, 1988). The TEAM negatively correlated with GPA which is consistent with other studies (Bembenutty, 2009; Chapell et al., 2005). Taylor and Deane's study reported an alpha of .87 for the TAI-5, and the present study found a Cronbach's alpha value of .89 for the TAI-5, which is significant because the TAI-5 appeared to be more reliable in this population and the TAI-5 has only one other study which replicated their results.

The TEAM is a reliable and valid measure, but the present study contained limitations. Although the sample used in this study was normative for the population it was drawn from, it does not represent

the population of college students in the United States. Men made up 77.3% of the participants in this sample, and that figure is significantly greater than the 45% average reported by the U.S. Census Bureau (2012a). The sample was representative of European American and African American college students in the United States, but the sample was not representative of Hispanic American students in the United States. The U.S. Census Bureau (2012b) reported that 12% of the college population are Hispanic American, but only 3% of the sample identified as Hispanic American in the present study.

The TEAM shows true potential of being a TA measure that clinicians and educational counseling centers may use to identify students with TA. It can be a very practical measure to utilize because it corrects for many of the past issues that have afflicted other TA measures. Future research with the TEAM is needed to replicate the results found in this study. The reliability of the TEAM is optimal for clinical use, but other measures of reliability like parallel forms or test-retest need to be established as well. To make the TEAM scale more practical for clinical use, further work should be done to determine clinical cutoff scores for the TEAM to better assist clinicians in assessing TA. The TEAM needs to be administered to a more diverse population and gain a larger sample size, allowing the standardization and further development of the scale. The TEAM could add more prompts to include more facets of the TA construct as well. Future research may also investigate how students' scores on the TEAM fluctuate before, during, and after an examination.

In conclusion, TA is a ubiquitous problem that will become more prevalent as Stankov (2010) suggested and the measurement of TA is essential in treating this problem. The TEAM demonstrated potential in being an assessment that will help clinicians and researchers more accurately and comprehensively measure TA. As suggested by Zeidner (1998), TA should not be diagnosed on the basis of a single score from any measure, and that score should not be utilized to provide an explanation for someone's behavior. With further research, the TEAM could be an instrumental tool of complete TA triage assessment to provide evidence of what manifestation of TA a student has, and allow a clinician to better tailor and select interventions that will apply to that student's type of TA.

TABLE 6
Summary of Independent Sample *t* Tests Comparing Total Scores of Men and Women on the TEAM, STAI-T, and TAI-5

Scores	N	M	SD	t	df	p
TEAM						
Men	253	69.84	18.02	-1.72	325	.09
Women	74	73.86	16.83			
STAI-T						
Men	235	36.23	8.62	-1.11	299	.27
Women	74	37.58	8.98			
TAI-5						
Men	248	39.63	16.29	-2.12	319	.04[*]
Women	73	44.22	16.21			

Note. TEAM = Test and Examination Anxiety Measure; STAI-T = Trait Scale of the State-Trait Anxiety Inventory; TAI-5 = Short Form of the Test Anxiety Inventory. [*] Significance at the .05 level.

TABLE 7
Summary of One-Way Analysis of Variance and Duncan Post-Hoc Test Comparing Differences in Participants' Scores on the TEAM, the STAI-T, and the TAI-5 Among Ethnicity

| | Ethnicity | | | | | | | |
	European American	African American	Hispanic American	Asian American	Other	df	F	p
TEAM	70.54	67.40	78.20	69.00	80.75	4,281	1.15	.34
STAI-T	36.28a	35.50a	37.75a,b	45.67b	41.25a,b	4,307	2.18	.07
TAI-5	40.51	38.40	48.00	47.33	49.00	4,299	1.22	.30

Note. TEAM = Test and Anxiety Examination Anxiety Measure; STAI-T = Trait Scale of the State-Trait Anxiety Inventory; TAI-5 = Short Form of the Test Anxiety Inventory. a,b = When *F* is significant, letters are used to indicate which means were comparable versus different according to Duncan post-hoc test. Those with common letters were comparable.

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APPENDIX

Test and Examination Anxiety Measure

Sex (circle one):	Male	Female

Age: _____

Ethnicity (circle one):	European American	Native American
	African American	Hispanic
	Asian	Other

Class Standing (circle one):	First-Year	Sophmore
	Junior	Senior
	Graduate Student	

GPA: _____

Please read each statement below and consider how characteristic it is of you. Rate each statement using the following scale and record your answer in the space provided.

1 = Uncharacteristic of me
2 = Somewhat uncharacteristic of me
3 = Neither uncharacteristic nor
     characteristic of me
4 = Somewhat characteristic of me
5 = Characteristic of me

___ 1. The thought of an exam makes me anxious.

___ 2. Doing poorly on an exam makes me feel dejected.

___ 3. After an exam, I still continue to worry about how well I did on that exam until I find out for certain.

___ 4. When someone finishes an exam when I am halfway done with an exam, I become anxious.

___ 5. I have effective test taking skills.

___ 6. I often feel relaxed and laid-back.

___ 7. I view exams as a negative part of the education system.

___ 8. Worrying about my performance on an exam affects my perfomance on an exam.

___ 9. When presented with an exam, I begin to sense the physical symptoms of anxiety (sweating, increased heart rate, muscle tension, difficulty breathing).

___ 10. During an exam, I become flustered, and my mind goes blank.

___ 11. When I am faced with an exam, I become anxious.

___ 12. Exams generally cause me more anxiety than other items in my life.

___ 13. I am easily distracted during exams.

___ 14. I have a difficult time comprehending the instructions of exams.

___ 15. When I am well-prepared for an exam, I do not feel anxious about it.

___ 16. I feel anxious the majority of the time.

___ 17. I am hypercritical of myself usually.

___ 18. After I have performed poorly on an exam, I have a hard time with coping and moving on from that experience.

___ 19. I worry about how others will view me if I do poorly on an exam.

___ 20. I worry about how an exam will affect my success in the future.

___ 21. I wish there were other ways to measure my knowledge of material other than exams.

___ 22. I do not put in effort when it comes to exams because I know I will fail.

___ 23. When presented with an exam, I do not sense any physical symptoms of anxiety (sweating, increased heart rate, muscle tension, difficulty breathing).

___ 24. Exams are a way for me to demonstrate my knowledge.

___ 25. I avoid courses or professors that use a lot of exams.

___ 26. Exams do not cause me more anxiety than other things in my life.