PREDICTIORS OF ACADEMIC PERFORMANCE AND MAJOR SELECTION:

ACADEMIC SELF-EFFICACY AS A MODERATOR VARIABLE

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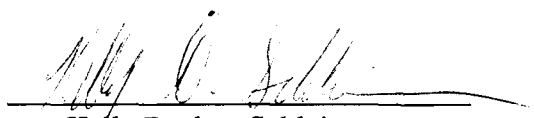

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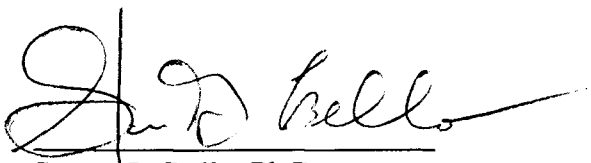

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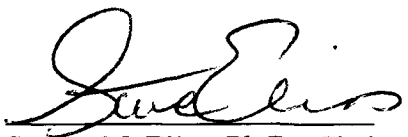

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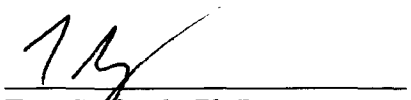

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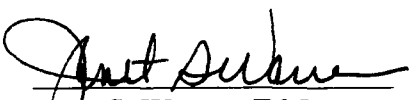

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PREDICTIORS OF ACADEMIC PERFORMANCE AND MAJOR SELECTION: ACADEMIC SELF-EFFICACY AS A MODERATOR VARIABLE

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A Thesis

Submitted to

The Graduate Faculty of

Auburn University Montgomery

In Partial Fulfillment of the

Requirements for the

Degree of

Master of Sciences

Montgomery, Alabama
May 12, 2007

THESIS ABSTRACT

PREDICTIORS OF ACADEMIC PERFORMANCE AND MAJOR SELECTION:

ACADEMIC SELF-EFFICACY AS A MODERATOR VARIABLE

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Master of Science, May 12, 2007
(B.S., Louisiana State University, 2003)

61 Typed Pages

Directed by Steven M. Elias

This study examined the predictors of academic performance and major selection. It sought to provide insight as to why students with seemingly high academic self-efficacy, that is those students in difficult college majors, suffer from test anxiety despite the evidence that high levels of self-efficacy are related to a lower occurrence of test anxiety. Proxy efficacy, test anxiety, and task value were hypothesized to impact performance and the level of difficulty of a student's major. Furthermore, academic self-efficacy was expected to serve as a moderator variable. Undergraduate students completed surveys measuring the variables of interest. Hypotheses were tested through the use of linear regression analysis, and moderation was tested by graphing the interaction. Hypotheses were partially supported in that self-efficacy was found to moderate the relationship between test anxiety and academic performance. None of the variables were shown to predict task difficulty; however, there was little variation in

terms of major difficulty among the sample. Implications for future research and academic advising are discussed.

ACKNOWLDGEMENTS

The author would like to thank Dr. Steven Elias, Dr. Steven LoBello, and Dr. Tres Stefurak for their assistance with this project. Special thanks are also due to my husband, Eric for his support.

Style Manual or Journal used: Publication Manual of the American Psychological Association, Fifth Edition

Computer Software used: SPSS, version 14

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PREDICTIORS OF ACADEMIC PERFORMANCE AND MAJOR SELECTION: ACADEMIC SELF-EFFICACY AS A MODERATOR VARIABLE

Introduction

Numerous studies have demonstrated a negative correlation between academic self-efficacy and test anxiety (Bandalos, Yates, & Thorndike-Christ, 1995; Betz & Hackett, 1983; Bandalos, Finney, Geske, 2003; Brackney & Karabenick, 1995; Diaz, Glass, Arnkoff, & Tanofsky-Kraft, 2001). However, students who may be assumed to possess strong efficacy beliefs, such as those pursuing advanced degrees or studying difficult majors, are not immune to test anxiety. Studies have shown that self-efficacy is a powerful influence on setting goals and formulating academic intentions (Locke & Latham, 1990; Vrugt, Langereis, Hoogstraten, 1997; Hackett, 1985; Chemers, Hu, & Garcia, 2001), but no studies have examined the interaction between self-efficacy and anxiety in terms of the difficulty of majors selected by students. Elias and Loomis (2002) presented an interesting question with regard to academic self-efficacy. They asked, "does a student enroll in easy courses because he or she does not have the confidence in himself or herself to pass hard courses (inefficacious), or does a student enroll in difficult courses because he or she does have the confidence in himself or herself to pass such courses (efficacious)?" (p. 1688).

Furthermore, it may be that students believe that the faculty possesses the necessary skills to teach what students need to know in order to succeed. This is a

example of proxy efficacy, or confidence in a third party to act on one's behalf (Bandura, 1997). Researchers in the field of Health Psychology have found that proxy efficacy is positively related to exercise self-efficacy (Bray & Cowan, 2004; Bray, Gyurcsik, Culos-Reed, Dawson, & Martin, 2001), and when rehabilitation patients and non-rehabilitation exercisers have confidence in their exercise consultants, they show better attendance and exercise behaviors (Bray & Cowan, 2004; Bray, Gyurcsik, Culos-Reed, Dawson, & Martin, 2001; Christensen et. al, 1996). A similar result was found by Elias and MacDonald (in press) in an academic setting. They found that a student's proxy efficacy is related to his or her academic self-efficacy. Therefore it is reasonable to hypothesize that proxy efficacy may also have an impact on a student's major selection. In other words, a student who believes that the faculty will have the teaching skills necessary to help him or her succeed will have increased confidence in his or her academic ability and pursue a more difficult major.

Like efficacy beliefs, test anxiety can also be considered an important determinant of the courses students attempt to complete. For example, does a student avoid a difficult class because he or she suffers from test anxiety, or does that student's self-efficacy override any apprehension he or she may have towards being tested in a subject? Test anxiety has been linked to a decrease in performance (Meece, Wigfield, & Eccles, 1990; Bandalos, Finney, & Geske, 2003; Betz & Hackett, 1983; Bandalos, Yates, & Thorndike-Christ, 1995), and only a limited number of studies have examined its influence over goal selection and persistence (Hackett & Betz, 1989, Meece, Wigfield, & Eccles, 1990). Therefore, this study will attempt to test the hypothesis that academic self-efficacy overrides test anxiety by examining the interaction between the two variables as they

affect the choice of an academic major. It is hypothesized that test anxiety will be negatively correlated with major difficulty and that academic self-efficacy will moderate this relationship. Such a confirmation would offer insight as to why students with high self-efficacy might still be at some risk for test anxiety.

An alternative explanation as to why a student with test anxiety may choose a difficult major is that he or she values the major and the benefits of completing it. Research indicates there is a positive correlation between task value and both self-efficacy (Bong, 2001; Meece, Wigfield, & Eccles, 1990) and performance (Berdt & Miller, 1990; Pokay & Blumfield, 1990). In other words, students who believe that a subject is important and useful are more likely to be confident in their abilities in that subject and they are more likely to perform well in that subject. It is relevant to determine if an interaction exists between task value and academic self-efficacy when considering whether or not to select a challenging major. Furthermore, it is appropriate to examine this interaction in terms of its impact on the experience of test anxiety.

Finally, much of the research that has been completed in the areas of self-efficacy, test anxiety, and task value has focused on the domains of math and science. According to Bandura (1997), self-efficacy is specific to certain tasks, as well as difficulty levels of a given task. To illustrate, an individual may be confident in his or her ability to score high on an English exam, but be less confident about achieving a good grade on a math exam. Furthermore, the same individual may have reduced confidence for taking the English exam if he or she believes the exam is especially difficult. Smith and Fouad (1999) report that the effects of self-efficacy also apply to subjects such as social studies, English, and art; therefore, it is reasonable to study the effects of efficacy beliefs in other

areas. Moreover, Bong (2001) extended the construct of academic self-efficacy to other subject domains such as Korean and English, in addition to math and science. She found that self-efficacy and task value are subject specific, with efficacy beliefs being only moderately correlated across domains. Of importance is that little of the prior research in these areas has focused on test anxiety as a dependent variable. Therefore, the current study will examine academic self-efficacy with respect to a range of academic subjects, not just math and science.

Self-Efficacy

According to Bandura (1997) self-efficacy is an individual's confidence that he or she can succeed in a given task. It can be applied to all aspects of life from career options, health, sports, interpersonal relationships, and academics. Even though a person may have the knowledge and ability to complete a task, if he or she is not confident in his or her abilities to perform the task, the task will be avoided. With respect to academics, Bandura (1993) explains that efficacy beliefs influence cognitive, motivational, and selectional processes. Students will pursue tasks when they feel that they have the ability to complete the task, and when they feel they can control their environment. Specifically, a student will expend more effort towards achieving a goal if he or she feels that the effort will, in fact, produce changes. On the other hand, students who feel that they are destined to fail will not put forth much effort and will not bring about changes in the environment when given the opportunity to do so. Self-efficacy motivates individuals to set goals and continue to work toward them in the face of difficulty. Furthermore, a person will select those tasks and goals that he or she has confidence in completing.

Self-efficacy also influences an individual's mood and level of arousal (Bandura, 1993, 1997). When one is confident in his or her ability to control negative thoughts, such a person can lower the level of anxiety that he or she experiences (Bandura, 1997). This is of particular importance to the current study of test anxiety because it has been suggested that a major component of test anxiety is excessive "worry" about negative outcomes (Spielberger & Vagg, 1995). People with a low sense of self-efficacy tend to dwell on their deficiencies thereby increasing their level of arousal.

As previously mentioned, academic self-efficacy influences levels of test anxiety, the pursuit of challenging goals, and academic enrollment intentions. Bandura (1997) has postulated that, "the stronger the sense of efficacy, the bolder people are at taking on the problematic situations that breed stress" (p. 141). Therefore, students who are highly efficacious may take on more challenging situations that place them at a greater risk for test anxiety. In fact, studies have shown that when compared to anxiety, self-efficacy is a greater predictor of goals and academic enrollment intentions (Hackett, 1985; Hackett & Betz, 1989; Locke & Latham, 1990). Specifically, students with high self-efficacy are more likely to view a difficult situation as a challenge rather than a threat. Consequently, they are more likely to set higher academic goals and pursue the more difficult situations rather than avoid them (Chemers, Hu, & Garcia, 2001). This supports the notion that more efficacious students will pursue more challenging majors.

When examining the influence of gender, years of high school mathematics, ACT mathematics score, mathematics anxiety, and math self-efficacy on predicting whether a student would choose a mathematics-related college major, Hackett (1985) found that self-efficacy was the best predictor. Furthermore, when examining math self-efficacy,

math performance, and math achievement, Hackett and Betz (1989) have found that self-efficacy was the only variable that contributed significantly to the prediction of college-major selection. As a result, it can be stated that self-efficacy is a major factor when students choose their college majors. However, because academic self-efficacy has been examined in relation to a limited number of academic subjects, the current study will attempt to replicate these findings across several academic domains.

Proxy Efficacy

Inevitably, people find themselves in a position where they do not have complete control over the situation's outcome. During these times, they must rely on someone else to act on their behalf. The confidence one has in a third party to act on his or her behalf is termed proxy efficacy (Bandura, 1997). Many of the studies on proxy efficacy have surrounded exercise and rehabilitation behavior. For example Christensen, Wiebe, Benotsch, and Lawton (1996) found that renal dialysis patients were more likely to adhere to the medical regimen recommended by their health care providers when they had more confidence in their health care providers' expertise. Bray and Cowan (2004) found that proxy efficacy was an important predictor of exercise and post-program exercise intentions in patients undergoing cardiac rehabilitation. Lastly, high proxy efficacy has been associated with an increase in exercise self-efficacy (Bray, Gyurcsik, Culos-Reed, Dawson, & Martin, 2001).

Based on prior research, it can be said that proxy efficacy is linked to self-efficacy, performance, and persistence when studied in terms of exercise and rehabilitation. Elias and MacDonald (in press) have found that a similar effect occurs in the academic setting. These authors have demonstrated that proxy efficacy (i.e., students'

confidence in their instructors) is associated with academic milestone efficacy, or efficacy for reaching certain milestones during an academic career, and general course efficacy, or efficacy for succeeding in core courses, although it is not predictive of academic performance. The current study seeks to replicate and extend these findings and determine the relationships that exist among proxy efficacy, test anxiety and choice of academic major.

Test Anxiety

Test anxiety is a widespread problem in today's society. Studies completed in the 1980's estimated 10 million students at the precollege level, and approximately 15% of college students, suffer from test anxiety (Register, Beckham, May, & Gustafson, 1991). Furthermore, in a society that places increasing emphasis on test scores, test anxiety is likely to have grown in the past 15 years. Researchers have asserted that the more important a test is perceived to be, the more anxiety that test will evoke (Spielberger & Vagg, 1995); therefore, the tests that essentially decide the future of their respondents, such as college entrance exams or licensing exams, will further increase levels of anxiety. Finally, test anxiety has been linked to a deficit in academic performance (Spielberger & Vagg, 1995). Fortunately, ample research has been completed to help us understand the underlying forces (i.e. worry and emotionality) of and effective treatments of test taking anxiety.

Many researchers have attempted to operationally define test anxiety. Mandler and Sarason (1952) presented an early model in which they proposed test anxiety was a single trait. Refuting this theory, Spielberger (1980) developed an assessment device, the Test Anxiety Inventory, based on the suggestion by Liebert and Morris (1967) that test

anxiety was actually composed of two separate characteristics: worry and emotionality. In this model, worry is described as the cognitive component of test anxiety. It consists of negative thoughts about the outcome of a task, and it is associated, independent of emotionality, with several byproducts of anxiety. For example, worry is higher for students who have low expectations of their performance and for students under higher time constraints (Libert & Morris, 1967). Furthermore, it is the worry component that is more closely related to a decline in performance (Morris & Libert, 1970). Emotionality, on the other hand, was not related to the above conditions, and is defined as the physiological arousal experienced by the test taker (Spielberger & Vagg, 1995). Examples include sweaty palms, racing heart, and tense muscles felt during test sessions.

In subsequent work, Sarason (1984) expanded on this research by separating emotionality into bodily arousal and tension, as well as, by adding test-irrelevant thinking. Bodily arousal and tension are physiological components, while test-irrelevant thinking can be described as those thoughts that are not related to the test, such as a student thinking that other students are smarter than himself or herself. Matthews, Hillyard and Campbell (1999) assert, "the cognitive components of test anxiety are considered the most damaging to performance" (p. 111). Such components relate to self-preoccupation and self-focused attention, which is generally focused on perceived inadequacies with respect to the task at hand. Deffenbacher & Hazaleus (1985) proposed a similar conceptualization of test anxiety. They maintained the worry and emotionality components, but added a third factor that was named task-generated interference. This element is defined as the tendency to be distracted by irrelevant aspects of the task, rather than being able to focus attention on answering questions. For example, a student may be

preoccupied with time limits or unable to leave a question blank and return to it later (Register, Beckham, May, & Gustafson, 1991). These views of test anxiety suggest that students may do poorly on tests because the cognitive components of their test anxiety interfere with their ability to concentrate on the task at hand.

A study by Keogh and French (2001) examined the effects of cognitive interference in terms of a student's susceptibility to distraction. They drew from previous research suggesting, "worry is the main source of interference" (Keogh & French, 2001, p.125). Worry draws a student's attention internally thereby preventing the individual from concentrating on the task at hand, as well as, limiting the capacity of the working memory. Keogh and French (2001) have also demonstrated that worry can increase how susceptible one is to distractions from external stimuli. Thus, research suggests that test anxiety results in poor performance because of the distracting nature of its cognitive components.

Other researchers have suggested dual-deficit or information processing models of test anxiety. These models propose that anxiety impinges on performance not only because of distraction during testing, but also because of distraction at all stages of information processing (i.e., encoding, storage, and retrieval; Meichenbaum & Butler, 1980; Naveh-Benjamin, 1991; Tobias, 1985). This theory implies that students' preparation for tests is impaired due to their anxiety about an upcoming test. To illustrate, in his study of treatments for debilitating test anxiety in medical students taking the United States Medical Licensing Examination, Powell (2004) noticed that students had a tendency to avoid studying until the last minute as an effort to escape the anxiety surrounding the thought of the test. Furthermore, several studies have supported the

theory that high test-anxious students have trouble learning and/or encoding, as well as, efficiently organizing test materials (Naveh-Benjamin, 1991; Tobias, 1985). However, when studying the effect of test anxiety on the retention of information, Naveh-Benjamin, Lavi, McKeachie, & Lin (1997) obtained results that run counter to the studies cited above. Specifically, their research indicated that test-anxious students scored lower on exams than non-anxious students immediately after a course ended, when anxiety was still high. However, years after the course was over, and there was no longer any cause to be anxious, test-anxious students scored the same as non-anxious students. Such results imply that students dealing with test anxiety do encode and store course material, but due to anxiety, they have trouble retrieving this information at the time of an exam.

Spielberger and Vagg (1995) introduced the transactional process model for test anxiety. This model stems from the belief that test anxiety is situation-specific and requires an explanation of those situations that elicit the anxiety. Furthermore, it attempts to explain the consequences of anxiety with respect to the behavior that it elicits. In essence, the transactional process model combines the previously mentioned theories of test anxiety into one theory. Spielberger & Vagg (1995) suggest that the specific circumstances of a particular student (e.g., test content, study skills, and test taking skills) influence worry, emotionality, negative thinking, and the storage and retrieval of information. For example, students who have strong study skills tend to possess a good understanding of an exam's content, and are likely to answer questions correctly, which decreases worry about the test. However, when a student begins to answer questions incorrectly or feels that he or she does not know the answers, he or she will become more and more aroused and anxious. These examples demonstrate how a student's

circumstances can interact in an ongoing process that either increases or decreases anxiety (Spielberger &Vagg, 1995).

In addition to worry, emotionality, and irrelevant thinking, researchers have considered the effects of self-efficacy on test anxiety. As previously mentioned, self-efficacy is one's perceived ability to successfully complete a given task, and these beliefs are specific to certain domains, as well as difficulty levels of a given task. Research has demonstrated relationships between academic self-efficacy, lower levels of anxiety, and higher levels of achievement and performance (Bandalos, Finny, & Geske, 2005; Diaz, Glass, Arnkoff, & Tanofsky-Kraff, 2001). In a study comparing various models of test anxiety, Smith, Arnkoff, & Wright (1990) found that both cognitive processes and social learning processes play a meaningful role in anxiety sufferers' academic performance. As a result, one can conclude that while worry and other forms of task-irrelevant thinking are integral to any model of test anxiety, social learning processes, such as self-efficacy beliefs, cannot be ignored.

Despite evidence suggesting that higher levels of test anxiety are related to lower levels of self-efficacy and declines in academic performance (Bandalos, Finney, & Geske, 2003; Bandalos, Yates, & Thorndike-Christ, 1995; Betz & Hackett, 1983; Brackney & Karabenick, 1995), students pursuing difficult academic goals, such as advanced degrees, may still suffer from test anxiety. This is a curious phenomenon considering these students are generally believed to possess strong academic self-efficacy beliefs. One potential explanation for this counterintuitive observation is that self-efficacy beliefs override the experience of test anxiety when students set academic goals. In support of this contention, Meece, Wigfield, & Eccles (1990) found that math anxiety

did not influence grades in math or intentions to enroll in math related courses when students possessed a strong sense of math self-efficacy. To be specific, although prior research suggests math anxiety relates negatively to plans to enroll in advanced high school mathematics courses and the selection of a math related college major (Hackett, 1985; Hendel, 1980; Wiggfield & Meece, 1988), Meece et al. (1990) found that the impact of math anxiety dissipates when math self-efficacy is taken into consideration. Because studies such as this one have rarely been conducted in fields other than mathematics, the current study will attempt to replicate and extend these findings among other academic disciplines.

Task Value

In addition to efficacy beliefs and test anxiety, a student's perceived value of an academic subject influences his or her goals and intentions related to that subject. Task value, as conceptualized in previous research (Bong, 2001, Feather, 1988), is one's perceived level of importance of, interest in, and usefulness of a particular field of study. Perception of importance, like self-efficacy, serves as incentive to pursue difficult tasks (Wigfield & Eccles, 1992). In terms of the current study, a student would pursue a difficult major because he or she considers having a degree in that major valuable.

Research shows that self-efficacy and task-value are positively correlated (Bong, 2001; Meece, Wigfield, & Eccles, 1990). Furthermore, Meece et al. (1990) demonstrated a strong positive correlation between the subjective importance of doing well in math and intentions to enroll in mathematics courses. From their results, they suggest that self-efficacy might influence perceived importance, thereby moderating the relationship between task value and enrollment in math related courses. For example, while a student

who believes math is important is likely to select a math related major, he or she is even more likely to select such a major when his or her academic self-efficacy beliefs are high. The current study will test this hypothesis.

Task Difficulty

In the present study, academic goals are defined by the relative difficulty of one's academic major. This idea stems from Bandura's (1997) aforementioned suggestion that highly efficacious students put themselves in situations that elevate levels of anxiety. It may be said that choosing a more difficult college major, in comparison to a less difficult major, is a situation that involves increased levels of stress and anxiety. To illustrate, pre-medical classes typically require more out-of-class assignments, and the course material is more in depth and detailed relative to courses in elementary education. The increased number of assignments and the complexity of the material arguably leads to higher levels of stress and anxiety. Multon, Brown & Lent (1991), in their meta-analytic investigation of self-efficacy and academic outcomes, suggest that researchers include the factor of task difficulty in future studies. This study will attempt to show that students with high academic self-efficacy will tend to choose more difficult majors, and that such efficacy beliefs will moderate the experience of test anxiety.

Hypotheses

Based on the research cited above, the following hypotheses are proposed:

Hypothesis 1a: Test Anxiety will be negatively related to academic performance, as measured by self-reported GPA.

Hypothesis 1b: Academic Self-Efficacy will moderate the relationship between test anxiety and performance in that academic self-efficacy will temper the negative effects of test anxiety on performance.

Hypothesis 2a: Test Anxiety will be negatively related to major difficulty.

Hypothesis 2b: Academic Self-Efficacy will moderate the relationship between test anxiety and major difficulty, such that academic self-efficacy will temper the negative effects of test anxiety on major difficulty.

Hypothesis 3a: Proxy efficacy will be positively related to Academic Self-Efficacy.

Hypothesis 3b: Proxy efficacy will be positively related to Major Difficulty.

Hypothesis 3c: Academic Self-Efficacy will moderate the relationship between Proxy Efficacy and Major Difficulty, such that academic self-efficacy will increase the strength of the relationship between proxy efficacy and major difficulty.

Hypothesis 4a: Task Value will be positively related to performance, as measured by self report GPA.

Hypothesis 4b: Academic Self-Efficacy will moderate the relationship between task value and performance, such that academic self-efficacy will increase the strength of the relationship between task value and performance.

Hypothesis 5a: Task Value will be positively related to major difficulty.

Hypothesis 5b: Academic Self-Efficacy will moderate the relationship between task value and major difficulty, such that academic self-efficacy will increase the strength of the relationship between task value and major difficulty.

Method

Design and Analysis

This study is a within subject design. All participants completed each measure. All hypotheses are assessed by linear regression analysis. In order to test for moderation, the product of the two predictor variables of interest will be included in the regression model. A significant interaction will be interpreted by graphing the means.

Participants

Participants were recruited from undergraduate classes at Auburn University Montgomery. A variety of classes were chosen, including psychology, sociology, business, and literature, in an attempt to get a wide range of academic majors. There were a total of 295 participants, of which 86 were male, 205 were female, and 3 did not indicate gender. Participants reported being either Caucasian (n = 161), African American (n = 109), or "other" (n = 26). Furthermore, participants reported their academic classification as being either freshmen (n = 84), sophomore (n = 65), junior (n = 78), or senior (n = 64). Four students did not provide academic classification. All participants are treated according to the ethical guidelines set forth by the American Psychological Association, and students signed a consent form that described the study and explained their right to refuse to participate at any time (see Appendix G).

Materials

The Test Anxiety Inventory (TAI; Spielberger, 1980): The TAI (Appendix A) measures levels of test anxiety, has been used in prior research, and has high reliability

(alpha of .92 or higher; see Register, Beckham, May, & Gustafson, 1991). Spielberger (1980) reports that the TAI also correlates with Sarason's (1978) Test Anxiety Scale ($r = .82$) and Liebert and Morris's two facet (1967) Worry and Emotionality Questionnaire ($r = .69$ and $r = .85$, respectively) indicating high construct validity. The TAI measures two components of test anxiety: worry and emotionality. Worry encompasses the cognitive symptoms or negative thoughts that arise during testing, while emotionality assesses physiological symptoms such as elevated heart rate or muscle tension. The TAI has 20 items. The worry and emotionality subscales each contain eight items, while the remaining 4 items contribute to the total score. The worry component contains questions such as, "Thoughts of doing poorly interfere with my concentration on tests" and, "I freeze up on important exams." Sample items from the emotionality subscale include "While taking tests I have an uneasy, upset feeling" and "During tests I feel very tense." Alpha coefficients range from .83 to .91 for worry, and .85 to .91 for emotionality. Responses range from (1) almost never to (4) almost always, and high scores indicate high levels of anxiety. Though the two components can be analyzed separately, the current study only considered the total score due to the high correlation between the two components ($r = .79$, $p < .001$).

The Academic Self Efficacy Scale (ASES; Elias & Loomis, 2000, 2002): Academic self-efficacy was assessed using the ASES (Appendix B). This scale is comprised of two facets, both of which ask participants to rate their beliefs on a 10-point Likert scale with responses ranging from 0 (no confidence at all) to 9 (complete confidence). Facet 1 (with an alpha of .93; Elias & Loomis, 2000) addresses efficacy beliefs for specific undergraduate courses. Students are asked to report how confident

they are that they can complete courses such as English and psychology with a grade of "B." This facet is of particular interest, as its specificity allows researchers to examine efficacy beliefs for particular academic subjects and compare them to the difficulty ratings of each subject. This facet measures both efficacy for particular courses (Course Efficacy) and efficacy for Physical Education courses (PE Efficacy). Facet 2 (with an alpha of .91; Elias & Loomis, 2000) is a more general assessment of academic self-efficacy in that it asks about different milestones that students would face during their academic career (Milestone Efficacy). In this case, students report how confident they are that they can achieve such goals as "successfully pass all courses enrolled in over the next semester" and "Graduate with a grade point average of at least a 2.0" (Elias & Loomis, 2002). The current study made use of the overall self-efficacy score because of a high correlation between the facets (Course-PE efficacy, $r = -.39$, $p < .001$; Course-Milestone, $r = .59$, $p < .001$; Milestone-PE, $r = .44$, $p < .001$) and its use in prior research (Elias & Loomis, 2002)

Proxy Efficacy: Consistent with Elias and MacDonald (in press), the current study used a modified version of Goddard's (2001) Collective Efficacy Scale (CES; Appendix C) to assess students' proxy efficacy. Collective Efficacy is a group's combined confidence that it has in completing a task (Bandura, 1986). The scale was originally used by Goddard (2001) to measure collective efficacy as a social construct. It was administered to teachers at several different schools, and the mean score for a particular school would be considered its index for collective efficacy. Elias and MacDonald (in press) removed the collective component, such that the measure focuses only on the individual's responses. This modified version of the scale assesses an

individual student's confidence in faculty to function on his or her behalf, thereby measuring proxy efficacy rather than collective efficacy.

The CES consists of 21 items using a six point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). It is reliable, with an alpha of .85 (Elias and MacDonald, in press). Because the CES was initially used with children in grade school, minor changes were made to Goddard's (2001) original wording so as to make the measure more applicable to college students. Specifically, the words "teachers," "school," and "child" were substituted with "faculty members," "university," and "student" respectively. For example, the item "Teachers in this school really believe every child can learn" now reads "Faculty members in this university really believe every student can learn."

Task Value: The conceptualization of task value used by Feather (1988) and again by Bong (2001) was adopted in this study. This model holds that task value includes three factors: perceived importance, perceived usefulness, and interest. The items from Bong's (2001) study (Appendix D), including "I think what I learn in [a specific subject] class is important," "I think [a specific subject] is a useful subject, and "I find [a specific subject] interesting," will be utilized. The items will be modified to apply to the students' classes in general and the classes pertaining to the students' own academic majors. Feather used a similar structure. His study specifically asked about English and math, and showed reliability with alphas of .79 and .69 respectively. The questionnaire for the current study will use a five-point Likert scale with responses ranging from 1 (not at all true) to 5 (very true). High scores indicate a greater value of the student's academic major and college education.

Major Difficulty: A ten-point Likert scale ranging from 1 (no difficulty at all) to 10 (extreme difficulty) has been developed to assess students' perceptions of major difficulty (Appendix E). It includes all of the majors that are offered at Auburn University Montgomery. Scores are calculated such that higher scores are indicative of a major being perceived as being more difficult. Additionally, the average GPA associated with each academic major was obtained from the office of university records and was compared to the subjective ratings obtained from the questionnaire. It was hypothesized that GPA would be negatively correlated with difficulty of major versa.

Demographic Questionnaire: Demographic information was obtained from participants by having them complete a demographics questionnaire (Appendix F). This survey asked students to report age, race, gender, grade level (e.g. freshman, sophomore, junior, senior), GPA, academic major, and whether or not their parents or siblings have college degrees.

Procedure

Participants completed all of the questionnaires in one sitting during their classes. Demographic information and data pertaining to the students' own major was administered last so as to limit the possibility that students would consider their own major when completing the surveys. All other measures were counterbalanced so as to control for sequence and ordering effects. Before participants are given the scales, they were given a consent form (Appendix G) describing the general purpose of the study and informing them of their rights as participants. After completing the questionnaires, students were given a debriefing form that more fully explained the study and provided them with information on whom to contact should they have questions.

Results

An alpha level of .05 was used for all statistical analyses. In order to assess which academic majors were thought to be difficult and which were thought to be less difficult, the difficulty ratings provided for each of 28 majors were subjected to a Principle Components Analysis (PCA) with varimax rotation. This PCA yielded four factors with Eigenvalues larger than 1.0, which combined to account for a total of 62.04% of the variance in the ratings. The individual factor loadings ranged from .45 to .85, and a higher mean for a factor is associated with that major being perceived as more difficult. Factor 1 ($M = 6.33$, $SD = 1.70$) was comprised of natural and social science majors and accounted for 18.43% of the variance. Factor 2 ($M = 5.75$, $SD = 1.55$) was comprised of business majors and accounted for 18.07% of the variance. Factor 3 ($M = 5.36$, $SD = 1.70$) was comprised of liberal arts majors and accounted for 14.31% of the variance. Factor 4 ($M = 4.87$, $SD = 1.94$) was comprised of education majors and accounted for 11.23% of the variance. Average ratings for each of the four groups showed that Science majors were perceived to be the most difficult, followed by Business, then Liberal Arts, and Education as the least difficult. Participants' majors were then coded to belong to one of these four groups thereby determining their major difficulty level.

Each variable's descriptive statistics, bivariate correlations, and reliability coefficients are in Table 1. The direction of each significant correlation is consistent with the hypotheses and all of the reliability statistics are appropriate for research purposes (α ranging from .78 to .95). A review of the correlation coefficients revealed several

interesting relationships, although the variance accounted for by these relationships is typically small. For example, age is negatively correlated with the difficulty of major (r = -.18, p < .01, r^2 = .03) and level of test anxiety (r = -.16, p < .01, r^2 = .03). Proxy efficacy beliefs are negatively correlated with the number of semesters a student has been enrolled in college (r = -.12, p < .05, r^2 = .01) and his or her level of test anxiety (r = -.20, p < .01, r^2 = .04). Academic self-efficacy beliefs are negatively correlated with test anxiety (r = -.16, p < .01, r^2 = .03). Lastly, classification (i.e., freshman, sophomore, junior, or senior) is negatively correlated with test anxiety (r = -.17, p < .01, r^2 = .03) and positively correlated with academic self-efficacy (r = .18, p < .01, r^2 = .03).

Hypothesis 1a was that test anxiety would serve as a predictor of academic performance, such that higher anxiety would be associated with lower performance. This hypothesis was supported in that while controlling for classification, gender, age, and the number of semesters a student has been enrolled in college, test anxiety does serve as a predictor of performance (B = -.21, SE = .06, β = -.24; see Table 2). Hypothesis 1b was that academic self-efficacy beliefs would moderate the test anxiety – academic performance relationship in that strong efficacy beliefs would temper the negative effects of test anxiety on academic performance. This hypothesis was supported in that when added to the model used to assess Hypothesis 1a, both academic self-efficacy (B = .47, SE = .05, β = .63) and the academic self-efficacy x test anxiety interaction (B = -.08, SE = .02, β = -.56) were significant predictors of academic performance (see Table 2). The academic self-efficacy x test anxiety interaction term is equal to the product of the two variables.

Table 1.

Descriptive Statistics, Reliability Coefficients, and Correlations Among the Variables of Interest

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Age	22.57	5.27	--									
2. Gender	--	--	-.02	--								
3. Classification	--	--	**.30**	.06	--							
4. Major	3.59	.95	**-.18**	.02	*-.11*	--						
5. Semesters	5.11	3.35	**.22**	.09	**.84**	*-.12*	--					
6. GPA	2.89	.60	.08	.02	**.21**	-.02	*.14*	--				
7. TAI	2.06	.68	**-.16**	.08	**-.17**	.08	-.02	**-.27**	(.95)			
8. ASES	6.01	.81	.05	-.01	**.18**	-.04	**.15**	**.49**	**-.16**	(.91)		
9. Proxy Efficacy	4.27	.62	.07	-.01	-.08	-.02	*-.12*	.01	**-.20**	.05	(.88)	
10. Task Value	4.25	.53	.07	.06	-.02	.09	-.02	.07	-.08	**.26**	**.33**	(.78)

Note: Correlation coefficients in bold are significant at $p < .01$ and coefficients in italics are significant at $p < .05$. Reliability coefficients are in parentheses. For gender, male = 1 and female = 2. Classification ranges from 1 (freshman) to 4 (senior). Major indicates difficulty of one's major and ranges from 1 to 5 with 5 being the most difficult. GPA (grade point average) ranges from 0 – 4.0. TAI (Test Anxiety Inventory) ranges from 1 (low anxiety) to 4 (high anxiety). ASES (academic self-efficacy scale) ranges from 1 (low efficacy) to 10 (high efficacy). Proxy Efficacy ranges from 1 (low efficacy) to 6 (high efficacy). Task Value ranges from 1 (low value) to 5 (high value).

Table 2.
Academic Performance Regressed on Test Anxiety, Academic Self-Efficacy, and the Anxiety-Efficacy Interaction.

Variable	*B*	*SE*	*β*	R^2	*F*	Variable	*B*	*SE*	*β*	R^2	*F*
Model 1				.12	6.45**	Model 2				.38	21.30**
Classification	.11	.06	.21			Classification	.11	.05	.21*		
Gender	.07	.08	.06			Gender	.05	.07	.04		
Age	.01	.01	.01			Age	.01	.01	.03		
Semesters	-.01	.02	-.03			Semesters	-.02	.02	-.09		
TAI	-.21	.06	-.24**			TAI	.32	.12	.36**		
						ASES	.47	.05	.63**		
						TAI X ASES	-.08	.02	-.56**		

Note: * = $p < .05$; ** = $p < .01$. TAI = Test Anxiety Inventory. ASES = Academic Self-Efficacy Scale. TAI X ASES = anxiety x efficacy interaction term.

In order to interpret the efficacy x anxiety interaction, a median split was performed for each variable resulting in distinctions being made between high and low academic self-efficacy (median = 6.04) and high and low test anxiety (median = 1.95). Each participant was then classified as being in one of four groups: low anxiety – high efficacy, low anxiety – low efficacy, high anxiety – high efficacy, and high anxiety – low efficacy (see Table 3 for descriptive statistics). This classification was then treated as a single factor with four levels and was entered into a one way ANOVA with GPA as the dependent variable, $F(3, 267) = 25.95, p < .001$. Post hoc analyses with Bonferroni adjustments indicate students that experience high test anxiety and possess low academic self-efficacy have significantly lower GPAs than all other students. Furthermore, students that experience low anxiety while possessing high efficacy beliefs have significantly higher GPAs than those students experiencing low anxiety while possessing low efficacy beliefs. This interaction is depicted in Figure 1.

Hypothesis 2a was that test anxiety would serve as a predictor of how difficult of a major a student would choose, such that high anxiety would be associated with an easier major. Hypothesis 2b was that academic self-efficacy beliefs would moderate the test anxiety – major difficulty relationship in that strong efficacy beliefs would temper the negative effects of test anxiety on major selection. These hypotheses were not supported (see Table 4). Hypothesis 3a, which stated proxy efficacy would serve as a predictor of academic self-efficacy, was not supported ($B = .07$, $SE = .08$, $\beta = .06$). Furthermore, Hypotheses 3b (proxy efficacy would predict major difficulty) and 3c (self-efficacy would moderate the proxy efficacy – major difficulty relationship) were not supported (see Table 5).

Table 3.

Descriptive Statistics for GPA Broken Down by Test Anxiety and Academic Self-Efficacy Classification

					Range	
Classification	*n*	*M*	*SD*	*SE*	Minimum	Maximum
Lo Anxiety – Hi Efficacy	83	3.21	.55	.06	1.70	4.00
Hi Anxiety – Hi Efficacy	63	3.04	.58	.08	1.40	4.00
Lo Anxiety – Lo Efficacy	65	2.80	.46	.06	1.96	3.90
Hi Anxiety – Lo Efficacy	83	2.51	.45	.05	1.80	3.70

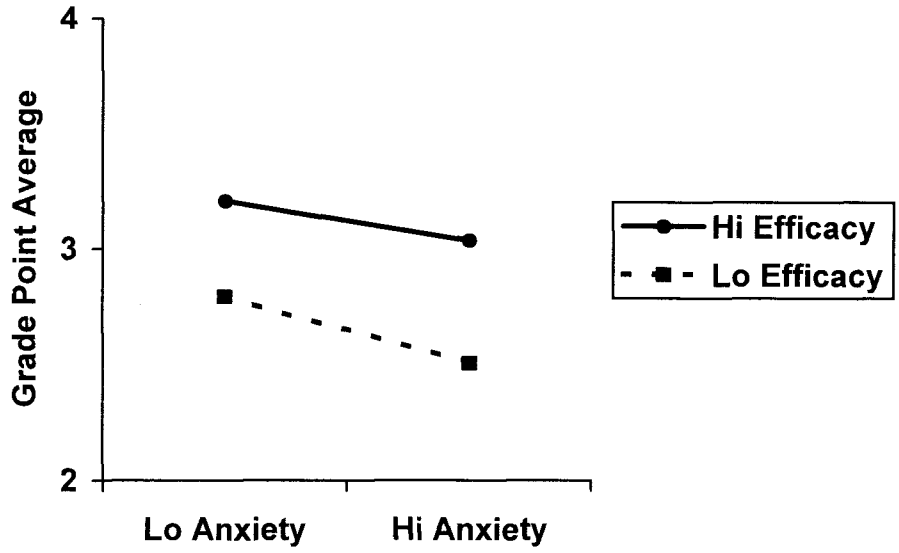

Figure 1: The academic self-efficacy – test anxiety interaction

Table 4.

Major Difficulty Regressed on Test Anxiety, Academic Self-Efficacy, and the Anxiety-Efficacy Interaction.

Variable	*B*	*SE*	*β*	R^2	*F*	Variable	*B*	*SE*	*β*	R^2	*F*
Model 1				.02	1.10	Model 2				.03	1.06
Classification	.12	.09	.15			Classification	.14	.09	.15		
Gender	.13	.13	.07			Gender	.13	.13	.07		
Age	-.01	.01	-.08			Age	-.01	.01	-.08		
Semesters	-.04	.03	-.16			Semesters	-.04	.03	-.16		
TAI	.10	.09	.08			TAI	.40	.23	.30‡		
						ASES	.07	.09	.06		
						TAI x ASES	-.05	.03	-.24		

Note: ‡ = $p < .10$. TAI = Test Anxiety Inventory. ASES = Academic Self-Efficacy Scale. TAI x ASES = anxiety x efficacy interaction term.

Table 5.

Major Difficulty Regressed on Proxy Efficacy, Academic Self-Efficacy, and the Proxy-Self Efficacy Interaction.

Variable	*B*	*SE*	*β*	R^2	*F*	Variable	*B*	*SE*	*β*	R^2	*F*
Model 1				.02	.88	Model 2				.02	.63
Classification	.09	.09	.11			Classification	.09	.09	.12		
Gender	.14	.13	.07			Gender	.14	.13	.07		
Age	-.01	.01	-.08			Age	-.01	.01	-.08		
Semesters	-.04	.03	-.14			Semesters	-.04	.03	-.13		
Proxy	-.06	.09	-.04			Proxy	.02	.66	.01		
						ASES	.04	.47	.03		
						Proxy x ASES	-.01	.11	-.07		

Note: Proxy = Proxy efficacy. ASES = Academic Self-Efficacy Scale. Proxy x ASES = proxy efficacy x self-efficacy interaction term.

Hypothesis 4a was that task value would serve as a predictor of academic performance, such that high task value would be associated with high performance. Hypothesis 4b was that academic self-efficacy beliefs would moderate the task value – academic performance relationship. While these hypotheses were not supported, classification did serve as a predictor of performance such that more advanced students reported higher grade point averages (see Table 6). Hypothesis 5a was that task value would serve as a predictor of major difficulty, such that high task value would be associated with more difficult majors. Hypothesis 5b was that academic self-efficacy beliefs would moderate the task value – major difficulty relationship. While Hypothesis 5a received partial support in that the task value – major difficulty relationship approached significance ($B = .18$, $SE = .10$, $\beta = .11$), Hypothesis 5b was not supported (see Table 7).

Discussion

The aim of this study was to investigate the role of academic self-efficacy in the relationship among variables that predict academic performance, such as test anxiety, proxy efficacy, and task value. As predicted, test anxiety was negatively correlated with academic performance. This is consistent with the findings of many studies (Spielberger & Vagg, 1995; Meichenbaum & Butler, 1980; Naveh-Benjamin, 1991; Tobias, 1985). More pertinent to the current study, however, is the finding that self-efficacy moderates this relationship. This finding is important because, though the negative relationship between test anxiety and both academic self-efficacy and academic performance are well established (Bandalos, Finney, & Geske, 2003; Diaz, Glass, Arnkoff, & Tanofsky-Kraff, 2001; Bandalos, Finney, & Geske, 2003), none of these studies have considered academic

Table 6.

Academic Performance Regressed on Task Value, Academic Self-Efficacy, and the Task Value-Efficacy Interaction.

Variable	*B*	*SE*	*β*	R^2	*F*	Variable	*B*	*SE*	*β*	R^2	*F*
Model 1				.07	3.65**	Model 2				.32	16.33**
Classification	.17	.06	.33**			Classification	.15	.05	.28**		
Gender	.05	.08	.04			Gender	.05	.07	.04		
Age	.01	.01	.02			Age	.01	.01	.04		
Semesters	-.02	.02	-.12			Semesters	-.03	.02	-.15		
Task	.08	.07	.08			Task	-.18	.35	-.16		
						ASES	.32	.25	.43		
						Task x ASES	.02	.06	.15		

Note: ** = $p < .01$. Task = Task value. ASES = Academic Self-Efficacy Scale. Task x ASES = task value x self-efficacy interaction term.

Table 7.

Major Difficulty Regressed on Task Value, Academic Self-Efficacy, and the Task Value-Efficacy Interaction.

Variable	*B*	*SE*	*β*	R^2	*F*	Variable	*B*	*SE*	*β*	R^2	*F*
Model 1				.03	1.45	Model 2				.03	1.14
Classification	.10	.09	.12			Classification	.10	.09	.13		
Gender	.12	.12	.06			Gender	.13	.13	.06		
Age	-.02	.01	-.09			Age	-.02	.01	-.09		
Semesters	-.04	.03	-.13			Semesters	-.03	.03	-.13		
Task	.18	.10	.11‡			Task	-.10	.63	-.06		
						ASES	-.27	.45	-.24		
						Task x ASES	.05	.11	.30		

Note: ‡ = $p < .08$. Task = Task value. ASES = Academic Self-Efficacy Scale. Task x ASES = task value x self-efficacy interaction term.

self-efficacy as a moderator variable. This finding also has implications for academic advisors. Students whose performance is suffering because of test anxiety can be assisted by methods that serve to enhance their confidence in their academic ability. Specifically, Bandura (1986, 1997) identifies four sources of efficacy beliefs: mastery experiences, vicarious experience, social persuasion, and physiological responses. Therefore, academic advisors can find ways to allow the student to successfully complete tasks related to the task for which the student has low efficacy, provide an example of a similar student who has succeeded despite low efficacy beliefs, or tell the student that he or she can succeed. The final source of efficacy, physiological responses, is particularly relevant to the present study because it is also a large component of test anxiety. Consequently, commonly accepted techniques that target the physiological component of test anxiety, such as biofeedback techniques and systematic desensitization, may also influence self-efficacy. However the latter is the least contributory to self-efficacy so it should be used in conjunction with the other techniques previously discussed.

Another aim of this study was to investigate possible predictors of major selection or major difficulty. The results of this study did not support the notion that test anxiety would predict the difficulty level of a student's major nor that self-efficacy would moderate this relationship. One caveat of this study, however, is that the majority of the sample was enrolled in science or math related majors (64.7%). Without more variance in major difficulty, it is difficult to say that test anxiety and academic self-efficacy have no impact on the difficulty of a student's major. Furthermore, there are floor effects of self-efficacy and ceiling effects of test-anxiety to consider when studying students enrolled in college. Those that have very low efficacy and those that have very high test

anxiety are likely to not be enrolled in college classes at all. In fact, Bandura (1993) asserts that students who do not feel that they can succeed at a task will not put forth much effort toward the task, and may not attempt the task at all.

Elias and MacDonald (in press) found that proxy efficacy is associated with academic milestone efficacy and general course efficacy. The current study failed to replicate these findings. Furthermore, results indicated that proxy efficacy is not a predictor of major difficulty and self-efficacy does not moderate the relationship. Of note, however, is that Elias and MacDonald (in press) analyzed the facets of the ASES individually, and this study only examined the relationship of overall academic self-efficacy. Furthermore, many of the questions on the Collective efficacy scale pertain to opinions about other students at the university in addition to questions about the faculty and the learning environment (see Appendix C). Though Goddard (2001) found that all questions loaded on to one factor when measuring collective efficacy, some questions may not be pertinent to measuring proxy efficacy. This issue should be addressed in future research. Finally, a lack of variance in major difficulty is once again a consideration in the failure to support this hypothesis.

Task value was also hypothesized to be a predictor of academic performance. Despite affirmative findings in prior research (Berdt & Miller, 1990; Pokay & Blumfield, 1990), this hypothesis was not supported. Other researchers have found a positive correlation between task value and self-efficacy (Bong, 2001; Meece, Wigfield, & Eccles, 1990). Again, the current study did not replicate these findings. One important consideration is that prior research concentrated more on the value of specific subjects. Because the current study aimed to investigate a wide range of majors, it was difficult to

word the questions in order to specify particular subjects. Perhaps if the study were replicated using the four main groups of majors found in the Principle Components Analysis performed in this study, there would be more favorable results. In addition, results pointed to a correlation between classification and performance. Because high task value is associated with increased persistence (Pokay & Blumenfeld, 1990), it is possible that more advanced students have a higher value of school. Thus, there may be an indirect relationship between value and performance indicated by this correlation. Further investigation should be performed to test this possibility.

Following from this finding, the hypothesis that task value would be related to major difficulty and that self-efficacy would moderate the relationship was only partially supported. The relationship between task value and major difficulty approached significance. Prior research indicating that value was related to enrollment intentions (Meece, et. al, 1990) was specific to math. This again indicates that future research on task value should remain subject specific. With more specific measures of task value, this relationship may be significant.

Though not all hypotheses were fully supported, preliminary analyses revealed some interesting correlations. First, a student who has been in school longer, as indicated by age, number of semesters, and classification, has lower test anxiety. One possible explanation is that experience and development of appropriate learning strategies helps alleviate stress about test taking. Prior research has shown that having good study skill is related to lower test anxiety (Spielberger &Vagg, 1995; Smith, Arnkoff and Wright, 1990). Perhaps older students have simply adapted to college life and have learned how to study more effectively.

Secondly, self-efficacy was found to correlate positively with classification. Thus, more experienced students have an increase in self efficacy as well as a decrease in test anxiety. Past experience plays a large roll in Bandura's theory of self efficacy. He asserts that dwelling on past failures contributes to lower confidence in the ability to succeed at a current task (Bandura, 1986). Conversely, students who have succeeded in the past will be more confident that they can succeed again. Therefore, older students who have had the chance to try different study strategies and have succeeded in the past are likely to be more confident than younger students that do not yet know how to study for college classes.

Finally, there is a negative correlation between the number of semesters a student has been in college and his or her confidence in the faculty. In other words, students who have been enrolled in college longer are less confident that their faculty will help them. It may be the case, however, that more advanced students have become more self reliant and do not feel the need to seek assistance from faculty. There has not been much research done on proxy efficacy in the academic setting. Further investigation should be conducted before any conclusions can be drawn.

In sum, the results of this study suggest that academic self-efficacy plays an important role in lessening the effects of test anxiety on performance. Academic advisors should consider this fact when dealing with test anxious students. When a student's efficacy can be enhanced, his or her test anxiety may no longer interfere with the ability to succeed in college. Additionally, further research should attempt to use a sample including a wider range of academic majors. If it is the case that test anxiety makes a student less likely to pursue a difficult major, and that self-efficacy tempers this effect,

advisors would have more to consider. It may be possible to work with students in encouraging them to pursue the field that they are truly interested in rather than settling for something that is less difficult

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Appendix A

Sample Question from the Test Anxiety Inventory

Worry Component

1. Thoughts of doing poorly interfere with my concentration on tests.
2. I freeze up on important exams.

Emotionality Component

1. While taking tests I have an uneasy, upset feeling.
2. During tests I feel very tense.

Appendix B

Academic Self-Efficacy Scale

Assuming you were motivated to do your best, using the following 10-point scale, please indicate how much **confidence** you have that you could do each of the following in college:

No Confidence at all		Very Little Confidence		Some Confidence		Much Confidence			Complete Confidence
0	1	2	3	4	5	6	7	8	9

1. Complete a course in composition with a grade of "B".
2. Complete a course in astronomy with a grade of "B".
3. Complete a course in dance with a grade of "B".
4. Complete a course in economics with a grade of "B".
5. Complete a course in aerobic exercise with a grade of "B".
6. Complete a course in anthropology with a grade of "B".
7. Complete a course in biology with a grade of "B".
8. Complete a course in mathematics with a grade of "B".
9. Complete a course in geography with a grade of "B".
10. Complete a course in philosophy with a grade of "B".
11. Complete a course in American ethnicity with a grade of "B".
12. Complete a course in weight training with a grade of "B".
13. Complete a course in tennis with a grade of "B".
14. Complete a course in African-American History with a grade of "B".
15. Complete a course in political science with a grade of "B".
16. Complete a course in English with a grade of "B".
17. Complete a course in chemistry with a grade of "B".

REMINDER: This is the scale you are using to indicate how much **confidence** you have that you could do each of the following in college:

No Confidence at all		Very Little Confidence		Some Confidence		Much Confidence		Complete Confidence	
0	1	2	3	4	5	6	7	8	9

18. Complete a course on India with a grade of "B".

19. Complete a course in swimming with a grade of "B".

20. Complete a course in art with a grade of "B".

21. Complete a course in communication with a grade of "B".

22. Complete a course in psychology with a grade of "B".

23. Complete a course in physics with a grade of "B"

24. Earn a cumulative grade point average of at least 2.0 after two years of study.

25. Earn a cumulative grade point average of at least 3.0 after two years of study.

26. Earn a cumulative grade point average of at least 2.0 after three years of study.

27. Earn a cumulative grade point average of at least 3.0 after three years of study.

28. Complete 45 semester hours of upper-division courses (300-400 level).

29. Complete the requirements for your academic major with a grade point average of at least 3.0.

30. Successfully pass all courses enrolled in over the next semester.

31. Successfully pass all courses enrolled in over the next two semesters.

32. Successfully pass all courses enrolled in over the next three semesters.

33. Graduate from college with a grade point average of at least 2.0.

34. Graduate from college with a grade point average of at least 3.0.

Appendix C

Collective Efficacy Scale

Please rate items according to the following scale.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

1. Faculty members here are confident they will be able to motivate their students.
2. Faculty members at this university have what it takes to get the students to learn
3. Faculty members in this university really believe every student can learn.
4. Faculty members in this university are able to get through to difficult students.
5. Students at this university come to school ready to learn.
6. Learning is more difficult at this university because students are worried about their safety.*
7. Faculty members here don't have the skills needed to produce meaningful student learning.*
8. Students here just aren't motivated to learn.*
9. Faculty members in this university do not have the skills to deal with student disciplinary problems.*
10. If a student doesn't want to learn faculty members here give up.*
11. Faculty members here fail to reach some students because of poor teaching methods.*
12. Faculty members here need more training to know how to deal with these students.*
13. The opportunities in this community help ensure that students at this university will learn.
14. Faculty members here are well-prepared to teach the subjects they are assigned to teach.
15. Drug and alcohol abuse in the community make learning difficult for students at this university.*
16. If a student doesn't learn something the first time faculty members will try another way.
17. Faculty members at this university think there are some students no one can reach.*
18. Living conditions here provide so many advantages students are bound to learn.

19. Faculty members at this university are skilled in various methods of teaching.

20. The lack of instructional materials and supplies makes teaching very difficult for the faculty at this university.*

21. The quality of the facilities as this university really facilitates the teaching and learning process.

Appendix D

Task Value

Please rate items according to the following scale. If you have not yet declared a major, begin at question number four (4).

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. In general, I find classes pertaining to my major useful.
2. In general, I find working on my major assignments interesting.
3. For me, my major is important.
4. In general, I find college classes useful.
5. In general, I find working on my college classes interesting.
6. For me, a college degree is important

Appendix E

Major Difficulty

Please rate these majors at AUM according to the following scale:

No Difficulty at all		Very Little Difficulty		Some Difficulty		Much Difficulty		Extreme Difficulty	
1	2	3	4	5	6	7	8	9	10

1. Accounting
2. Business Economics
3. Finance
4. General Business
5. Human Resource Management
6. Information Systems
7. Management
8. Marketing
9. Art Education
10. Elementary Education
11. Physical Education
12. Secondary Education
13. Special Education
14. Theatre
15. English
16. Art
17. Graphic Arts
18. History

Reminder: Please rate these majors at AUM according to the following scale.

No Difficulty at all		Very Little Difficulty		Some Difficulty		Much Difficulty		Extreme Difficulty	
1	2	3	4	5	6	7	8	9	10

19. International Studies
20. Sociology
21. Liberal Arts
22. Nursing
23. Biology
24. Justice and Public Safety
25. Mathematics
26. Physical Science
27. Political Science
28. Psychology

Appendix F

Demographics

1. Are you a (circle)... Freshman Sophomore Junior Senior

2. Gender (circle)... Male Female

3. Are you (circle)... White/ Caucasian Black/ African American

Asian American Mexican American Spanish American

American Indian Puerto Rican American Other_____

4. Age _____

5. Major (please list "Undeclared" if you do not yet have a major)_____

6. How many semesters have you been in college? _____

7. Does your mother have a college degree (circle) Yes No

8. Does your father have a college degree (circle) Yes No

9. Do you have any siblings that have a college degree (circle) Yes No

Appendix G

INFORMED CONSENT

Predictors of Academic Performance and Major Selection:
Academic Self-efficacy as a Moderator Variable

Auburn University Montgomery – Department of Psychology
Kelly D. Schleismann – Graduate Student
Dr. Steven Elias – Faculty Advisor

You are invited to participate in a study of self-efficacy, test anxiety, task value, and academic performance. We hope to learn how these factors interact with each other. You were selected as a possible participant because of your enrollment in an undergraduate course at AUM.

If you decide to participate, you will complete several brief surveys that are designed to assess the variables of interest. All data will be collected from you at one point in time and the surveys should take approximately 25 minutes to complete. Participation in this study will result in no discomfort and should not inconvenience you in any way. There are no known risks associated with participating in this study.

Any information obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. Any information obtained in connection with this study will remain confidential. If you give me your permission by signing this document, I will not disclose the information you provide to anyone. However, the anonymous data you and others provide may be submitted for publication in a psychological journal.

Your decision whether to participate will not prejudice your future relations with Auburn University Montgomery and/or the Department of Psychology. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide later to withdraw from the study, you may also withdraw any information that has been collected about you.

If you have any questions, please ask now. If you have additional questions later, we will be happy to answer them. Should you have questions, please contact Kelly D. Schleismann at (504) 919-9873 or kdruhan@student.aum.edu. You may also contact Dr. Steven Elias at 244-3349 or selias@mail.aum.edu. You will be given a copy of this form to keep.

YOU ARE MAKING A DECISION WHETHER TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

Date_____ Time_____

Respondent's Signature_____

Print Name_____

Investigator's Signature_____