

THE INFLUENCE OF FEAR AND EFFICACY APPEALS ON MOTIVATION, TEST  
ANXIETY, AND TEST PERFORMANCE

by

Jeremy Draughn

March 2015

Director of Thesis: Dr. Nathaniel von der Embse, Ph. D., NCSP

Major Department: Psychology Department

Due to changes in accountability standards educators have begun to modify their teaching styles. A primary change that has occurred is that teachers often resort to using threat-based messages that focus on the negative consequences of test failure rather than messages highlighting a student's ability or expectation for high performance in an attempt to prepare students for a high-stakes exam. The present investigation examined how 487 undergraduate college students' anxiety and test performance were impacted by the use of fear and efficacy appeals during two exams with differing stakes. The way in which motivation influenced the relationship was also investigated. It was hypothesized that students exposed to fear appeals would exhibit lower performance and increased anxiety as moderated by decreased motivation when compared to participants exposed to efficacy appeals. Contrary to prediction, however, results indicate that while there are no differences between the two groups with regard to state or trait anxiety, participants exposed to efficacy appeals performed worse and reported higher state anxiety. Additionally, higher intrinsic motivation was related to higher anxiety and decreased performance. The potential implications of findings are discussed, including the importance of instructional context with regards to teacher instructional practices and student success.



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A Thesis

Presented To the Faculty of the Department of Psychology  
East Carolina University

In Partial Fulfillment of the Requirements for the Degree  
MA in School Psychology

by

Jeremy Draughn

March, 2015

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Jeremy Draughn

APPROVED BY:

DIRECTOR OF  
THESIS: \_\_\_\_\_

Nathaniel von der Embse, Ph.D., NCSP

COMMITTEE MEMBER: \_\_\_\_\_

Derrick Wirtz, Ph.D.

COMMITTEE MEMBER: \_\_\_\_\_

Brandon K. Schultz, Ed.D., NCSP

CHAIR OF THE DEPARTMENT  
OF PSYCHOLOGY: \_\_\_\_\_

Susan L. McCammon, Ph.D., CIP

DEAN OF THE  
GRADUATE SCHOOL: \_\_\_\_\_

Paul J. Gemperline, PhD

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## CHAPTER I: INTRODUCTION AND LITERATURE REVIEW

The use of high stakes testing to evaluate schools, teachers, and students has increased since the passage of the *No Child Left Behind Act* (NCLB, 2002). Currently, high stakes tests are used to determine whether students are acquiring the appropriate levels of proficiency. The implementation of high stakes examination practices were intended to increase student motivation thus increasing achievement (Jones, 2008). However, the use of such tests has resulted in several unintended consequences that directly and indirectly affect both teachers and students (Amrein & Berliner, 2003; Cawelti, 2006; Jones, 2008). These consequences include increased anxiety, loss of sleep, headache, and nervousness (Jones, 2008; Jones, Jones, Hardin, Chapman, Yarbrough & Davis, 1999). In addition, teachers report changing instructional practices due to concerns about student test performance, which contribute heavily to teacher evaluation (Amrein & Berliner, 2003; Cawelti, 2006; Jones, 2008). Students are affected in a number of ways due to modifications of teaching practices (Amrein & Berliner, 2003; Jones, 2008). These include lower academic motivation (Deci, Koestner, & Ryan, 1999; Sprinkle, Hunt, Simonds, & Comadena, 2006), increased test anxiety (Putwain, 2008), and decreased test performance (Putwain & Best, 2011).

The change in teaching style represents a shift to more controlling teaching methods (Pelletier, Seguin-Levesque, & Legault, 2002). Controlling teaching styles are characterized by attempts to control student behavior or force students to adopt certain ideas (Reeve, 2009). These methods include the frequent use of language that reminds students about the importance of exams and the consequences of failure (Putwain, 2008; Putwain & Symes, 2011). Such phrases are referred to as *fear appeals* within the education literature. Though intended to motivate students and increase performance, fear appeals have been linked with increased test anxiety

(Putwain & Best, 2011, 2012). Test anxiety refers to the appraisal of tests as threatening or anxiety provoking (Zeidner, 1998). Further, increased test anxiety is related to lower academic achievement (Hembree, 1988) and grade point average (GPA; Culler & Holahan, 1980; Chapell et al., 2005). In addition, there is evidence of a relationship between fear appeals and lower motivation (Sprinkle et al., 2006). The relationship between fear appeals and lower motivation represents a significant problem as academic motivation has consistently been linked to achievement and anxiety (Gottfield, 1985; 1990).

Research regarding the effects of fear appeals within the education literature is relatively new; however, there is a breadth of research regarding fear appeals in the health and communication context, which examines persuasive tactics to encourage people to engage in health behaviors (Witte & Allen, 2000). For example Witte (1992) proposed the Extended Parallel Process Model as a theory of how people respond to fear appeals. According to this model, the possible responses people may have to a fear appeal (non-response, danger control response, & fear control response) are based upon the interaction between their perceptions of the threat and their perceptions of efficacy to avoid the threat. Such frameworks suggest that, for threat-based messages (e.g., language constantly reminding students about failure) to be effective, they must be used in conjunction with efficacy statements (Witte, 1992). For example, Wong and Cappella (2009) conducted a study examining the importance of threat and efficacy messages to smokers who had high or low readiness to quit smoking. Their results indicated that although threat and efficacy were important to people with low readiness to quit, efficacy messages were most salient.

Researchers examining fear appeals in the education context have provided a number of studies examining the relationships between fear appeals, test anxiety, and test performance.

However, despite fear appeals being used as a motivational device, there are few studies that examine the influence of fear appeals on motivation. Additionally, there have been no studies that examine how an individual's level of motivation prior to being exposed to fear or efficacy appeals influences test anxiety and performance (Sprinkle et al., 2006). Recent studies suggest that students exposed to fear appeals report lower motivation than those exposed to efficacy appeals (Sprinkle et al., 2006). Additional studies have also provided evidence to suggest different outcomes related to different levels and types of motivation (Gottfield, 1985, 1990). The current study examined the relationship between fear appeals, efficacy appeals, test anxiety, motivation, and test performance on two exams with differing stakes (i.e., a chapter test versus a final exam). In addition, the current study examined whether individuals' level of motivation prior to an exam may impact their response to fear or efficacy appeals and their test anxiety and performance. The literature review that follows provides the background and rationale for the current study and research questions.

### **High Stakes Testing and Unintended Effects**

High stakes testing has become a central aspect of the American school system since the enactment of the *No Child Left Behind Act* (NCLB, 2002). Under NCLB, high stakes tests are the primary tool used to evaluate schools, teachers, and students (NCLB, 2002; Jones, 2008). More specifically, results from high stakes tests play a major role in significant decisions including student promotion, school funding, and teacher and principal retention (Jones, 2008). Although high stakes testing and related accountability practices are aimed at increasing student achievement, studies have reported unintended consequences including increased nervousness, anxiety, vomiting, headaches, and loss of sleep among both teachers and students (Jones et al., 1999; Hoffman, Assaf, & Paris, 2001; Amrein & Berliner, 2003; Cawelti, 2006).

In addition to the physical and psychological effects, research suggests that more controlling teaching styles have emanated from the increased use of high stakes tests (Pelletier et al., 2002; Ryan & Weinstein, 2009). Evidence would suggest this shift is due to teachers being judged by their students' performance and pressure from principals and other administrators (Pelletier et al., 2002; Jones, 2008). Changes in teaching style include narrowing curriculum to focus on tested material (e.g., math & reading), teaching by using more didactic and less creative methods, and neglecting individualized student needs (Hoffman et al., 2001; Amrein & Berliner, 2003; Cawelti, 2006). A study by Hoffman, Assaf, and Paris (2001) illustrated these effects. Hoffman and colleagues (2001) surveyed 750 teachers asking several questions regarding their views of the *Texas Assessment of Academic Skill* (TAAS) and its' effect on teachers, students, and instruction. Results indicated the majority of teachers did not favor the use of the TAAS. More specifically, teachers reported that the TAAS influenced the way they taught and the subjects they spend the most time teaching.

Similar results were reported when Centolanza (2004) conducted a study with 376 elementary and secondary school teachers. Participants reported that they neglected student needs, focused primarily on material related to the test, and taught using less creativity. In addition, recent studies provided evidence of increasingly frequent use of fear appeals, which refer to a variety of messages that repeatedly remind students about the importance of passing exams and the consequences of failure relating to high stakes tests (Putwain & Roberts, 2009). Fear appeals are intended to increase test performance by provoking students' fear of negative consequences (e.g., not graduating, not advancing to next grade level; Maloney, Lapinski, & Witte, 2011; Witte & Allen, 2000). Although the changes reported by teachers are aimed at increasing student performance and other appropriate behavior, research suggests that the

changes may be harmful (Kearney et al., 1985). By neglecting student needs, teaching to the test, and teaching using less creative methods, the use of fear appeals represents a potentially troubling development. Not only have fear appeals been consistently linked to negative outcomes (Putwain & Roberts, 2009; Putwain & Symes, 2011) but they also signify a negative trend regarding classroom management, which is one of the most essential elements to student success (Kearney et al., 1985).

Kearney, Plax, Richmond, and McCroskey (1985) stressed the importance of classroom management stating that the techniques used by teachers to alter and manage classrooms should be positive rather than negative. Urdan and Schoenfelder (2006) agreed stating that positive classroom management strategies are related to increased student motivation and autonomy. Despite recommendations against the use of negative messages, the evidence suggests utilization of fear appeals is increasing despite a strong link between negative messages, increased anxiety, and lower performance (Putwain & Roberts, 2012; Putwain & Symes, 2011).

### **Fear Appeals**

Kearney and colleagues (1985) state that classroom management is composed of classroom functions that promote an effective teaching environment. Student behaviors that impede the learning process should be minimized (Kearney et al.). One of the most important aspects of classroom management is the effective use of behavior alteration techniques (BATs; Kearney et al.). BATs include teacher language that is focused on promoting positive classroom behaviors and increasing student motivation. Further, BATs can include positive (i.e., efficacy appeals) or negative (i.e., fear appeals) language. Researchers have provided evidence to suggest the use of fear appeals is more frequently used with regard to teachers' attempts to motivate students (Putwain & Roberts, 2009). Fear appeals are intended to increase test performance by

provoking students' fear of negative consequences (e.g., not graduating, not advancing to next grade level; Maloney, Lapinski, & Witte, 2011; Witte & Allen, 2000). Furthermore, these messages in the classroom are typically used prior to high stakes exams (Putwain & Roberts, 2009). Although some believe that fear appeals are necessary to motivate students and foster healthy education habits, research suggests detrimental consequences including increased test anxiety (Putwain & Roberts, 2009; Putwain & Best, 2011), lower motivation (Sprinkle et al., 2006), and decreased performance (Putwain & Symes, 2011).

Despite the negative consequences, teachers continue to use fear appeals (Putwain & Roberts, 2009). Putwain and Roberts (2012) conducted a study regarding perceptions of fear appeals in the classroom. Participants included 234 teachers who agreed that students understood the importance of exams. Further, most teachers also agreed that students needed to be warned about the consequences of test failure and that warnings (i.e., fear appeals) could serve as motivation. Although teachers who believed in the motivation of fear appeals reported that they were more likely to use them, they also indicated they would be less likely to use them if they thought their messages were anxiety provoking. Although the study yielded significant results, it was based on teacher perceptions, which could be biased by a number of factors including their perception of student effort (Lowin & Craig, 1968) or personality traits (Reeve, 2009). Additionally, it was noted that the majority of participants taught at high achieving schools, which may have biased the views that were reported. For example, teachers at high achieving schools may have fewer struggling students, which makes them less likely to use fear appeals. Despite these limitations, the number of teachers engaging in fear appeals represented a significant issue because students who have been exposed to them report increased worry and stress related to testing (Putwain & Roberts, 2009). Further, student reports have led many

researchers to believe that a causal relationship exists between fear appeals and test anxiety though there have been no studies that directly test this theory (Putwain & Symes, 2011). Multiple studies have provided evidence that demonstrates a strong correlational relationship between fear appeals and test anxiety (Putwain & Roberts; Putwain & Symes). This signifies a serious problem as test anxiety has been linked to poor student performance (Putwain & Roberts; Putwain & Symes).

### **Fear Appeals and Test Anxiety**

Test anxiety refers to the inclination to appraise evaluative situations as threatening (Zeidner, 1998). Spielberger and Vagg's (1995) transactional process model suggested that students have both trait (i.e., personality characteristic) and state (i.e., situational) anxiety. According to the transactional process model, test anxious students have high trait anxiety in testing situations and, consequently, experience increased state anxiety (Spielberger & Vagg). As a result of increased state anxiety, students tended to experience increased worry and emotionality symptoms (e.g., increased heart rate, sweating), which compromised test performance.

More recent models of test anxiety integrate a biopsychosocial perspective (Engel, 2012; Lowe et al., 2007). According to Lowe and colleagues (2007) test anxiety results from the interaction of biological, psychological, and social factors as well as within-child variables that include socio-emotional functioning (Beidel & Turner, 1988), trait anxiety (Spielberger & Vagg, 1995), study skills and related habits (Cassady, 2004), and academic self-efficacy (McIlroy, Bunting, & Adamson, 2000). Researchers have suggested that 10 to 40 percent of students experience some level of test anxiety (Goonan, 2004; Cizek & Burg, 2006). Test anxiety is associated with lower academic performance (Hembree, 1988) and GPA (Culler & Holahan,

1980; Chapell et al., 2005). A meta-analysis of 562 studies on test anxiety in American students from elementary to college was completed by Hembree (1988). Results indicated that academic performance was impacted negatively at every educational level. In addition, Putwain (2008) reported exam importance as a predictor of test anxiety and performance.

The effects of test anxiety on academic performance represent a significant issue as multiple studies have reported strong correlations between the use of fear appeals and test anxiety (Putwain & Roberts, 2009; Putwain & Symes, 2011; Chamberlain, Daly, & Spalding, 2011). Increases in anxiety were reported in a study by Putwain (2008) examining assessment and examination stress in secondary school students. Survey and interview data from 34 students attending secondary school revealed that students experienced increased pressure from the repeated reminders by teachers to do well on exams (i.e., fear appeals). Additionally, it was noted that the reminders about doing well and the implications on future success could cause them to exhibit increased worry and stress. Putwain and Roberts (2009) provided additional support for the relationship between test anxiety and fear appeals. The researchers created a questionnaire (*Teachers' Use of Fear Appeals Questionnaire*; TUFAQ) to examine students' perceptions of teachers' use of fear appeals. Their results indicated that students who perceived fear appeals as threatening reported more test anxiety symptoms and increased frequency and severity of fear appeals. Although the previously mentioned studies provide evidence to support a relationship between fear appeals and test anxiety, the data are based on survey, interview, and questionnaire information and, therefore, do not provide evidence to suggest a causal relationship. The studies do, however, provide valuable qualitative information regarding teacher and student views of fear appeals.



Conversely, a study conducted by Putwain and Best (2011) employed an experimental design to examine the relationship between fear appeals and test anxiety. The primary goal of the study was to demonstrate how fear appeals lead to lower performance as a result of test anxiety. The study included 40 students from third through sixth grades. Two conditions were created, a low threat condition and a high threat condition. The low threat condition employed the use of daily reminders about a test at the end of the week but did not put any emphasis on results. The high threat condition, conversely, included multiple fear appeals (i.e., one at beginning, middle, and end of math lessons) that reminded the students to study because their tests were important and would be seen by their parents and the head teacher. In each condition, a math test was taken at the end of the week, and measures were collected immediately following the tests. Results indicated significant increases in the perceived frequency and threat of fear appeals in the high threat condition. Additionally, a large increase was noted for worrisome thoughts and a moderate increase was reported for autonomic arousal in the high threat condition. Although increases in test anxiety were reported, it was noted that the increase in test anxiety was not attributable to the use of fear appeals based on the analytic rationale by Judd, Kenny, and McClelland (2001) regarding mediational analysis of within-participant designs. Also, Putwain and Best (2011) noted that their instrumentation may not have been optimal for capturing changes in student anxiety levels.

Putwain and Best (2012) further examined the relationship between fear appeals and test anxiety. The researchers investigated whether fear appeals were perceived differently by high test anxious students as opposed to low test anxious students. They hypothesized that, while all participants (e.g., high & low test anxious) would experience increased state anxiety when exposed to fear appeals following a test, high test anxious individuals would experience the

highest levels of test anxiety. A mixed design was utilized to test the hypotheses. The design included one between-participant factor (low vs. high trait test anxiety) and one within-participant factor (low vs. high fear appeals). In the high fear appeal condition participants were reminded once at the beginning and end of a daily lesson that (1) tests were important, (2) hard work was required, and (3) test results would be seen by parents and head teachers. In the low fear appeals condition, on the other hand, participants were reminded that there was a test but there were no mention of the importance or consequences of failure.

Participants included 39 students who ranged from grades three through six (i.e., ages 7-11). The experiment was conducted over a two week period and utilized a counterbalanced design with the third and fifth grade students in the low fear appeal condition first and the fourth and sixth grade students in the high fear appeal condition first. Results suggested that high test anxious students perceived fear appeals to be more severe and to occur more frequently than low test anxious students. Also, participants reported higher state anxiety and scored lower on the math test in the high fear appeal condition. Further, there were no significant differences between the groups when exposed to the low fear appeal condition.

Overall, the studies that have been conducted suggest a significant relationship between fear appeals and test anxiety; although a causal relationship has yet to be confirmed. Researchers suggest that teachers view fear appeals as a necessary tool in certain situations (Putwain & Roberts, 2012). Further, the studies revealed that students with higher trait levels of anxiety tend to perceive fear appeals as being more severe and frequent (Putwain & Best, 2011). Although the majority of research has evidenced a link between fear appeals, increased test anxiety, and lower test performance, the relationship between fear appeals and motivation has received significantly less attention, despite fear appeals being used as a motivational device.

## **Fear Appeals and Motivation**

Although the effects of fear appeals on motivation has not been empirically studied, evidence from studies examining teaching behaviors has demonstrated a linked between controlling teaching behaviors (e.g., fear appeals, forcing students to think a certain way) and increased extrinsic motivation (Ryan & Weinstein, 2009). Extrinsic motivation refers to engaging in a task for its instrumental value or engaging in a task in order to gain something in return (Ryan & Weinstein). An example of an extrinsic motivator would be doing your math worksheet to get free time on the computer. In this example, an individual is engaging in the activity only to gain free time on the computer (i.e., reward). Based on the previous example, fear appeals represent a facilitator for extrinsic motivation as they orient students toward passing exams so that students make it to the next grade, which would be an extrinsic reward (Ryan & Weinstein). Although students who are extrinsically motivated perform well at times, they tend to only put forth the minimal amount of effort necessary to complete a task (Ryan & Weinstein; Lei, 2010), experience increased anxiety (Lei), and may stop performing if reinforcement stops (Lei). Further, extrinsic motivation has been reported as undermining intrinsic motivation (Deci et al., 1999; Ryan & Weinstein, 2009).

Alternately, intrinsic motivation refers to engaging in a task for its own sake or for the pleasure derived from one's performance on a task (Deci, Vallerand, Pelletier, & Ryan, 1991). Intrinsic motivation is believed to support autonomy (Reeve, 2009). One component related to supporting autonomy in the classroom is providing choices for how to prepare for and accomplish assignments (e.g., efficacy appeals; Urdan & Schoenfelder, 2006; Reeve, 2009). Whereas extrinsic motivation has been associated with negative consequences, intrinsic motivation has been consistently linked to several positive outcomes including increased

achievement and decreased anxiety (Gottfield, 1985, 1990; Lei, 2010; Areepattamannil, Freeman, & Klinger, 2011; Niehaus, Rudasill, & Adelson, 2012).

Evidence for this relationship is demonstrated in a study by Gottfield (1985). Gottfield examined the relationship between intrinsic motivation, anxiety, and achievement in seventh grades students. Results suggested a negative relationship between intrinsic motivation and anxiety and a positive correlation between intrinsic motivation and achievement. Despite evidence to suggest the positive outcomes relative to increased intrinsic motivation, the relationship between fear appeals and motivation has received very little attention.

In one study examining motivation in students exposed to fear appeals, lower motivation was reported (Sprinkle et. al., 2006). Conversely, students exposed to efficacy appeals, which refer to messages that provide strategies for how to avoid aversive stimuli, reported higher levels of motivation (Sprinkle et al.). An additional study by Putwain and Remedios (2014), which examined the relative influence of fear appeals as predictive of both motivation and academic performance, provided evidence to suggest that the relationship between fear appeals and educational performance was partially mediated by lower intrinsic motivation. Further, the authors conclude that the effects of fear appeals may be partially explained by intrinsic motivation and test anxiety, although further research is necessary to determine the extent and mechanism by which they influence educational performance.

Although the education literature has provided relatively little attention to the uses and impacts of efficacy appeals, the health and communication literature has provided frameworks demonstrating the significance of efficacy appeals (Maloney et al., 2011). One such framework is the Extended Parallel Process Model, which states that efficacy appeals are an important component to the acceptance of appeals (Witte, 1992).

## **Efficacy Appeals and the Extended Parallel Process Model**

There is a breadth of research in the health context regarding fear appeals that spans more than 50 years (Witte & Allen, 2000). The literature is primarily concerned with promoting safe health practices such as smoking cessation and safe sex (e.g., Wong & Capella, 2009; Witte & Morrison, 2009). Research regarding the use of fear appeals in the health context has also provided researchers with valuable conceptual frameworks that can be used to determine the results of fear appeals and what is necessary for increased message acceptance (Maloney et al., 2011; Witte & Allen, 2000). The EPPM is one such framework (Witte, 1992; Witte & Allen; Maloney et al., 2011). According to the EPPM, in order to predict the response an individual will have to a fear appeal, the two constructs are assessed, threat and efficacy (Witte, 1992). Threat is defined as a danger or harm in the environment that one may or may not be aware of (Witte, Cameron, McKeon, & Berkowitz, 1996). Efficacy, conversely, refers to how capable a person is of performing the recommended actions that are necessary to avoid a threat (Witte, 1992). An example of a message with threat and efficacy components in the classroom would be, “study for the exam or else you will likely fail.” The threat component would be failing and the efficacy component would be studying. According to the EPPM, however, the threat or efficacy itself is not what predicts the response, but the perception of each.

There are two elements of threat perception and two elements of efficacy perception that must be investigated. For threat perceptions, the two components are perceived susceptibility and perceived severity (Witte, 1992). The former refers to how likely an individual may be to experiencing the threat (e.g., students who may be failing already are more likely to experience the threat), whereas the latter refers to concerns about how impactful the threat is (e.g., failing may cause retention). Conversely, for efficacy perception, the two aspects are perception of self-

efficacy and perceived response efficacy. Perception of self-efficacy refers to the belief about one's ability to execute the recommended action (e.g., necessary time and skill to study) whereas perceived response efficacy refers to how effective an individual believes the recommended action is in averting the threat (e.g., studying will help the student pass; Witte).

According to the EPPM, there are three responses that result from exposure to a threat: non-response, danger control response, and fear control response (Maloney et al., 2011). The response that a person displays is based on the appraisal of the threat (Witte et al., 1996). The appraisal of the threat refers to deciding whether a threat is severe enough and if the individual is susceptible enough to engage in an action to avoid the threat. Non-response (i.e., not performing an action to avoid the threat) results from the appraisal of a threat as not high enough to illicit fear to cause an individual to carry out an action to avoid the threat (Witte, 1992). For example, if a student does not have a fear of failing a test, they will not appraise the threat as severe enough, thus they will not study.

Danger control responses (i.e., performing the recommended action) result from the appraisal of a threat as highly fear evoking, thus causing the individual to assess their ability to engage in the recommended actions to avert the threat (efficacy appraisal). If individuals believe they have the necessary efficacy to perform the recommended actions, a danger control response would be exhibited (Witte, 1992). An example of a danger control response would be studying for an exam because the students are worried that they may fail the test and they believe they have the necessary study skills for successful studying. Last, fear control responses are coping responses such as avoidance or denial. These responses result from appraisal of a threat as high and appraisal of efficacy to perform the recommended action as low (Witte). For example, a teacher tells students to make sure they pass an exam because if they do not they may fail the

class. The students experience increases in anxiety and worry as a result because they do not believe they can pass the exam. A study by Putwain and Symes (2014) corroborates these responses via a study examining student efficacy appraisals when exposed to fear appeals. Results indicated that students appraised fear appeals as challenging when attainment value and self-efficacy was high. Conversely, when students appraised messages to be meaningful but had low self-efficacy (i.e., did not expect to perform well) they appraised messages as being threatening.

Based on the EPPM and the study conducted by Putwain and Symes (2014), efficacy appears to be an essential element related to the perception of persuasive messages and their acceptance. There are only a few studies, however, that have used the EPPM within the educational setting. Sprinkle et al. (2006) examined whether college students would exhibit increased motivation when exposed to fear appeals and efficacy appeals.

The study involved 226 undergraduate college students enrolled in a basic communication course. Four conditions were created (i.e., fear and efficacy appeals, fear appeals alone, efficacy appeals alone, none) and each participant received a survey with one of the four conditions. Participants were told to imagine they had just given an informative speech and the survey was their professor's feedback. They utilized a measure of state motivation as well as a measure of participants' attitudes towards the course, and participants' likelihood of visiting the professor or take another course with them. Results indicated that the efficacy alone condition reported the highest levels of state motivation. Students in the efficacy and fear appeals condition reported the next highest ratings in all areas. The fear appeal condition yielded the lowest ratings of state motivation.

The Sprinkle and colleagues (2006) study had several notable limitations. First, the exposure to the conditions were based on a hypothetical scenario, therefore the exposure to conditions did not replicate the typical classroom environment. Further, with participants being exposed to conditions through a survey, several other variables were ignored such as frequency of appeals, current grades, and previous exposure to appeals. Finally, the researchers did not specify which types of motivation were targeted and why. Previous research typically focuses on how motivation affects performance through extrinsic or intrinsic means. Overall, the study provided evidence to suggest efficacy appeals can yield positive outcomes whether used alone or with fear appeals.

### **Present Study**

The majority of the research regarding fear appeals has examined its relationship with test anxiety providing evidence to suggest that fear appeals and test anxiety are associated (Putwain & Best, 2011). Further, increased test anxiety has been linked to lower motivation and achievement (Hembree, 1988; Gottfield, 1985, 1990). Efficacy appeals, which the EPPM suggest are necessary for message acceptance, have received far less attention despite data to suggest an association with higher motivation (Sprinkle et al., 2006). Further, research regarding intrinsic motivation suggests positive outcomes including higher achievement and lower anxiety (Gottfield, 1985, 1990).

The current study aimed to examine how exposure to fear or efficacy appeals affect student test anxiety, motivation, and test performance. However, in addition to examining how fear or efficacy appeals directly affect each variable, the current study also examined how participants' varying motivation styles influenced test anxiety and performance. There has been a breadth of research demonstrating a relationship between fear appeals, increased test anxiety, and



decreased test performance (Putwain & Roberts, 2009). Additionally, research has provided some evidence to suggest a relationship between efficacy appeals and higher motivation (Sprinkle et al., 2006). Based on the findings of previous research, it was expected that students exposed to fear appeals would exhibit increased levels of anxiety and decreased test performance, whereas, students exposed to efficacy appeals prior to an exam would perform better due to increased motivation and decreased anxiety levels. Finally, because previous research has shown a link between motivation and its relationship with test anxiety and performance, it was expected that the participants level of intrinsic and extrinsic motivation would influence how the fear or efficacy appeal affected them and, as a result, their test anxiety and performance. Thus, the current study examined whether motivation moderates the relationship between fear or efficacy appeals and test anxiety and performance. The research questions were as follows:

1. What influence will the conditions (fear/efficacy) have on test performance?
2. What influence will the conditions (fear/efficacy) have on test anxiety (trait, state)?
3. Will the aforementioned relationships differ depending on students' motivation style (extrinsic versus intrinsic)?

## CHAPTER II: METHODS

### Participants

Participants included 487 (male  $n = 200$ ) undergraduate students who were enrolled in two sections of an introductory psychology course at a university in the southeastern United States. The mean age for the participants was 22 years old. The introductory psychology course was required for all undergraduate students. Students were recruited to participate by offering extra credit towards their final course grade. A total of 245 students were in the fear appeals condition and 242 students were in the efficacy appeals condition.

### Measures

**Trait Test Anxiety.** The *Brief FRIEDBEN Test Anxiety Scale* (B-FTAS) was used to measure participant test anxiety. The B-FTAS is a shortened version of the *FRIEDBEN Test Anxiety Scale* (FTAS; Friedman & Bendas-Jacob, 1997), intended for use as a brief screener of test anxiety (von der Embse, Kilgus, Segool, & Putwain, 2013). The B-FTAS includes 12 items in comparison to 23 items on the FTAS. The FTAS measures test anxiety through three subscales, including social derogation, cognitive obstruction, and tenseness. Social derogation is related to anxiety levels relative to social sources (e.g., *If I fail a test I am afraid I shall be rated as stupid by my friends*), cognitive obstruction aims at measuring the impacts of test anxiety on thought processes (e.g., *During a test my thoughts are clear and I neatly answer all questions*), and tenseness measures the physiological symptoms of test anxiety (e.g., *I am very tense before a test, even if I am well prepared*). The FTAS has internal consistency ranging from .81 to .86 and .91 for the total scale. Additionally, concurrent validity with the *Test Anxiety Inventory* (TAI) has been reported (.82 to .84). Similarly, the B-FTAS has been found to have inter-item correlations ranging from .59 to .61 and alpha coefficients ranging from .81 to .88 (von der Embse et al.,

2013). Furthermore, confirmatory factor analysis supported the hypothesized factor structure of the B-FTAS.

**State Anxiety.** The *Brief State-Trait Anxiety Inventory* (B-STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) was used to measure state anxiety. The B-STAI is a six item measure of state anxiety. State anxiety refers to worry, apprehension, and tension that an individual feels at the present moment while trait anxiety refers to the amount of anxiety that is typically experienced across time and situations. The STAI has median alpha coefficients of .92 and .90 for the State and Trait scales, respectively (Spielberger et al., 1983). Furthermore, both scales have item remainder correlation coefficients consistently above .90 (Spielberger et al.). Marteau and Bekker (1992) conducted two studies to identify and validate a shortened version of the STAI. Results indicated 4, 6, 8, and 10 item scales all had correlations above .90 with the full STAI. In the second study, data supported a 6-item scale with a reliability coefficient of .82 whereas the 20-item scale had a reliability coefficient of .91; results demonstrated acceptable reliability for the 6-item scale (Marteau & Bekker).

The B-FTAS and B-STAI were chosen for their psychometrics and their brevity because we prioritized quick, accurate measurement to avoid taking time from the exam period (Friedman & Bendas-Jacob, 1997; von der Embse et al., 2013; Spielberger et al., 1983; Marteau & Bekker, 1992). The chosen scales provided estimates of participant trait and state anxiety levels, allowing further discrimination of effects.

**Motivation.** The *Academic Motivation Scale* (AMS) was used to measure participant intrinsic and extrinsic motivation (Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992). The AMS is a 28 item self-report scale that is divided into seven subscales. Three subscales measure intrinsic motivation (i.e., to know, toward accomplishment, to experience stimulation),

three subscales measure extrinsic motivation (i.e., identified, introjected, external regulation), and the last subscale measures amotivation. The AMS has a mean alpha value of .81 for internal consistency, a mean test-retest correlation of .79, and a confirmatory factor analysis that supports factor loadings (Vallerand, Blais, Briere, & Pelletier, 1989). The wording of AMS was slightly modified to better suit the experimental procedures. The extrinsic motivation measure was derived from questions 1, 3, 7, 8, 10, 14, 15, 17, 21, 22, 24, and 28. The intrinsic motivation measure was derived from questions 2, 4, 6, 9, 11, 13, 16, 18, 20, 23, 25, and 27. The amotivation subscale was not utilized.

### **Materials and Procedures**

The current study utilized a quasi-experimental design with random assignment to one of two conditions by classroom: fear appeals or efficacy appeals. In each condition, participants' test anxiety and motivation was assessed prior to examination and collected afterward along with test scores. University IRB approval was obtained (Appendix A). All participants were provided with a consent form one week prior to the last chapter test in their college course. The consent form included information about the current study and opt-out procedures (Appendix B). The fear appeal condition required the professor/TA to remind students about the consequences of not passing exams and how much the exams are worth (i.e., Consequence Script). The efficacy condition used language aimed at motivating students and providing information for how to be successful on exams (i.e., Efficacy Script). The language that was used in each condition was based on pilot data from professors and students.

Scripts were read to participants at the beginning of class a week before the last chapter test and the final exam and the day of the last chapter test and final exam. On the last chapter test and final exam test days, scripts were read before the exam and survey/rating scale packets were

distributed. After class ended the script was displayed as an announcement on a university course website and remained there for the rest of the week until the exam. The professor and his teaching assistants (TAs) were provided with the scripts to be used a week before and the day of the exam. There were two scripts, one for the fear appeals condition (see below), which communicated the importance of the exam (e.g., “It is very important that you pass this exam as it is worth 25 percent of your grade;” Appendix C). The second script was for the efficacy condition and used language that was designed to help motivate students and reduce anxiety by providing strategies to reduce the likelihood of failure (e.g., “I expect that you will all do very well on the exam you are a very bright group of students and there is nothing on the exam that has not been covered;” Appendix D).

Both scripts were created from language examples gathered from professors and students (Appendix E). The researcher observed the classes when the professor read the scripts to ensure treatment integrity. The B-FTAS (Appendix F), B-STAI (Appendix G), and AMS (Appendix H) were provided to students before the exam. The scripts provided specific language to be used when describing the study and when each assessment was to be distributed. All the surveys and scales were packaged together with a cover sheet (Appendix I) on the front. The cover sheet was used to match student survey and rating scale information with their exam scores while protecting participant confidentiality.

The Consequence condition emulated language used by professors in the classroom to inform students of the importance of exams and the consequences of failure. Pilot research examining the language used by teachers (e.g., “It is very important that you pass the exam as it is worth 25 percent of your grade”) suggested that the importance of passing and the consequences of failure are frequently expressed to students (Putwain, 2009). Putwain and Best

(2011) reported that students experienced increased frequency and severity of language (importance of passing tests, the consequences of failure) prior to a high-stakes test. This condition examined the influence of similar language on student performance and test anxiety.

The efficacy condition was used to mimic language that is used to motivate students and prepare them for tests (e.g., “I will do anything I can to help you earn a good grade including meeting with you and providing suggestions for studying”). Research examining the use of efficacy statements and their effects has demonstrated an increase in student motivation (Sprinkle et al., 2006). The current study used language similar to that used in the study by Sprinkle et al. (2006), providing students with strategies to increase their chances of passing. By doing so, participant motivation levels are expected to increase and their test anxiety levels are expected to decrease resulting in better test performance.

The final exam made up 25 percent of the participants’ grade, and each chapter test accounted for approximately five percent of the total grade. Chapter tests consisted of 15 to 20 questions based upon one or two chapters of content and took approximately 15 minutes to complete. During the chapter test, participants would be in breakout groups. Each breakout group consisted of 20 to 25 students. Although students were in breakout groups they were still in their assigned condition, which was determined by course section. During the final exam, participants were not in breakout groups and took the exam as a whole class with their respective sections. The final exam was administered at the end of the semester and counted for 25 percent of the participants’ grades. It covered seven to eight chapters and included 50 questions that took approximately 50 to 55 minutes to complete.

After the exams had been completed, the professor de-identified the test scores and rating scales. Rating scales had a cover sheet (Appendix I) for students to provide their name to be

matched to their test and later de-identified by the professor. To de-identify the tests and rating scales the professor input the grades into a Microsoft Excel spreadsheet, paired the participants' test with their rating scale, then erased all names. After names had been erased they were be replaced with numbers (i.e., 1-500). Once all data were de-identified they were sent to the experimenters for analysis.

## CHAPTER III: RESULTS

### Descriptive Statistics

**Exam Scores.** Table 1 provides means, minimums, maximums, and standard deviations for the exam scores. The following exam scores were reported for Chapter Test 6 and the final exam with regard to their respective conditions. Scores had a possible range from 0 to 100. For the consequence group the scores for Chapter Test 6 ranged from 30 to 105 ( $M = 80.90$ ,  $SD = 16.36$ ). Their scores from the final exam ranged from 42 to 100 ( $M = 76.23$ ,  $SD = 11.89$ ). For the efficacy group the chapter test 6 ranged from 25 to 105 ( $M = 75.32$ ,  $SD = 17.49$ ). Final exam scores ranged from 38 to 100 ( $M = 75.27$ ,  $SD = 13.01$ ).

**BFTAS.** Table 2 provides descriptive statistics for the BFTAS ratings. Scores on the BFTAS trait anxiety measure range from 12 to 72. The scores for the participants in the consequence condition ranged from 12 to 72 ( $M = 35.46$ ,  $SD = 10.71$ ) during the first administration. During the second administration participant scores ranged from 12 to 64 ( $M = 39.41$ ,  $SD = 10.27$ ) for the consequence condition. Conversely, for the efficacy condition, scores ranged from 14 to 65 ( $M = 36.13$ ,  $SD = 10.27$ ) for the first administration and 12 to 65 ( $M = 39.70$ ,  $SD = 10.01$ ) during the second. The descriptive data for the BFTAS suggests minor changes in trait anxiety levels across conditions and exams.

**AMS.** Means, minimums, maximums, and standard deviations are reported below in Table 3. Scores on the AMS intrinsic and extrinsic motivation measure ranged from 12 to 84 for each scale. The range for the consequence group with regard to intrinsic motivation ranged from 12 to 84 ( $M = 48.76$ ,  $SD = 14.28$ ) for the first and second administration ( $M = 47.51$ ,  $SD = 14.73$ ). For the efficacy condition, intrinsic motivation ratings ranged from 13 to 84 ( $M = 48.80$ ,  $SD = 12.78$ ) for the first and second administration ( $M = 46.47$ ,  $SD = 13.59$ ). Extrinsic ratings for



the consequence group ranged from 21 to 83 ( $M = 63.54$ ,  $SD = 12.01$ ) for the first administration and 12 to 84 ( $M = 58.26$ ,  $SD = 14.08$ ) for the second. For the efficacy group scores ranged from 16 to 84 ( $M = 61.64$ ,  $SD = 11.48$ ) for the first administration and 20 to 84 ( $M = 57.33$ ,  $SD = 13.10$ ) for the second. The scores indicate higher levels of intrinsic motivation for the consequence group for Chapter Test 6 while the efficacy group reported higher levels for the final exam. Further, the consequence group reported higher extrinsic motivation than the efficacy group for both tests.

**BSTAI.** Table 4 provides means, minimums, maximums, and standard deviations for BSTAI ratings. The BSTAI was used to measure state anxiety and the range of scores possible ranged from 6 to 24. For the consequence condition's first administration scores ranged from 6 to 23 ( $M = 12.52$ ,  $SD = 4.13$ ) and 6 to 24 for the second ( $M = 13.30$ ,  $SD = 4.21$ ). The efficacy condition's also ranged from 6 to 24 for the first administration ( $M = 12.29$ ,  $SD = 3.98$ ) and also the second ( $M = 12.91$ ,  $SD = 4.19$ ). The descriptive data for the BSTAI indicates that the students in the consequence group reported slightly higher state anxiety than students in the efficacy condition for both exams. Additional data by condition (EA or FA) and test (chapter or final) for the BFTAS, AMS, and BSTAI are included in Table 1.

**Table 1***Descriptive Data for Anxiety, Motivation, and Test Performance*

Condition	Assessment	Chapter Test					Test Condition Final Exam			
		Scale	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>M</i>	<i>SD</i>	Skew	Kurtosis
FA	BFTAS	Total	35.46	10.71	-0.93	0.42	39.41	10.27	-0.15	-0.24
		SD	13.20	6.22	-0.21	-0.57	12.44	5.98	0.63	-0.03
		CO	12.38	4.27	0.27	-0.17	17.52	4.65	-1.00	0.64
	BSTAI	PT	9.97	3.89	0.62	-0.16	9.44	3.96	0.24	-0.76
		Total	12.52	4.13	0.16	-0.03	13.30	4.21	0.21	-0.24
		AMS	IM	48.76	14.28	0.14	-0.72	47.51	14.73	-0.14
	Chapter Final	EM	63.54	12.01	0.40	-0.38	58.26	14.08	-0.54	-0.01
		Total	80.90	16.36	-0.93	0.42				
		Total					76.23	11.89	-0.21	-0.57
EA	BFTAS	Total	36.13	10.27	0.35	-0.11	39.70	10.01	-0.28	-0.17
		SD	12.98	5.68	0.59	-0.20	12.92	5.79	0.50	-0.17
		CO	12.95	4.18	0.00	-0.12	17.42	4.63	-0.93	0.83
	BSTAI	PT	10.16	4.00	0.17	-0.83	9.43	4.06	0.34	-0.57
		Total	12.29	3.98	0.59	0.09	12.91	4.19	0.29	-0.36
		AMS	IM	48.81	12.78	-0.11	0.09	46.47	13.59	0.31
	Chapter Final	EM	61.64	11.48	-0.60	0.65	57.33	13.10	-0.15	-0.45
		Total	75.32	17.49	-0.50	-0.40				
		Total					75.27	13.01	-0.33	-0.48

*Note.* BFTAS=Brief FRIEDBEN Test Anxiety Scale, SD=Social Derogation, PT= Physiological Tenseness,

CO=Cognitive Obstruction, BSTAI= Brief State-Trait Anxiety Scale, AMS=Academic Motivation Scale,

IM=Intrinsic Motivation, EM=Extrinsic Motivation.

## Research Questions

**Research Question 1:** What main effect will the conditions (fear, efficacy) have on test performance (chapter, final)? Previous research has provided evidence to suggest a negative relationship between test anxiety and test performance (Hembree, 1988). In addition, Putwain and Best (2011, 2012) have conducted studies which demonstrate a relationship between fear appeals and test anxiety. Conversely, efficacy appeals have been demonstrated to be related to higher motivation (Sprinkle et al., 2006), which has been linked to increase achievement and decreased anxiety (Gottfield, 1985, 1990). Further, a study by Putwain (2008) suggests exam

stakes and test anxiety as being predictors of test performance. Based on support provided by the aforementioned studies it was hypothesized that students in the consequence condition would display lower test performance whereas students in the efficacy condition were expected to yield better test performance.

A two-way mixed analysis of variance (ANOVA) was conducted to analyze the influence of the conditions on test performance. The chapter test and final exam (i.e., Exam) were input as the within subjects variables and the conditions (consequence, efficacy) were input as the between subjects variable. The assumption of equal error variance was met as Levene's Test of Equality of Error Variances indicates homogeneity across all repeated-measures variables. Also, Box's Test of Equality of Covariance Matrices was not significant indicating equality. Results indicated a significant main effect of condition,  $F(1, 455) = 5.29, p < .05$ . This suggests that participants' test performance differed across conditions with the participants in the consequence group earning higher scores on both exams. There was also a significant main effect of the exam,  $F(1, 455) = 13.13, p < .05$ , which suggests that there was a significant difference in exam performance across the two exams. Finally, there was a significant interaction effect of Exam x Condition,  $F(1, 455) = 9.48, p < .05$ , which indicates that the performance of the participants in the consequence group across the two exams significantly differed from the performance of the participants in the efficacy group across the two exams. Both groups performed worse on the final exam than test six; however, the participants in the fear appeals condition had higher scores on both exams, but suffered a larger decline in scores between the chapter test and the final exam.

**Research Question 2:** What influence will the conditions (fear/efficacy) have on test anxiety (trait/state)? Previous research suggests a relationship between fear appeals (i.e.,

consequence) and increased test anxiety (Putwain & Best, 2011, 2012). Efficacy appeals, conversely, have not been researched with regard to test anxiety. Based on the aforementioned studies, it was hypothesized that students exposed to the consequence condition will experience increased test anxiety and students exposed to the efficacy condition will experience decreased test anxiety.

To address the second research question regarding the influence of the conditions on test anxiety (trait, state), an independent samples t-test was conducted. The two administrations of the BFTAS and BSTAI were input as the test variables and the condition was input as the grouping variable. The results indicated that there were no significant differences between the groups with regard to trait anxiety (i.e., BFTAS) for the first,  $t(405) = -.52, p > .05$ , or second,  $t(430) = -.29, p > .05$ , administration. The results suggest that although, on average, participants had greater trait anxiety in the efficacy condition, there were no significant differences between the two groups for either exam. Additionally, there were no significant differences between the two groups for state anxiety at either exam,  $t(400) = .65, p > .05$ ;  $t(426) = .36, p > .05$ . These results indicate that the difference between the two groups was not significant even though the consequence group reported greater state anxiety than the efficacy group during both exams.

**Research Question 3:** Will the aforementioned relationships differ based on moderation from motivation (extrinsic versus intrinsic)? Researchers have suggested a relationship between intrinsic motivation, decreased anxiety, and increased achievement (Gottfield, 1985, 1990). Alternately, extrinsic motivation may be related to decreased effort and increased anxiety (Ryan & Weinstein, 2009; Lei, 2010). It is hypothesized that students in the fear condition will experience increased test anxiety and lower performance only when their academic motivation is

primarily extrinsic, whereas participants in the efficacy condition will yield decreased anxiety and increased test performance when their academic motivation is primarily intrinsic.

To address the third research question a simple moderation analysis was conducted. The two conditions were analyzed separately. The variables were input one dependent, independent, and moderator at a time creating sixteen separate analyses. State and trait anxiety were used as separate independent variables, chapter test and final exam scores were used as separate dependent variables, and intrinsic and extrinsic motivation were used as separate moderator variables. Results indicated a significant moderation effect of intrinsic motivation on state anxiety and final exam performance for students in the consequence group,  $t(221) = -2.59, p < .05$ . The results suggested that the significance of the relationship between state anxiety and test performance was stronger for low and high levels of intrinsic motivation while the relationship was non-significant at average levels of intrinsic motivation. Further, as intrinsic motivation decreased the relationship between anxiety and performance became more positive, however, as intrinsic motivation increased the relationship became increasingly more negative. State anxiety also moderated the relationship between efficacy appeals and chapter test six,  $t(196) = -2.05, p < .05$ . The results also suggested that the relationship between state anxiety and test performance became increasingly more negative as intrinsic motivation increased. There were no other significant relationships.

## CHAPTER IV: DISCUSSION

The goal of the current study was to examine the influence of teacher language on student performance and anxiety, while also examining whether motivation was a moderator for the aforementioned relationships. Four hundred and eighty-seven students from East Carolina University were recruited to participate in the study. The participants were randomly assigned to two groups, one to examine language that emphasized consequences and the other emphasized strategies to increase chances for success on the exams. Participants' anxiety, motivation, and test performance were analyzed to gather information regarding the relationships between the three variables and the two different conditions. Previous research has primarily focused on the relationship between language that emphasizes the consequences of failure (i.e., fear appeals) and test anxiety (Putwain & Best, 2011) rather than language that provides strategies to increase the likelihood of success (i.e., efficacy appeals; Sprinkle et al., 2006). Further, research suggests a strong relationship between fear appeals and test anxiety (Putwain & Best, 2011); however, the relationship between efficacy appeals and test anxiety had yet to be examined. Moreover, even fewer studies have investigated the fear and efficacy appeals as they related to motivation.

Based on information from previous studies, it was hypothesized that participants in the consequence condition would experience more anxiety and, as a result, perform worse on the exam while participants in the efficacy condition experience the opposite effect. The hypothesis, however, was not supported. Although the groups performed significantly different on the exams across conditions, there were no significant differences between the groups with regard to trait or state anxiety. Further, the efficacy group performed worse and reported greater state anxiety than the consequence group on both exams despite having slightly lower trait anxiety. However, the consequence group displayed a significantly larger decline in performance from chapter test 6 to

the final exam. These results indicated that fear appeals did not negatively influence the students in the consequence group until the stakes were increased. Conversely, efficacy appeals did not seem to have a positive impact on students regardless of the exam stakes. It is possible that the differences in the two exam scores were due simply to the difference in difficulty. The chapter test had significantly less information and was shorter than the final exam. This would explain why both groups displayed a decline from chapter test to the final exam. In terms of the differences between the two groups, one possible explanation is that participants in the consequence group performed better due specifically to the potential anxiety inducing effect of the fear appeals. Repeatedly reminding the participants about the importance of the exam may have caused the participants in the consequence condition to study harder to avoid failure thus resulting in better performance. Whereas the consequence group may have performed better due to the consequences of failure being stressed, participants in the efficacy condition may have studied less due to the lack of messages stressing consequences.

Previous research suggests an increase in anxiety related to fear appeals (Putwain & Robert, 2009; Putwain & Best, 2011) and an increase in motivation related to efficacy appeals (Sprinkle et al., 2006), however, the results of the current study are the opposite. The results may be related to the difference in participant age with fear appeals and a difference in the type of assignment for the efficacy appeals condition. Previous studies involving fear appeals most commonly use school-aged children as participants rather than college students. As a result, the interpretation of the messages may be completely different. Regarding efficacy appeals, in the study conducted by Sprinkle et al. (2006), participants were provided fear or efficacy appeals as it related to a writing assignment which requires a completely different style of preparation.

In addition to the hypotheses regarding student exam performance and test anxiety, it was hypothesized that the relationship between the two variables would vary as moderated by intrinsic and extrinsic motivation styles. More specifically, it was hypothesized that participants in the consequence group would yield lower test performance and higher anxiety as moderated by extrinsic motivation whereas the participants in the efficacy condition would yield the opposite. Persupport from previous research, which suggests higher levels of extrinsic motivation lead to inconsistent academic success (Ryan & Weinstein, 2009; Lei, 2010) whereas intrinsic motivation has been linked to higher academic performance and decreased test anxiety (Gottfield, 1985; 1990). This hypothesis, however, was also not supported. The results indicated no significant moderation effects of extrinsic motivation with regard to test anxiety and performance for either group. Analyses of the moderating effect of intrinsic motivation also yielded surprising results. Previous research suggests a positive relationship between high levels of intrinsic motivation and academic performance (Gottfield, 1985; 1990), however, the results of the current study indicated that as intrinsic motivation increased the relationship between anxiety and performance became increasingly worse, which is inconsistent with previous research (Gottfield, 1985; 1990).

Although the results of the current study were not consistent with previous literature, it should be noted that there is little research on how various types of messages impact college students (Sprinkle et al., 2006). It is possible that because there were multiple exams throughout the semester, as opposed to one end of year exam, as in elementary and middle school, that fear and efficacy appeals did not have as great of an effect. The EPPM states that a major contributor to message acceptance is threat perception, which is related to how likely an individual believes they are to incurring the threat and how severe they believe the threat is (Witte, 1992; Witte &



Allen, 2000; Maloney et al., 2011). Based on the idea of threat perception, it is possible that college students who have several exams that make up their final grade are significantly less worried about the last chapter test as opposed to school-aged children whose exam scores is a significant factor in deciding whether they are promoted or not. In other words, because the participants grades were based on multiple exams they may not perceive the threat of failing an exam as severe enough thus there are no significant responses until the stakes are very high as with a final exam.

Overall, the results of the study provided unexpected results that are inconsistent with previous research. First, students exposed to the consequence condition, which was expected to yield more negative outcomes, performed significantly better than the students in the efficacy condition on both exams. Previous studies have provided evidence that suggests negative outcomes related to fear appeals (Putwain & Symes, 2011). However, participants exposed to fear appeals in the current study performed better than participants exposed to efficacy appeals. Next, there were no significant differences between the two conditions with regard to state and trait anxiety. Lastly, while earlier studies suggested that intrinsic motivation was linked to positive outcomes, the current study provided evidence to suggest the opposite with increased intrinsic motivation moderating a negative relationship between anxiety and performance.

### **Limitations**

Although the results of the current study achieved statistical significance for some of analyses, the study is not without limitations. Limitations arose with regard to the design, measures, and populations.

**Perception of Messages.** The manipulation in the study consisted of scripts that were derived from sample language from professors and students. Further, the scripts only lasted

about 30 seconds to one minute. Because the amount of language participants were exposed to was so limited, it is possible that the participants did not perceive the messages as intended. The EPPM states that the perception of threat and efficacy are very important to what response an individual displays with regard to fear and efficacy appeals. Based on the guidelines from the EPPM, if messages were not perceived as expected the effects on their anxiety and performance may not be attributable to the manipulation.

Additionally, it is possible that participants did not perceive the messages that were provided as expected because they came at the end of the semester. It is possible that the language they were exposed to did not appear to be genuine as they had nearly an entire semester of experience with the professor and the language may not have matched the professor's speaking style. If the participants did not believe the professor spoke genuinely it would lead to an even higher likelihood that the messages were not perceived as planned.

**Modification of the AMS.** Because the wording of the AMS was adapted to suit the aims of the study, the validity and reliability may have been compromised. The original wording is aimed at recognizing motivations for attending college whereas the current study was aimed at understanding motivations for studying. Additionally, because the wording was modified, there is no evidence to suggest that the participants' responses give an accurate measurement of their intrinsic and extrinsic motivation.

**Lack of Control Group.** The current study lacked a control group and as a result, the study lacks definitive proof that the manipulation caused the changes in student anxiety, motivation, and performance. Although there were significant differences between the groups there lacks evidence to indicate whether these groups would have performed any different without the manipulation.

## **Directions for Future Research**

The results of the current study were inconsistent with past research where students in exposed to fear appeals performed worse on test and students exposed to efficacy appeals reported more positive outcomes (Sprinkle et al., 2006; Putwain & Symes, 2011). First, although there were differences with regard to exam performance across the exams, the efficacy group's performance decreased. However, the current study lacked a control group and previous exam scores to compare chapter test and the final exam scores to. It is possible that the consequence group had been performing better than the efficacy group prior to the last two exams of the semester but without the baseline data or a control group there is no way to know.

Next, future studies could utilize a scale that more explicitly measures intrinsic and extrinsic motivation. While the relationship between motivation, appeals, and performance should be further investigated, it is important that it be measured accurately. More specific measures could lead to an increased chance of identifying what components lead to higher intrinsic or extrinsic motivation resulting in a more nuanced understanding of how intrinsic motivation leads to increased negative outcomes.

Last, future research in this area should attempt to begin manipulations to the language used in class as early in the year as possible. Beginning manipulations at the start of the year would increase the chances of the messages being perceived as planned because the students would not have rapport with the teacher and thus would not have a reason to think the language was not sincere. Because the professor is reading from a script the language he or she is presenting to the students may seem insincere if they have already been exposed a different set of messages prior to an exam. Future researchers should also attempt to have the professor or

teacher practice the script in advance so that they can provide a more genuine presentation or they should create the scripts with more feedback from the professor or teacher.

### **Implications for Practice**

The information gathered from the current study may be useful to teachers and professors who are attempting to motivate their students to perform well on tests and other exams. Evidence suggests that the use of fear appeals is widespread and that the emphasis placed on testing is promoting the use of fear appeals (Putwain & Roberts, 2012). Moreover, there appears a lack of alternative ways to encourage student performance (Sprinkle et al., 2006). Though the current study did not provide results that were consistent with previous research, they do show that intrinsic motivation had an impact on the relationship between anxiety and performance, although negative. The relationship may be indicative of differences with regard to the language that can be used on students of different academic level. For example, using fear appeals with college students may lead to more positive outcomes than with younger children because college students may already possess intrinsic motivation whereas younger students are still developing it. Based on that relationship, it is possible that language can be used to manipulate the relationship further, possibly fostering in more positive outcomes. The current study could be used to as a small step in teaching teachers and professor how to better address their students in order to extract the students' best outcomes.

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## APPENDIX A: IRB APPROVAL



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board Office**  
4N-70 Brody Medical Sciences Building · Mail Stop 682  
600 Moyer Boulevard · Greenville, NC 27834  
Office 252-744-2914 · Fax 252-744-2284 · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Initial Approval: Expedited

From: Social/Behavioral IRB

To: [Jeremy Draughn](#)

CC:

[Nathaniel von der Embse](#)

[Nathaniel von der Embse](#)

Date: 1/28/2014

Re: [UMCIRB 13-002908](#)

Effect of Teacher Language on Student Test Anxiety and Performance

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 1/28/2014 to 1/27/2015. The research study is eligible for review under expedited category #7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Name	Description
Brief Academic Motivation Scale	Surveys and Questionnaires
Brief Friedben Test Anxiety Scale	Surveys and Questionnaires
Brief State Trait Anxiety Inventory	Surveys and Questionnaires
Consent Form	Consent Forms
IRB Protocol	Study Protocol or Grant Application

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

## APPENDIX B: CONSENT FORM

East Carolina



University

Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

**Title of Research Study:** Effects of language on Test Anxiety, Motivation, and Performance

**Principal Investigator:** Jeremy Draughn

**Institution/Department or Division:** Department of Psychology

Study Sponsor/Funding Source: N/A

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Researchers at East Carolina University (ECU) study problems in society, health problems, environmental problems, behavior problems and the human condition. Our goal is to try to find ways to improve the lives of you and others. To do this, we need the help of volunteers who are willing to take part in research.

**Why is this research being done?**

The purpose of this research study is to identify ways by which language can be used to increase student success and productivity. Research suggests that the language being used by teachers and professors is increasing student test anxiety and decreasing motivation and performance. However, few studies have been conducted that examine the other types of language that may have more positive implications.

**Are there reasons I should not take part in this research?**

I understand that I should not volunteer for this study if I am under 18 years of age.

**What other choices do I have if I do not take part in this research?**

You can choose to opt-out and the data we collect from you **WILL NOT** be used.

**Where is the research going to take place and what will I be asked to do?**

The study will take place in your assigned classroom. You will be asked to take a brief survey prior to your final chapter test and final exam. The survey will ask you various questions regarding your perception of your classroom climate in addition to questions regarding your motivation.

**How will you keep the information you collect about me secure? How long will you keep it?**

All answers will be strictly confidential and no individual information will be shared with peers, parents, teachers, or administrators. All information will be kept in a locked cabinet in the principal investigator's office. Also, any information that is received by the researcher will be de-identified.

I **DO NOT** wish to participate and have my data used:

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Participant's Name (PRINT)

Signature

Date

## APPENDIX C: CONSEQUENCE SCRIPT

### Week before Exam

“I would like to remind everyone that there is an exam next week. It will cover material from chapter \_\_\_ to chapter \_\_\_. The class exam average is about \_\_\_% right now. It is important that everyone improve on the next test as there are only two exams left. This next test can have a major impact on your final grade so it is very important that you take it seriously. I recommend you try to do your best on this upcoming exam as it is worth \_\_\_% and your performance on this exam is essential to your success in this class.”

### Day of Exam

“Today we will be taking a brief survey before our exam. I want you to answer the questions based on how you are feeling right now; there are no right or wrong responses. The survey will take just a few minutes and then you can proceed to take your exam. As I mentioned last week, this exam is worth \_\_\_\_% of your grade. It can have a major impact on your final grade so it is important for you to perform well on this exam in order to pass the class. Let’s get started. (*Hand out B-FTAS, B-STAI, and AMS*). Don’t forget, this exam is worth \_\_\_\_%. (*Hand out exam*).”

## **APPENDIX D: EFFICACY SCRIPT**

### **Week before Exam**

“I would like to remind everyone that we will be having an exam coming up next week. It will cover material from chapter \_\_\_ to chapter \_\_\_. I will do my best to make sure you have all the necessary resources and information to pass the exam. I recommend you study well and bring any questions to me. If there is anything you do not fully understand you can email me or schedule a time to meet with Dr. Vietor. We will both be happy to go over the material with you and suggest ways to help you study. You should start reviewing the material as soon as possible, and don’t wait until the night before the exam to cram it all in – there is a lot of material, so a review over at least a few days is best. Just, try to study as much as you can as soon as you can and you will have no trouble passing. I am very confident in you all’s abilities and I’m sure you will all do fine.”

### **Day of Exam**

“Today we will be taking a survey and an exam. The survey will have questions about various feelings. I want you to answer the questions based on how you are feeling right now. There are no right or wrong answers. The survey will only take a few minutes and as soon as you are finished we will begin the exam. I expect that everyone will do very well on the exam as you have all done well on the previous exams and there is nothing on the exam that was not covered in class. I am highly confident in your ability to pass this test. Any questions? Let’s get started. *(Hand out B-FTAS, B- STAI, and AMS)*. Don’t forget, just do your best. *(Hand out exam)*.”

## **APPENDIX E: PROFESSOR AND GRADUATE ASSISTANT LANGUAGE**

### **Graduate Assistants:**

"I would like to remind y'all that there is an exam coming up. It will cover the material from last exam until now. If you have any questions my office hours are MWF from 12-2."

"Don't forget about the exam next class."

"Just a reminder there's an exam next class on chapters 1-6."

"The exam on chapters 14-17 will be during the class after next. Make sure you have a blue bubble sheet and two pencils. The study guide is up on Blackboard."

"For the exam next week, read over chapters 1-3. My office hours are TR 1-3 if you have any questions, or email me at the email address on the syllabus."

"Check the syllabus for the date of the next exam and the chapters it covers."

### **Professors:**

"As I think you know, I expect students to act like adults and take responsibility for themselves. I don't necessarily remind students of upcoming exams, as they are supposed to pay attention to the syllabus and know when tests are scheduled. I do not encourage them to work hard in preparation for tests, as they know that their course grade is based entirely on exam performance. On the other hand, I do remind students to take advantage of my office hours, to make use of the study guides and the study strategies document that I provide, and to make a point of reviewing old exams to help identify poor preparation and test-taking habits."

"I would like to remind everyone that we will be having an exam coming up. As a reminder, we have four exams in class this semester, each one counting for 100 points, or 20% of your grade. This means you should try your hardest on each exam as it will form a significant portion of your final course grade."

"Exam two is coming up in two weeks; it will cover the material in chapters 6-12, as well as what we have discussed in class. The exam will be 50 multiple choice questions, equally weighted for all the chapters. You will have up to one hour to complete the exam. The exam will be, as usual, closed book and closed notes. This exam counts 300 points toward the total of 1000 points this semester, so it's important that you do well on this. The best way for you to prepare for this exam is to start reviewing the material now, and don't wait until the night before the exam to cram it all in – there is a lot of material, so a review over at least a few days is best."



**APPENDIX F: COVER SHEET**

**Name:**

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**Section:**

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