

DIFFERENCES BETWEEN SELF-EFFICACY AND COURSE ENGAGEMENT SCORES  
AMONG POSTSECONDARY ACADEMIC COHORTS OF ATHLETIC TRAINING  
STUDENTS

by

John George Coots

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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**ABSTRACT**

Athletic Training Students' (ATS) self-efficacy and course engagement during their educational development and clinical experiences influence their ability to provide proficient health care for physically active individuals. The various classifications of postsecondary academic cohorts of ATS enrolled within Commission on Accreditation of Athletic Training Education (CAATE) accredited postsecondary Athletic Training Programs (ATP) portray divergent levels of self-efficacy and student course engagement. The purpose of this research study was to investigate differences between perceived self-efficacy and course engagement scores among postsecondary academic cohorts. A quantitative, causal-comparative research study employed two survey instruments: The College Academic Self-Efficacy Scale (CASES) developed by Owen and Froman (1988); and the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman, Briggs, Sullivan, and Towler (2005). This study included a convenience sample of 112 participants ( $N = 112$ ; male,  $n = 29$ ; female  $n = 83$ ) enrolled in a CAATE-accredited postsecondary ATP within the Mid-Atlantic Athletic Trainers' Association (MAATA). A one-way multivariate analysis of variance (MANOVA) was used to determine significant differences in composite mean scores on the CASES and the SCEQ among the postsecondary ATS academic cohorts. The results of the one-way MANOVA were not significant, and the null hypothesis failed to be rejected at the 95% confidence level (alpha level of 0.05), where  $F(6, 214) = 1.389$ ,  $p = 0.220$ , Wilks'  $\Lambda = 0.926$ ; partial  $\eta^2 = 0.037$ , suggesting there are no significant differences on the dependent variables (CASES and SCEQ) among the independent variable (academic cohorts of athletic training students). The effect size as measured by partial eta squared was medium ( $\eta^2 = 0.037$ ). Implications from this study suggest the importance of student course engagement and self-efficacy as they progress throughout the ATP. In addition, athletic training faculty's

emphasizing the need for mentoring academic cohorts toward successfully achieving self-efficacy and course engagement within students' academic coursework and clinical education experiences. Recommendations for further research studies were made.

*Keywords:* academic cohorts, self-efficacy scale, academic self-efficacy, self-confidence, student course engagement

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### **Dedication**

This doctoral coursework and dissertation process is dedicated, first and foremost, to my Lord and Savior Jesus Christ. Secondly, I dedicate this dissertation manuscript to Jodi M. Coots, my wife and best friend for past 21 years, and to our precious daughters. Thank you for praying for me, loving me, supporting me, believing in me, and encouraging me to be the man, husband, and father that God has called me to be. Thank you for your forgiveness of all the times my doctoral coursework and this dissertation manuscript had to replace the time we could have spent together as a family. Thank you for your tireless love and devotion, it has not gone unnoticed. You have been the motivational forces enabling me to accomplish this doctorate feat. God has blessed me beyond measure through you. Jodi – I love you more than words can express!

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**List of Abbreviations**

Athletic Trainer(s) (AT)

Athletic Training Program(s) (ATP)

Athletic Training Faculty (ATF)

Athletic Training Student(s) (ATS)

Board of Certification (BOC)

Certified Athletic Trainer(s) (ATC)

Clinical Preceptor(s) (CP)

College Academic Self-Efficacy Scale (CASES)

Commission on Accreditation of Athletic Training Education (CAATE)

Graduate Level Athletic Training Program(s) (GATP)

Multivariate Analysis of Variance (MANOVA)

Master's Level Program(s) (MLP)

Mid-Atlantic Athletic Trainers' Associations (MAATA)

National Athletic Trainers' Association (NATA)

Student Course Engagement Questionnaire (SCEQ)

Virginia Athletic Trainers' Association (VATA)

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

Certified Athletic Trainers (ATC) daily deliver the highest degree of health care to their physically active individuals, often referred to as patients. These health care professionals are educated through a Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Program (ATP) at a postsecondary institution of higher education. Athletic Training Faculty (ATF) and approved Clinical Preceptors (CP) strive to maximize student-learning opportunities through their didactic and clinical educational environments. The quality of the academic coursework and clinical education competencies directly influence the level of Athletic Training Students' (ATS) engagement in their personal growth and professional development (O'Brien et al., 2017). Student perception of self-efficacy and persistence are related to the development and proficiency of providing excellence in health care. Athletic Training Students' persistence of acquiring evidence-based knowledge, including clinical skills, through high quality course engagement endorses best research-based practice essential for proficient application of evidence-based medicine (Kaminski et al., 2013). This introduction provides an overview of the historical, social, and theoretical background of the primary premise for this research study. A general description of the fundamental components depicted within the problem statement leads to defining the intentions supporting the purpose statement for this study. Finally, the potential outcomes generated from the significance of this study will determine potential evidence-based answers to the research question at hand.

### **Background**

The overall health of individuals within society relies on the degree of the quality and effectiveness of services rendered by proficient health care providers. The lifestyle choices made



by individuals have a significant impact on their wellbeing and must be taken into consideration. All created human beings deserve to receive the highest quality of care from competent and proficient health care providers (Hankemeier et al., 2013; Kaminski et al., 2013). Certified Athletic Trainers (ATC) are credentialed health care providers educated and skilled in providing the optimal quality of health care to physically active patients (Hankemeier et al., 2013; Kaminski et al., 2013). Providing the highest quality of health care requires enhancing Certified Athletic Trainers' abilities toward competently incorporating the physical, mental, intellectual, psychological, social, and spiritual facets of each patient.

The National Athletic Trainers' Association (2017c) defined Athletic Trainers (AT) as "highly qualified, multi-skilled health care professionals who collaborate with physicians to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions" (para. 1). The educational development and clinical experiences essential to enabling Athletic Training Students to become credentialed health care practitioners requires them to enroll in a postsecondary institution of higher education having a Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Program. The National Athletic Trainers' Association (NATA), the Commission on Accreditation of Athletic Training Education (CAATE), and the first-time pass rate percentage on the Board of Certification (BOC) examination for each academic cohort of Athletic Training Students hold postsecondary institutions accountable to stringent educational competencies, program facilities, and program standards. (Commission on Accreditation of Athletic Training Program, 2011; Commission on Accreditation of Athletic Training Program, 2017, January)

The desired outcomes of accredited Athletic Training Programs are to produce Athletic Training Students capable of becoming credentialed health care providers that are able to provide the highest quality of health care in a competent, proficient, and professional manner (Hankemeier et al., 2013; Kaminski et al., 2013). The didactic education presented by the Athletic Training faculty and clinical education experiences facilitated by the clinical preceptors foster environments conducive to enabling the Athletic Training Students to become influential health care providers for the physically active individuals encountered within their professional practices (O'Brien et al., 2017). The infusion of valid and reliable evidence-based research in directing all facets of the Athletic Training Students educational and practical clinical experiences is critical for ensure that evidence-based practices are being employed in the health care provide for physically active patients (Hankemeier et al., 2013; O'Brien et al., 2017). This necessitates the Athletic Training Program's faculty and clinical preceptors to regularly assess their own self-efficacy toward providing the highest educational content and clinical standards (Yilmaz, Gunes, & Katircioglu, 2016).

### **Historical Context**

The Commission on Accreditation of Athletic Training Education (CAATE), the accrediting body for Athletic Training Programs (ATP), has instituted significant upcoming modifications to the current requirements for academic development and clinical experiences. These requirements must be completed prior to Athletic Training Students becoming eligible to sit for the Board of Certification (BOC) certification examination. The requirement of Athletic Training Students (ATS) graduating from a master's level degree-awarding program, rather than the currently accepted bachelor's level Athletic Training Program is the most significant change (Pitney, 2012). Ostrowski and Marshall (2015) determined that Athletic Training Students

enrolled in master's degree Athletic Training Programs generated superior outcomes with regard to higher retention rates within Athletic Training Programs, on time graduation rates, successful first-time Board of Education pass rates, and future employment using the Certified Athletic Trainer credential. These outcomes surpass those obtained by students enrolled in bachelor's degree Athletic Training Programs. Academic cohorts of Athletic Training Students' first-time pass rates on the Board of Certification (BOC) certification exam is one of the required criteria driving both the undergraduate and graduate Athletic Training Programs ability to maintain their accreditation status in good standing with Commission on Accreditation of Athletic Training Education (CAATE). In the beginning of the fall 2022 academic semester, the phasing out process for all current bachelor's degree entry-level accredited Athletic Training Programs will no longer accept undergraduate students. Consequently, by 2022, all institutions of higher education with accredited undergraduate Athletic Training Programs must be fully transitioned into Commission on Accreditation of Athletic Training Education (CAATE) accredited graduate level (Master's Degree) Athletic Training Programs (Commission on Accreditation of Athletic Training Program, 2017, para. 4). Ostrowski and Iadevaia (2014) indicated that the growth of graduate Athletic Training Programs nationwide has increased over 400% over the past 10 years in preparation for this anticipated Commission on Accreditation of Athletic Training Education directive. Entry-level graduate Athletic Training Programs demand increased academic rigor, proficient competencies, and clinical expectations to be achieved prior to Athletic Training Students qualifying to sit for the national Board of Certification (BOC) certification exam.

### **Social Context**

Athletic Training Students' perceptions of self-efficacy including their physical, mental, emotional, social, and spiritual engagement within the current postsecondary Athletic Training

Programs' didactic coursework and clinical experiences influence their successful first-time pass rates. These advanced requirements enable Athletic Training Students to demonstrate increased proficiency in providing optimal health care for physically active individuals. Achievement of these objectives validates the necessity for Athletic Training Programs' faculty to assess and obtain information about individual perceptions of Athletic Training Students' self-efficacy and course engagement as students navigate through the progressive phases of their educational Athletic Training Program (Khan, 2013; Mazerolle, Bowman, & Benes, 2014). Obtaining this critical information is essential to accomplish the desired vision, mission, goals, and outcomes of the postsecondary institution of higher education as well as those of the Commission on Accreditation of Athletic Training Education accredited Athletic Training Programs.

Athletic Training Programs' faculty and clinical preceptors are responsible for expertly preparing Athletic Training Students to provide quality, consistent, and effective standards of health care for their physically active patient populations within their professional practices (Mazerolle, & Dodge, 2012). The assessment and dissemination of Athletic Training Students' perceptions of their self-efficacy and course engagement enables the Athletic Training Program's faculty and clinical preceptors with critical student knowledge. This background knowledge is essential for modification and differentiation of instructional methodologies, initiation of appropriate interventions, and fortifying mentorship programs within all realms of professional interactions within the scope of Athletic Training Programs. Potential acquired adaptations, by faculty members and clinical preceptors, allow for effective accommodation of the educational development, clinical learning styles, needs, and environments afforded to Athletic Training Students (Good, Ramos, & D'Amore, 2013). Successful transition from students into highly sought-after, credentialed, Certified Athletic Trainers benefits from detailed analysis of students'

individual perceptions of self-efficacy and course engagement. Ideally, these assessments and analyses should be ascertained during each academic cohort phase as Athletic Training Students progress throughout their entire program of study within their respective Athletic Training Programs.

### **Theoretical Context**

The fundamental constructs for acquiring data on students perceived self-efficacy was founded on Bandura's Social Cognitive Theory and Self-efficacy Theory (Bandura, 1977a; Bandura, 1977b; Bandura, 1984; Bandura, 1997). Bandura (1986) defined self-efficacy as one's ability to overcome obstacles and failures through resiliency. Understanding the complexity behind self-efficacy requires time to glean one's perceptions of competence and proficiency through the viewpoints of several theories. Specifically, Bandura (1986) identified self-efficacy through four categorical components including: mastery experiences, vicarious experiences, verbal persuasion, and somatic or emotional experiences. Theoretically, students perceived self-efficacy influences their engagement within their required coursework and inversely students' perceived engagement within their coursework impacts their perceptions of self-efficacy. The fundamental constructs for acquiring data on students' perceived levels of course engagement was founded on Knowles (1978) Adult Learning Theory. In general, students with high perceptions of self-efficacy tend to perceive themselves as becoming proficient professional health care providers, propelling them to engage themselves fully within their required coursework and clinical experiences (Choi, 2005; Fenning & May, 2013). Students, in general, with low self-efficacy tend to struggle with individual perceptive beliefs of not being capable of becoming competent and proficient health care providers, possibly diminishing the quality of engagement within their required courses (Bandura, 1997; Fong & Krause, 2014). Both of these

viewpoints support the necessity for Athletic Training faculty to be empowered with capability of obtaining Athletic Training Students' perceptions of self-efficacy and course engagement, based on postsecondary cohorts. Athletic Training faculty's ability to glean this knowledge has the tremendous potential to influence the quality of Athletic Training Students' overall educational development and clinical experiences as they striving to become credentialed Certified Athletic Trainers. Resulting in enabling them to competently and proficiently provide the upmost quality of health care to physically active participants/patients.

### **Problem Statement**

Evidence-based research demonstrates relationships between students' perceived self-efficacy and course engagement among postsecondary students. To date, there is a paucity of research focused on relationships and/or differences in Athletic Training Students' perceived self-efficacy among sophomore, junior, senior, and postgraduate academic cohorts enrolled in accredited Athletic Training Programs. George, Locasto, Pyo, and Cline (2017) determined that the level of student perceived self-efficacy within various clinical education models played an effective role in the successful transition of nursing students into professional practitioners. Koludrovic and Ercegovac (2017) examined coursework engagement levels with regard to intrinsic and extrinsic student motivation toward teaching styles but were unable to determine if the components of course satisfaction and engagement in conjunction with self-efficacy were predictive in nature to one another. Papa (2015) examined the relationships between academic coursework and teacher self-efficacy toward influencing student course engagement, thus supporting connections between student coursework and course engagement. Svanum and Bigatti (2009) studied the significance of course-engagement-specific courses taken by postsecondary students as measured by three outcome variables demonstrating student success.

Marx, Simonsen, and Kitchel's (2016) research focused on student course engagement and college level course status standings as sophomores and juniors within a degree program. Turgut's (2013) study explored participants' self-efficacy scores based on freshman, sophomore, and junior levels of academic achievement. Evidence-based research focused on comparisons of self-efficacy, stress coping skills, academic performance, academic motivation, and course engagement between undergraduate and graduate levels of study (Bachelors and Masters) with respect to participants' specific degree programs (Khan, 2013; Koludrovic & Ercegovic, 2017). Brown, White, Bowmar, and Power (2017) determined that rarely have postsecondary levels of student perceived course engagement been studied, due to lack of appropriate instruments to accurately measure and quantify course engagement. Furthermore, Brown et al. (2017) demonstrated that the quality of academic performance predicts the level of student self-efficacy, but indicated that the relationship between self-efficacy and course engagement has not been thoroughly investigated. Despite the accessibility and respective implementation within published evidence-based research, there is scarcity of data available on relationships or differences between perceived self-efficacy and course engagement among postsecondary academic cohorts of Athletic Training Students. There is a gap in the literature demonstrating the need for examination and assessment of the intersections between Athletic Training Students' perceptions of self-efficacy and course engagement among postsecondary academic cohorts enrolled in institutions of higher education having Commission on Accreditation of Athletic Training Education accredited Athletic Training Programs.

### **Purpose Statement**

This proposed study will employ quantitative, causal-comparative research design. The purpose of this proposed study is to investigate differences between perceived self-efficacy

scores and perceived course engagement scores among postsecondary academic cohorts of Athletic Training Student (ATS) enrolled in a Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Program (ATP). The independent variables will be defined within non-manipulated membership groups (sophomore, junior, senior, and graduate-masters level cohorts). A plethora of evidence-based research indicates potential interactions, correlations, and/or differences exist among various levels of academic levels/cohorts (Brown, White, Bowmar, & Power, 2017; Khan, 2013; Koludrovic & Ercegovac, 2017; Marx, Simonsen, & Kitchel, 2016; Ramos-Sanchez & Nichols, 2007; Svanum & Bigatti, 2009; Turgut, 2013; Vugon, Brown-Welty, & Tracz, 2010); therefore, Athletic Training Students' postsecondary academic cohorts will be employed as the independent variables within this study. The first dependent variable will be defined as Athletic Training Students' perceived self-efficacy. Bandura (1997) defined self-efficacy as "people's judgement about their capabilities to organize and execute course of action required to attain designated types of performances" (p. 391). The foundational premise depicted by Bandura's definition for self-efficacy resonates and is strongly supported throughout published evidence-based research (Bandura, 1997; Bandura, 2006; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Choi, 2005; Lampert, 2007; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002; Yilmaz, Gunes, & Katircioglu, 2016). Athletic Training Students' perceived self-efficacy will be measured by mean scores achieved on the College Academic Self-Efficacy Scale (CASES) (Choi, 2005; George, Locasto, Pyo, & Cline, 2017; Handelsman, Briggs, Sullivan, & Towler, 2005; Koludrovic & Ercegovac, 2017; Lampert, 2007; Papa, 2015; Turgut, 2013). The second dependent variable will be defined as Athletic Training Students perceived course engagement. Student course engagement has been defined throughout



evidence-based research publications as a conglomerate of both actual and perceived aspects of physical, mental, emotional, social/behavioral, and spiritual components as they contribute to students' actions, abilities, persistence, and effort applied to their coursework in educational environments (Handelsman, Briggs, Sullivan, & Towler, 2005; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Marx, Simonsen, & Kitchel, 2016). Athletic Training Students course engagement will be measured by the mean scores achieved on the Course Engagement Questionnaire (SCEQ) within the constructs of this study (Brown, White, Bowmar, & Power, 2017; Koludrovic & Ercegovac, 2017; Marx, Simonsen, & Kitchel, 2016; Nkhoma, Sriratanaviriyakul, Hiep, & Lam, 2014; Owen, & Froman, 1988; Papa, 2015; Svanum & Bigatti, 2009). This study is designed to obtain data from postsecondary Athletic Training Student (ATS) participants enrolled in a Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs. The purpose of this study is to investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate Athletic Training Students enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP).

### **Significance of the Study**

Athletic Training Students (ATS) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) are required to progressively and sequentially complete coursework based on their respective postsecondary academic cohort classification. Determination of the Athletic Training Students' perceptions of their self-efficacy and course engagement throughout the entire educational process potentially influences Athletic Training faculty members to augment the educational development and

experiences afforded to the Athletic Training Students by the Athletic Training Program (Brown, White, Bowmar, & Power, 2017; Choi, 2005; Koludrovic & Ercegovac, 2017; Mazerolle, Bowman, & Benes, 2014; Mazerolle, & Dodge, 2012). The results of this study have the potential to assist postsecondary faculty and clinical preceptors of Commission on Accreditation of Athletic Training Education accredited Athletic Training Programs to initiating early intervention strategies and facilitate appropriate mentorship programs (Byard, 2011; Carr & Volberding, 2014; Hankemeier et al., 2013). These influences, intervention strategies, and mentorship opportunities may be designed to enhance Athletic Training Students' capabilities toward becoming highly skilled and credentialed health care providers who successfully pass the Board of Certification (BOC) certification exam on their first attempt thereby becoming Certified Athletic Trainers. Certified Athletic Trainers (ATC) are competent and proficient health care providers, administering the highest quality of health care to their physically active patients. The anticipate results of this study will add empirically, theoretically, and practically to the current limited availability of evidence-based knowledge regarding Athletic Training Students self-efficacy and course engagement among postsecondary academic cohorts within Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP).

### **Research Question**

The research question for this study was:

**RQ1:** Are there differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary academic cohorts?

### Null Hypothesis

The null hypothesis for this study was:

**H<sub>0</sub>1:** There are no statistically significant differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary sophomore, junior, senior, and graduate level academic cohorts.

### Definitions

1. *Athletic Trainers (AT)* – “Healthcare professionals who render service or treatment, under the direction of or in collaboration with a physician, in accordance with their education and training and the states' statutes, rules and regulations. As a part of the healthcare team, services provided by ATs include injury and illness prevention, wellness promotion and education, emergent care, examination and clinical diagnosis, therapeutic intervention, and rehabilitation of injuries and medical conditions” (National Athletic Trainers’ Association, 2017a).
2. *Athletic Training Student (ATS)* – “A student currently enrolled in courses while matriculating through a CAATE-accredited professional education program” (National Athletic Trainers’ Association, 2017a).
3. *Athletic Training Program (ATP) or Professional Preparation* – “The preparation of the student who is in the process of becoming an athletic trainer (AT.) Professional education culminates with eligibility for Board of Certification, Inc. (BOC) certification and appropriate state credential (National Athletic Trainers’ Association, 2017a).
4. *Commission on Accreditation for Athletic Training Education (CAATE)* – “To develop, maintain, and promote appropriate minimum education standards for quality for

professional, post-professional, and residency athletic training programs” (Commission on Accreditation of Athletic Training Education, n.d.).

5. *Course Engagement* – “Student engagement represents both the time and energy students invest in educationally purposeful activities and the effort institutions devote to using effective educational practices” (Kuh, 2001).
6. *Multivariate analysis of variance (MANOVA)* – A data analysis method involving the analysis of variance between two or more groups (vector; centroid) of means, which there are multiple dependent variables interaction with one or more independent variables. (Gall, Gall, & Borg, 2007; Warner, 2013)
7. *Pre-professional student* – “A person with intentions to enroll in an accredited athletic training program. Students are not involved in the provision of athletic training services and the role of pre-professional student is bound by state practice acts” (National Athletic Trainers’ Association, 2017a).
8. *Self-efficacy* – “Beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3).

## **CHAPTER TWO: LITERATURE REVIEW**

### **Introduction**

Cognitive learning, understanding, and application are normal continually changing processes throughout life. Humankind progresses through the critical fundamental developmental years of infancy, childhood, and adolescence. This foundational platform enables postsecondary individuals to successfully transition into influential adults, who are productive members of society. The individual learning processes for acknowledging, understanding, and applying cognitive information varies between individuals (Sabo, Singles, Lopez, Toner, Naeve-Velguth, & Woods, 2012). The way individual students learn is defined as being contained in one or more portions of a multitude of learning theories that have been developed for centuries. A plethora of peer-reviewed evidence-based published research on various types of learning theories indicating the individualistic way each student is capable of grasping knowledge, wisdom, and understanding of the intricacies of the created world (Hawk & Shah, 2007; Sabo et al., 2012; Schellhase, 2006; Urval, Kamath, Ullal, Shenoy, Shenoy, & Udupa, 2014). However, adherence to one distinct learning style preference for all students does not appear to exist due to the complex learning styles differences between individual learners (McCrow, Yevchak, & Lewis, 2014; Wang, 2012). Intrinsic and extrinsic factors wield immense power toward drastically influencing the breadth and depth of development of each of these facets. Individuals' educational opportunities and developmental experiences potentially deteriorate or enrich the physical, mental, emotional, social and spiritual facets defining their created existence. As created beings, we crave ultimate fulfillment within each of these pivotal components throughout our lives, as defined within the scope of all eternity. Personal beliefs, values, and

morals drive an individual's personal self-efficacy toward achieving and fulfilling a meaningful and purposeful existence.

Postsecondary institutions of higher education strive toward sufficiently and effectively assisting students in their obtaining physical, mental/academic, social, and emotional development. Incorporation of the spiritual developmental realm also directly influences the quality of adult social learning development of students within institutions of higher education and beyond (Beard, 2017). The overarching quest for fulfilling their mission and vision by achieving the desired outcomes toward assuring their students' abilities to being better citizens, have greater earning power, and be productive members of society (Alarcon & Edwards, 2013). Each of these desired outcomes of students are unobtainable without a focused and balanced development of the each student's physical, mental, emotional, social and spiritual facets. Additionally, the levels of student self-efficacy and levels of student course engagement during their postsecondary educational experiences significantly influences their future professional employment and determines their capabilities of becoming productive members of society. Bandura (2006) stated, "Human behavior is richly contextualized and conditionally manifested. Self-efficacy assessment tailored to domains of functioning and task demands identify patterns of strengths and limitations in perceived capability" (p. 307). Specifically, there is minimal evidence-based research focused on recognizing and assessing the levels of student self-efficacy and student course engagement toward their required coursework within their degree-granting program of their postsecondary institution of higher education among academic cohorts. Evidence-based research indicates the well-known factors affecting students perceived self-efficacy beliefs are gender, grade level [academic cohort groups], and academic performance (Carr & Volberding, 2014; Sagone & De Caroli, 2013; Turgut, 2013). In light of available

published evidence-based research, it is apparent that differences specifically between student self-efficacy and student course engagement among postsecondary academic cohorts of athletic training students has seen little investigation (Brown, White, Bowmar, & Power, 2017; Koludrovic & Ercegovac, 2017). Therefore, it is the intent of this researcher to address this gap in the literature.

### **Theoretical Framework**

#### **Athletic Training Education**

The overall health and wellbeing of the physically active individuals, referred to as patients, is dependent on the quality, competence, proficiency, and mastery of services rendered by appropriate health care providers. Physically active individuals deserve and expect to receive the highest quality of health care from credentialed Certified Athletic Trainers (ATC). The National Athletic Trainers' Association (2017a) defined Athletic Trainers (ATs) as:

Health care professionals who render service or treatment, under the direction of or in collaboration with a physician, in accordance with their education and training and the states' statutes, rules and regulations. As a part of the health care team, services provided by ATs include injury and illness prevention, wellness promotion and education, emergent care, examination and clinical diagnosis, therapeutic intervention, and rehabilitation of injuries and medical conditions. (para. 3)

The faculty and clinical education preceptors of Commission on Accreditation of Athletic Training Education (CAATE) accredited postsecondary professional Athletic Training Programs (ATP) are responsible for constructing and facilitating learning environments conducive to maximizing the learning potentials of Athletic Training Students (ATS) (National Athletic Trainers' Association, 2017a).

The quality of ATP faculty members' academic and clinical education instruction is directly associated with their perceptions of personal self-efficacy within the content area they are being held accountable to present (Byard, 2011; Tschannen-Moran, & Woolfolk, 2001). According to McCrow, Yevchak, & Lewis (2014) faculty members who are able to effectively assess their individual self-efficacy and the perceived self-efficacy of their students are capable of better understanding their students. Educators and clinical preceptors' abilities to recognize and respond to teachable moments, leading to pivotal interactions in both didactic and clinical learning environments, enable students to become productive professionals and members of society (Bowman & Dodge, 2011). Assurance of student competency, proficiency, and mastery require educators and clinical education preceptors to incorporate current peer-reviewed evidence-based research into their evidence-based education delivery and clinical practice. Enables faculty members and clinical education preceptors of institutions of higher education to positively mentor, guide, and externally motivate athletic training students more effectively within the Athletic Training program (Byard, 2011; Carr & Volberding, 2014; Hankemeier, et al., 2013; Lown, 2011). Institutions of higher education must enforce and maintain stringent requirements of their faculty members (residential and adjunct) toward orchestrating achievement of the overarching mission, vision, and goals by ensuring collaboration of the Athletic Training Program's goals, objectives, and learning outcomes. Achievement of these critical elements results in producing Athletic Training Students who are highly educated, competent, and proficient health care providers. Athletic Training Programs of CAATE-accredited institutions of higher education are held accountable to rigorous standards and expectations determined by the National Athletic Trainers' Association (NATA), CAATE, and first-time Athletic Training Student's pass rates on the Board of Certification (BOC) certification



exam. The quality, effectiveness, and level of ATS engagement in their didactic educational development and clinical educational experiences ultimately dictates their competency, proficiency, and mastery in providing the highest quality of health care.

The deliberate and diligent efforts of ATP faculty members to effectively differentiate their instruction methodologies and content delivery techniques must correlate with the specific learning styles of their students (Mazerolle, Bowman, & Benes, 2014). McCrow, Yevchak, and Lewis (2014) concluded that although learning style preferences have been that established through evidence-based research the complete understanding of an ideal or preferred learning style has not been ascertained. Educational administrators' ability to foster environments of trust between administration, faculty, staff, students, community members, and stakeholders is critical to enhancing perceived self-efficacy all participants involved (Byard, 2011). The goals, vision, and mission of institutions of higher education are ascertained through their faculty's successful integration of their knowledge, wisdom, and technical skills within their instructional delivery methodologies. Influences to the Athletic Training Students' physical, mental, emotional, social, and spiritual facets provides evidence of creditability through student transformations that demonstrate significant patient improvements. Carr and Volberding (2014) determined that the faculty members' awareness of the self-efficacy levels perceived by their students will enhance their ability to provide effective intervention in improving students skill performance resulting in increased students perceived self-efficacy.

Significant changes and requirements of Athletic Training Programs from the Commission on Accreditation of Athletic Training Education (CAATE) accrediting body alter the path by which Athletic Training Students will be eligible to sit for the Board of Certification (BOC) examination. CAATE will be requiring Athletic Training Students to graduate from a

master's degree level Athletic Training Professional Program prior to being eligible to sit for the BOC examination rather than the currently accepted bachelor's degree level Athletic Training Program (Commission on Accreditation of Athletic Training Education, n.d. a). Specifically according to CAATE (2015) all accredited bachelor degree level athletic training programs must be transitioned to CAATE-accredited graduate level (Master degree) Athletic Training Professional Program by the fall semester 2022. As a result of this mandate from CAATE, Ostrowski and Iadevia (2014) revealed in the past 10 years an increase in the number of graduate level Athletic Training Programs has been over 400%. Ostrowski and Marshall's (2015) research indicated the transition from a bachelor's degree level to a master's degree level entry point into the athletic training profession increases program retention, higher on-time graduation rates, increased first-time pass rate scores on the BOC certification exam, and greater employment percentages within the athletic training profession.

The educational growth and development of Athletic Training Students within institutions of higher education requires faculty members to be cognizant of how they learn. Athletic Training Students rely on various different learning styles to obtain their individual achievement of becoming competent and proficient health care providers. Athletic Training Students must address numerous factors involving their individual learning styles in striving to achieve the desired outcomes of Athletic Training Programs and surpass their personal goals and objective relevant to becoming credentialed health care providers. Although there are abundant adult learning theories, faculty and students within institutions of higher education involved with Athletic Training Programs can attribute students' self-efficacy and course engagement relevant to the concepts driving Bandura's Social Cognitive Learning Theory and Knowles' Adult Learning Theory (Curran, 2014a).

### **Social Cognitive Learning Theory**

Albert Bandura was the founding theorist of the social learning theory. Bandura (1977a) stated that the “social learning theory defines negative self-concepts in proneness to devalue oneself and positive self-concepts as a tendency to judge oneself favorably” (p. 139). According to Bandura (1986), the character and internal thoughts (perceptions, experiences, preferences, and abilities) within a person, the components comprising a person’s environment (situations, settings, and contexts), and a person’s behaviors (actions) are interactions collectively known as reciprocal determinism. Student self-efficacy and the level of course engagement, with regard to the reciprocal determinism model, are dictated through past experiences and the environment facilitated within the classroom by both the faculty member and fellow students. The classroom environment influences students’ behaviors and personal internal thoughts. The student’s personal thoughts influences his or her behaviors and the classroom environment. Students’ behaviors influence the classroom environment and students’ personal thoughts affecting both current and future perceptions, thereby demonstrating the reciprocal interactions between the environment, the behavior, and the person. Students are able to manipulate their environment, however, through their choice of enrolled courses and their levels of specific involvement or engagement within those courses. Faculty members’ design and instruction of their courses also dictates to some degree how effectively students engage in their courses. Specifically, the social cognitive theory, “people must develop skills in regulating the motivational, affective, and social determinants of their intellectual functioning as well as the cognitive aspects” (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996, pp. 1219-1220). Bandura’s social learning theory infiltrates the development of and perceptions supporting self-efficacy, in conjunction with the incorporation of an individual’s beliefs toward course engagement formulate the foundation

theoretical framework supporting this anticipated research (George, Locasto, Pyo, & Cline, 2017; Tschannen-Moran, & Woolfolk Hoy, 2001).

Bandura social cognitive theory is composed from four sources including past accomplishments, vicarious experiences, verbal persuasion and emotion arousal (Bandura, 1977a; Carr & Volberding, 2014). Bandura (1997) defines self-efficacy as, “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). According to Bandura (1986), the five basic cognitive components or capabilities included symbolizing, forethought, vicarious, self-regulatory, and self-reflective cognitive; of which self-regulatory and self-reflective are the driving forces in developing a person’s level of self-efficacy. Student effective use of symbols demonstrates their level of ability to “process and transform transient experiences in internal models that serve as guides for future actions” (p. 18). Student ability to initiate self-directed behaviors is derived from their symbolic processing; which results from developing and enhancing their capabilities of forethought. Student development of their vicarious capability requires astute observation of the positive or negative consequence outcomes resulting from the various behaviors and experiences demonstrated through the lives of other individuals. Student ability to develop internal motivation, rather than depend on external motivation, enables them to control their self-regulatory capabilities. Student self-reflection capability is determined through their internal thought process or metacognitive ability to glean and analyze their personal knowledge about themselves in relation to the world around them. Resulting in determining the significant importance of valuing the relationships and influences propelling outcomes that result in successful overall educational development of individuals, which reinforce the premise of reciprocal interactions between the environment, the behavior, and the person (Bandura, 1986, 1997). Bandura (2002) further stated, “self-efficacy

beliefs regulate functioning through cognitive, motivational, affective, and decisional processes” (p. 270). Educators adapting and appropriately modifying instructional methodologies to match the individual learning styles of their students, in conjunction with assessing and analyzing the perceived self-efficacy of those same students, enable optimal education growth and development to occur.

The theory behind self-efficacy proposes that an individual’s perception of their ability for attainment of desired outcomes hinge on beliefs in their capability to learn and competently apply knowledge (Turgut, 2013). Self-efficacy is the difference between individuals thinking they can be successful and knowing they can be successful. If an individual does not believe he or she can be successful, then the intrinsic drive motivating them to complete the task or engaged within their required coursework is significantly diminished (Bandura, 1996; Bandura 2001; Lown, 2011; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002). The quality of their perceptions of self-efficacy influences the quality of the effort they put forth within their academic coursework. An individual’s self-efficacy is a conglomerate of their purpose of existence, value to society, and self-worth formulating a direct reflection of their personal identity. Ultimately, humankind’s search for meaning and purpose is the foundational premise behind an individual’s self-efficacy, and dictates the quality of determination toward attaining lifelong learning and practical application. Self-efficacy is not just self-worth, belief about outcomes that are under one’s control, or self-evaluated outcomes. According to Bandura (2006), it is important to note that there are differences between self-efficacy and “self-esteem, locus of control, and outcome expectancies”, because self-efficacy is one’s ability to accurately judge their individual ability to successfully accomplish desired objectives or performances (p. 309). Evidence suggest that student perceptions of their self-efficacy change based on time spent throughout individual

academic coursework and throughout time (years and/or academic cohorts) spent earning a degree at an institution of higher education, but that the predictive power for student academic success through determining student self-efficacy is not conclusive (Bresó, Schaufeli, & Salanova, 2011; Choi, 2005; Galyon, Blondin, Yaw, Nalls, & William, 2012).

### **Adult Learning Theory**

Over time, extensive evidence-based research related to the educational development and learning styles of children and adolescence has been published, thereby necessitating research emphasis to also be placed on adult education methodologies and learning styles. Curran (2014a) presented four alternate adult learning theory perspectives to “include Bruner’s (1966) teaching through inquiry, Bandura’s (2005) teaching through modeling, Brookfield’s (1986) critical reflection, and Kolb’s (1983) experiential learning. Bruner’s (1966) teaching through inquiry theory suggests that student learning is best acquired when instructional experiences are structured/provided by educators and presented in a manner that is easily grasped by the student. Bandura’s (2005) teaching through modeling theory requires educators to put into practice and emulate the behaviors they wish their students to imitate. Brookfield’s (1986) critical reflection theory necessitates student to perform internal self-reflection and self-analysis of what they consider to be norms relevant to self-image and self-concepts allowing them to re-interpret past and current behaviors from their personal perspectives. Kolb’s (1983) experiential learning theory allows for students to actively problem solve based on participation in experiences as they create knowledge and progress through their individual learning cycles.

Malcom Knowles was the first theorist noted as being the originator of the adult learning theory known as andragogy (Allen, & Withey, 2017). Knowles (1978) stated; “It is not enough to translate the insights of education theory to the situation of adults... the teachers should be

professionals who could cooperate with the pupils” (p. 19). The teacher-centered authoritarian pedagogical model developed by Knowles (as cited in Curran, 2014a) provided six assumptions:

- Learners only need to know what teachers deem important.
- Teachers view learners as dependent, meaning self-concept and self-direction are neither nurtured nor developed.
- Experience is irrelevant to learning.
- Learners become ready to learn when teachers instruct them to do so.
- Learning is acquired through subject-matter content. Learners are motivated by external motivators alone. (Knowles et al., 2011, pp. 62-63)

These six assumptions may not effectively work for adult learners who tend to appreciate and reactive positively to a non-authoritarian learner-centered environment (Curran, 2014a).

Knowles identified assumptions that faculty members should take into consideration while providing their instructional methodologies to their content area. These assumptions incorporate faculty members to develop understanding of students’ strengths and weaknesses relative to self-concept, past experiences, readiness to learn, practical rational or reasons to learn, and internal motivation (Hagen, & Park, 2016; Merriam, 2001). Knowles, Holton, and Swanson (2011) concluded that when adult learners adhere to the assumptions and principles of the Adult Learning Theory, their learning ability and knowledge transfer was enhanced through learning-centered instructional methodology in comparison to teaching-centered. Curran (2014a) compared the key points contained within the pedagogy, andragogy, and social cognitive learning theory to determine common themes related to adult education as described in published evidence-base literature. Knowles’ time-tested adult learning theory, andragogy, effectively explains how adults learn differently than children (Allen & Withey, 2017; Wang, 2012).

Student engagement within their respective educational programs, ability to acquire desired learning outcomes, and then transfer their knowledge into practical application is enhanced through both faculty and students becoming proficient in using and applying the adult learning theory to their educational growth and development (Curran, 2014a; Curran 2014b).

### **Related Literature**

#### **Self-Efficacy and Psychosocial Factors**

Perceived self-efficacy of postsecondary students influences their levels of motivation, drive for persistence, and sense of accomplishment (Byard, 2011; Lown, 2011; Owen & Froman, 1988; Tschannen-Moran, & Woolfolk Hoy, 2001). Educational and clinical achievements are critical for athletic training students' successful interactions with their physically active patients. Bandura (2002) indicated that "self-enhancing and self-debilitating" internal motivation and perseverance to overcome the odds are influenced and regulated by individuals' level of self-efficacy (p. 270). Psychosocial factors involving the mental, emotional, and social components that lead to motivation constructs influencing the individual levels of self-efficacy toward aspiring achievement of academic and clinical accomplishments (Bandura, 1996, 1997; & Bandura, 2001; Lown, 2011; Schwarzer, 1992). Psychosocial factors such as stress management, time management, social involvement, and emotional connection influence students' perception of their self-efficacy and their grade point averages (Krumrei-Mancuso, Newton, Kim, & Wilcox, 2013). The level of students' perceived academic self-efficacy, organizational and clinical skills, and course engagement within their chosen fields of study significantly impacts the quality of their future employment. Enhancement in one's ability to cope with and overcome obstacles within family and interpersonal relationships, in addition to academic and employment endeavors, is strengthened through increased level of self-efficacy



and engagement (Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002). The quality of a student's psychosocial wellbeing is demonstrated through his or her willingness to become devoted to a specific discipline of study and the level of engagement with the required coursework.

Commitment to and engagement with professional growth leads to competence with practical application of acquired knowledge, wisdom, and skills.

### **Developmental Factors and Academic Achievement**

One must never underestimate the powerful influence that parents, guardians, relatives, peers, educators, and authority figures have on an individual's perception of self-efficacy and their engagement within their academic coursework (Bandura, 1986, 1997, 2002).

The aspirations parents hold for their children also have a strong impact on their children's academic aspirations and level of academic achievement. The impact of parental aspirations on their children's perceived occupational efficacy is entirely mediated through their children's perceived self-efficacy and academic achievement.

(Bandura, Barbaranelli, Caprara, & Pastorelli, 2001, p. 197)

The quality and support obtained from an individual's family environment, structure, and socioeconomic status throughout his or her infancy, childhood, and adolescence directly correlates with his or her level of self-efficacy, self-esteem, self-concepts, self-worth, and academic drive (Bandura, 2002). Evidence-based research indicates that connections exist between personality traits, stress appraisal, achievements, self-regulation, satisfying interpersonal relationships, overall well-being, and self-esteem with high self-efficacy, as opposed to negativity, anxiety, and depression with low levels of self-efficacy (Bandura, 1997; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). The development of successful interpersonal relationships requires trust which Byard (2011) describes the significance of trust

research defining the characteristics of trust, benevolence, honesty, openness, reliability, and competence, as they relate to self-efficacy. Each unique facet of humankind's created individual has been intricate designed to progressively develop a purpose and meaning in life as he or she grows and develops from conception until birth; then proceeds to becoming productive members of society as he or she transitions through stages/phases of infancy, childhood, adolescence, young adulthood and on into adulthood.

### **Self-Efficacy, Engagement, and Retention**

The power of individual's self-efficacy significantly influences retention and longevity within educational programs and future employment. The strength of one's "perceived efficacy to fulfill educational requirements and occupational roles, the wider the career options they seriously pursue, the greater interest they have in them, the better they prepare themselves educationally... and the greater their staying power in challenging career pursuits." (Bandura, 2001, p. 188). Greater social and academic self-efficacy drives student's course engagement, loyalty, persistence, and develops a personal connectedness to successfully accomplishing the required essential tasks or responsibilities required within their respective fields of study (Elliott, 2016; Schwarzer, 1992). Student retention in institutions of higher education transitions into competent and proficient employee retention within their various workplaces (Alarcon & Edwards, 2013; Allen & Withey, 2017). Educational institutions and employers throughout the world place tremendous value in a person with high self-efficacy toward being responsible, dependable, reliable, engaged, competent and proficient within their academic courses, degree program, and employment settings (Bandura, 1997; Bandura, 2002; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002).

Specifically within the profession of Athletic Training, recognition of the teachable moments within the didactic and clinical experiences by educators, clinical preceptors, and athletic training students is imperative for awaking and sustaining the passion and drive critical for ensuring retention and longevity. Faculty members and clinical preceptors must present the profession of Athletic Training as an exciting and dynamic profession that is fundamentally build on the quality of professional relationships driven by students desire to assist their fellow humankind in their time of need (Bowman & Dodge, 2013). In general, Athletic Training Students and Certified Athletic Trainers often considered and self-declared as hands on learners or having a more active learning style with the desire to gain competence and confidence through actively practicing and applying their learned knowledge and skills by engaging in patient care (Mazerolle, Bowman, & Benes, 2014). Athletic Training Students are able to develop greater perceived self-efficacy by becoming more autonomous and conscientious in providing competent and proficient health care to their respective patients when they are enable to take more control of their educational and clinical experiences (Heinerichs, Vela, & Drouin, 2013). Athletic Training Programs deficient in providing these educational learning environments potentially result in Athletic Training Students discontinuing their pursuit for achieving the distinguishing credential of becoming a Certified Athletic Trainer (Bowman & Dodge, 2013).

Faculty and clinical preceptors actively promote the profession and encourage students by dispelling perceived myths towards society's lack of respect of the athletic training profession and athletic trainers, poor compensation for health care services rendered, and the time commitment necessary to provide the highest quality of health care (Mazerolle, Gavin, Pitney, Casa, & Burton, 2012). These undermining thoughts and perceptions of the profession of Athletic Training are overcome by conjoining together to create and facilitate a sustainable

model of educational development that enables graduates to command respect, be compensated appropriately for services rendered, become focused patient-centered practitioners who are recognized as integral health care providers (Pitney, 2012). Leadership by example demonstrated the behaviors and characteristics crucial to bolster retention and promote students' longevity with providing the highest quality of health care for generations to come (Kutz, 2010). Faculty and clinical preceptors can model quality leadership and implement mentorship programs for their athletic training students that will drive their passion for promoting and pursuing lifelong learning (Byard, 2011; Carr & Volberding, 2014; Hankemeier et al., 2013; Mazerolle & Dodge, 2012). The development of highly educated, passionate, effective, competent, and proficient credentialed health care providers that will ensure longevity and retention is accomplished through educators and clinical preceptors remaining steadfast to their primary focus, directives, vision, mission, and goals for providing the highest standard of health care for a lifetime.

### **Self-Efficacy and Engagement**

Postsecondary student perceived self-efficacy and student course engagement contribute to the overall academic successes and failures within their required coursework. Ramos-Sanchez and Nichols (2007) concluded that self-efficacy differs between academic level classifications specifically with freshman. The quality and quantity of students' course engagement within their disciplines or fields of study potentially influences their self-perceptions toward their overall effectiveness and capabilities for becoming competent and proficient within their area of supposed expertise. The level and intensity of students' passion and drive throughout their educational growth and development perpetuates the quality of their overall effectiveness and attainment of their desired goals and outcomes in life. Khan (2013) demonstrated relationships among stress, coping skills, and academic success, as correlated with

grade point averages (GPA) between freshman and sophomore academic cohorts. Turgut (2013) determined that there were significant differences between postsecondary academic freshman, sophomore, and junior levels of self-efficacy and academic performance, but interactions between gender, academic level and academic performance was not tenable. The reasons for these differences may come of other sources such as faculty self-efficacy and potentially students' engagement within their required courses of their degree granting programs (Turgut, 2013). There is limited published evidence-based research assessing all the various levels of postsecondary students with regard to students' perceived self-efficacy and students' course engagement.

### **Student Course Engagement**

Student course engagement, as with self-efficacy, involves multidimensional facets working in conjunction with each other to ensure successful overall educational growth and development for each individual student. Educators verbal and nonverbal immediacy behaviors, college course status, class time, class size, and student class rank are a few external factors influencing student learning and student course engagement within their postsecondary academic degree awarding programs (Marx, Simonsen, & Kitchel, 2016). Students choosing an active role over a passive roll taking ownership of their learning and educational development demonstrate productive course engagement (Barkley, 2010). Student's confidence and performance with the academic coursework when enrolled in degree awarding program at institutions of higher education is significantly improved and directly correlated with their increase level of course engagement (Brown, White, Bowmar, & Power, 2017). Personality traits in concurrence with internal and external motivational components are the foundational elements that either drive individuals toward becoming engage within their environment, activities, and expectations.

Uninvolved, detached, or disinterested students risk facing failure to achieve their academic, career or future work experience potential (Miller, Rycek, & Fritson, 2011).

From the educators' perspective, recognizing and understanding theoretically harmful student behaviors and emotions are the crucial first steps toward addressing student's educational and developmental needs enabling enhancement of student engagement within the classroom and laboratory environments (Christenson, Reschly, Appleton, Berman, Spanjers, & Varro, 2008). An educator's ability to acquire pertinent information and data relevant to individual perceptions of student course engagement within their courses, and or specific degree program, can provide pivotal knowledge to the faculty member toward describing various student behaviors within their classrooms (Handelsman, Briggs, Sullivan, & Towler, 2005; Svanum, & Bigatti, 2009). Specifically, Handelsman et al., in their 2005 study determined student's skills, participation and interaction, emotional, and performance engagement are four factors that contribute to student course engagement. Attending class regularly, actively engage in effectively taking notes, and completing course required assignments in a timely fashion are components considered part of the student's skill engagement (Handelsman et al., 2005; Gurung, Daniel, & Landrum, 2012). The student's internal desire to acquire deeper knowledge and apply the knowledge gained in practical applicable ways in their daily lives demonstrates their emotional course engagement. Asking questions, actively engaging in class discussion and group projects/activities, and moving out of their comfort zones by raising their hands to ask or answer questions signifies students participation and interaction course engagement. Student course performance engagement is external motivation in nature through receiving good grades on required assignments, test, and papers turned in throughout the duration of their courses. Student course engagement often reflects more on the education process instead of solely on the student outcomes of specific

course or program of study (Galyon et al., 2012). Gaining attainable knowledge of these elements reinforces and enhances student course engagement as well as enables educators to fostering effective classroom and laboratory environments. Fulfilled students have increased potential toward becoming productive members of society.

### **Academic Cohorts**

Academic year cohorts or graduate year levels are used within educational institutions to assist in describing the duration of time students spend within their specified degree awarding programs. Students receiving and being conferred a degree, the amount of time students take to obtaining a degree, and their cumulative grade point average can be predicted by students' effort and engagement within their coursework throughout each of their academic years at an institution of higher education (Svanum & Bigatti, 2009). Institutions of higher education enroll academic cohorts in undergraduate and/or graduate degree programs classifying them into groupings consisting of freshmen, sophomore, junior, senior, and graduate levels. The potential differences between various undergraduate (bachelor degree programs) and graduate (master degree programs) academic levels or cohorts have been a focus of evidence-based research (Khan, 2013; Koludrovic & Ercegovic, 2017). Research has demonstrated a wide variety of differences and similarities between various levels of academic cohorts relevant to a multitude of areas. Numerous researchers have published results on student self-efficacy and/or course engagement, but limited emphasis is revealed on their specific differences, similarities, and/or interactions among the institutional categorized groupings of academic cohorts

In a recent study, physical therapy students enrolled within their second year demonstrated significant increase in self-efficacy scores in critical thinking skills over both first and third year physical therapy students; additionally, third year students demonstrated a

significant decline in self-efficacy scores compared to both first and third year students (Venskus, & Craig, 2017). Differences of self-efficacy scores based on freshman, sophomore, and junior levels of academic achievement have been assessed on participants (Turgut, 2013). As students evolve within their academic cohort groups toward their quest for successful completion of their respective academic disciplines of study, they ascertain deeper levels of appreciation for acquiring essential knowledge and wisdom relevant to the practical application of the required content. Determining course engagement within required introductory or compulsory academic course work of first semester students in a three year Bachelor of Sport and Recreation degree potentially influences their course engagement as they mature throughout degree programs (Brown, White, Bowmar, & Power, 2017). There are differences between first-generation and non-first-generation students regarding their ability to adjust to college environment and their overall academic success. (Ramos-Sanchez & Nichols, 2007). Vugon, Brown-Welty, and Tracz, (2010) demonstrated first-generation students' levels of persistence are out performed by their second-generation-and-beyond peers and that sophomore students grade point averages are affected by their perceptions of self-efficacy. A cross-sectional survey was completed using student rank was one of several independent variables studied relative to undergraduate students course engagement within degree awarding programs (Marx, Simonsen, & Kitchel, 2016). An overabundance evidence-based research indicates potential interactions, correlations, similarities, and/or differences exist among various levels of academic levels/cohorts in conjunction with a variety of intrinsic and extrinsic factors (Brown, White, Bowmar, & Power, 2017; Khan, 2013; Koludrovic & Ercegovic, 2017; Marx, Simonsen, & Kitchel, 2016; Ramos-Sanchez & Nichols, 2007; Svanum & Bigatti, 2009; Turgut, 2013; Vugon, Brown-Welty, & Tracz, 2010).



The specific constructs of the academic cohort design of Athletic Training Programs at both the current bachelor degree entry level and the master degree entry level enable progressive preparation through the required academic coursework and clinical education experiences to ensure successful passing of the Board of Certification examination. Athletic Training Students' course engagement and self-efficacy perceptions of their level of competence and proficiency toward providing the highest quality of health care to their physically active patients is likely enhanced throughout the academic cohort progression toward becoming credentialed Certified Athletic Trainers (Bandura, 1997). This foundational premise formulates the structuring necessary for student educational competency and clinical proficiency which perpetuates into a lifelong pursuit for acquiring mastery within their desired discipline of study. However, few researchers have examined the educational and clinical development of Athletic Training Students among undergraduate and graduate academic cohort year levels relative to self-efficacy and course engagement.

### **Learning Styles**

The overall health and wellness of society is dependent upon lifestyle choices, genetic influences, and a host of other factors in conjunction with the levels of quality and effectiveness of services rendered by licensed and credentialed health care providers. Faculty members and clinical preceptors alike are held accountable to providing the highest quality of educational programs and clinical experiences to ensure students employ the highest quality of health care to their respective patients. Meeting these objective, dictates educators to recognize and thoroughly analyze the various learning styles prevalent amongst students enrolled within their respective discipline or field of study, both educationally and clinically (Crawford, Alhreish, & Popovich, 2012). Unique student learning styles, processes, and receptiveness demonstrates the

significance behind supporting faculty members in their quest to diligently and deliberately provide a variety of instructional methodologies consistent with enabling students successfully acquisition of knowledge, understanding, and practical applications throughout their lifetime (McCrow, Yevchak, & Lewis, 2014). High quality, effective, and efficient educational programs and clinical experiences must be implemented in the instructional methodologies conducive to address the individualistic learning styles of students (Crawford, Alhreish, & Popovich, 2012; Urval, et al., 2014). The level and quality of student learning of health care ultimately entails licensed, credentialed health care providers to deliver the highest quality of care critical for prevention, recognition, evaluation, treatment, and rehabilitation of the various injuries, conditions, illnesses, pathologies encountered within their respective patient populations. Educators who witnessing student-learning transformations across physical, mental/intellectual, emotional, social, and spiritual facets improve and enrich their teaching methodologies (Beard, 2017). These improved methodologies support students' acquisition of the knowledge and wisdom critical for providing competent and proficient health care to their patients.

Each individual is capable of learning in the precise way that he or she was created and designed to do. The most effective methods by which students absorb, process, and retain information are referred to as the learning preferences of each student (Crawford, Alhreish, & Popovich, 2012; Good, Ramos, & D'Amore, 2013). The responsibility and accountability for addressing the specific student learning styles lie on the shoulders of postsecondary faculty members facilitating the respective didactic and clinical experience settings within their discipline or field of study. A vast number of assessment measures that have been determined valid and reliable, through peer-reviewed evidence-based research, for determining various

learning styles of students. Six prevalent instruments have been designed to determine various learning styles of students include the following:

- Kolb Learning Style indicator,
- Gregoric Style Delineator,
- Felder-Silverman Index of learning styles,
- VARK Questionnaire,
- Dunn and Dunn Productivity Environment Preference Survey, and the
- Myers-Briggs Type Indicator (Hawk & Shah, 2007; Sabo, Singles, Lopez, Toner, Naeve-Velguth, & Woods, 2012; Schellhase, 2006; Urval, Kamath, Ullal, Shenoy, Shenoy, & Udupa, 2014).

It's impossible for any one faculty member or instructor to address all student learning styles represented within his or her respective classrooms and laboratories (McCrow, Yevchak, & Lewis, 2014). Researchers have developed numerous theories related to the interconnections between various students leaning styles and faculty members' instructional methodologies. Bandura's (1977a, 1986, 1997) Social Cognitive Learning and Knowles (1978) Adult Learning Theory are two prominent theories that are relevant to understanding learning styles of Athletic Training Students. With consideration for the field of healthcare and specifically the discipline of athletic training, the overall objective is to optimize the educational development and professional growth of athletic training students transitioning into licensed, credentialed, health care providers. Faculty members' and instructors' course design, instructional methodology, and control over the classroom environment play pivotal roles regarding the level of course engagement students are willing to put forth (Gurung, Daniel, & Landrum, 2012; Handelsman et al., 2005; Rocca, 2010). These factors reinforce Bandura's (1986) reciprocal determinism model

which demonstrate the interactions and influences of the environment, the behavior, and the person. Indicating that student perceptions of their professors in conjunction with their perceptions of the classroom environment influence their actions, behaviors, and engagement associated with their coursework. Potentially, student perceived self-efficacy and course engagement are influenced by their growth and development environments. Therefore, educators and clinical preceptors are required to demonstrate flexibility by adapting their didactic and clinical instructional methodologies, theories, styles, and techniques to the ever-evolving learning styles for optimal educational growth and development of their students (Good, Ramos, & D'Amore, 2013).

Effective student learning styles assessment and analysis performed by faculty members and clinical preceptors must incorporate the inclusion of the physical, mental/intellectual, emotional, social, and spiritual facets of their individual lives. Accurate alignment of the instructional methodologies in conjunction with student learning styles enables Athletic Training students to develop intrinsic motivation toward engaging themselves within their respective coursework in anticipation of successfully passing their Board of Certification credentialing exam on their first attempt (Koludrovic & Ercegovac, 2017). This achievement leads to positively influencing their perceptions of self-efficacy toward delivering high quality, consistent, effective, competent, and proficient health care to their respective patients

### **Summary**

This research study will address past limitations presented in previous evidence-based research. Specifically, there is minimal evidence-based research focused on recognizing and assessing the levels of student self-efficacy and student course engagement toward their required coursework within their degree-granting program of their postsecondary institution of higher

education among academic cohorts. Evidence-based research indicates that well-known factors that affect students' perceived self-efficacy beliefs are gender, grade level, and academic performance (Carr & Volberding, 2014; Sagone & De Caroli, 2013; Turgut, 2013; Vuong, Brown-Welty, & Tracz, 2010). Research also indicates that student perceptions of self-efficacy and course engagement correlate to positive academic outcomes for academic courses and academic degree awarding programs at institutions of higher education (Bresó et al., 2011; Choi, 2005; Galyon et al., 2012). However, in light of available published evidence-based research, it is apparent that differences specifically between perceptions of student self-efficacy and student course engagement among postsecondary academic cohorts of athletic training students has seen little investigation (Brown, White, Bowmar, & Power, 2017; Koludrovic & Ercegovac, 2017). Therefore, it is the intent of this study is to address this gap in the literature and pose the following question: Are there differences between scores on College Academic Self-Efficacy Scale (CASES) and scores on Student Course Engagement Questionnaire (SCEQ) among postsecondary academic cohorts (sophomores, juniors, seniors, and/or postgraduate level) (Handelsman, Briggs, Sullivan, & Towler, 2005; Owen, & Froman, 1988)? The theoretical framework of this study is primarily based on Athletic Training Students' education, Social Cognitive Theory, and Adult Learning Theory as related to their perceived self-efficacy and course engagement (Bandura, 1977a; George, Locasto, Pyo, & Cline, 2017; Knowles, 1978). The intended result is to empower students to become competent, high quality, and proficient professional health care providers. The educational and clinical development of the Athletic Training Students are a direct reflection of the Athletic Training Programs from which they completed their respective required coursework and have been awarded the Athletic Training degree. The Athletic Training Students' self-efficacy toward becoming competed and proficient

health care providers in conjunction with their engagement within the required coursework of the Athletic Training Program determines their overall effectiveness in providing the highest quality of care to their physically active patients.

## **CHAPTER THREE: METHODS**

### **Overview**

The purpose of this quantitative, causal-comparative research study was to investigate differences between self-efficacy scores and course engagement scores among postsecondary academic cohorts of Athletic Training Students (ATS) enrolled in a Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Program (ATP). Naturally occurring participants within each of the postsecondary academic cohorts of Athletic Training Students represented various levels of physical, mental/intellectual, emotional, social, spiritual growth, and development as they traversed through the rigorous progression of academic coursework required by the CAATE-accredited Athletic Training Programs to become credentialed health care providers. This chapter presented the research methodology used in this study. Described below are the proposed research design, research question, research null hypothesis, participants and setting, instrumentation (reliability and validity), data collection procedures, and data analysis strategy.

### **Research Design**

This proposed study was to employ a quantitative, causal-comparative research design, which had been used to determine differences on two dependent variables using one independent variable (Gall, Gall, & Borg, 2007; Rovai, Baker, & Ponton, 2013; Warner, 2013). The researcher aimed to determine if multiple independent groups had differed in response to two dependent variables. Gall et al. (2007) indicated that a key ingredient for a causal-comparative research design incorporated an independent variable with multiple categories. Consequently, the independent variable, postsecondary academic cohorts, was the perceived cause associated

with effecting the differences in composite mean scores of the two dependent variables employed for this study.

The independent variable for this study was postsecondary academic cohorts divided into sophomore, junior, senior, and graduate level sub categories (Brown, White, Bowmar, & Power, 2017; Khan, 2013; Koludrovic & Ercegovac, 2017; Marx, Simonsen, & Kitchel, 2016; Ramos-Sanchez & Nichols, 2007; Svanum & Bigatti, 2009; Turgut, 2013; Vugon, Brown-Welty, & Tracz, 2010). A pertinent example was demonstrated in Marx, Simonsen, and Kitchel's (2016) research which focused on student course engagement and college level course status standings as sophomores and juniors within a degree program. Turgut's (2013) study explored participants' self-efficacy scores based on freshman, sophomore, and junior levels of academic achievement. Evidence-based research focused on comparisons of undergraduate and graduate levels of study (Bachelors or Masters) relative to participants' respective degree programs (Khan, 2013; Koludrovic & Ercegovac, 2017). The evidence-based research found here demonstrated a need for further exploration of determining differences or relationships between various academic levels found in postsecondary institutions of higher education. A causal-comparative research design was appropriate because there was one independent variable defined as postsecondary academic cohorts, identified as a generalized group not manipulated by the researcher (Gall, et al., 2007; Rovai et al., 2013; Warner, 2013).

Self-efficacy and student course engagement were the two dependent variables contained within this study. Self-efficacy was the first dependent variable employed. Self-efficacy's foundational premise depicted by Bandura's definition reverberates and was strongly reinforced throughout published evidence-based research (Bandura, 1997; Bandura, 2006; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Choi, 2005; Lampert, 2007; Luszczynska, Gutiérrez-



Doña, & Schwarzer, 2005; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002; Yilmaz, Gunes, & Katircioglu, 2016). Student course engagement was the second dependent variable employed. Student course engagement has been defined as a conglomerate of both actual and perceived aspects of physical, mental, emotional, social/behavioral, and spiritual components. These components contributed toward students actions, abilities, persistence, and effort applied toward their coursework in educational environments (Handelsman, Briggs, Sullivan, & Towler, 2005; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Marx, Simonsen, & Kitchel, 2016). The dependent variables were participants' perceived self-efficacy as measured by the College Academic Self-Efficacy Scale (CASES) and participants' perceived course engagement as measured by the Student Course Engagement Questionnaire (SCEQ) (Handelsman, et al., 2005; Owen & Froman, 1988). Papa (2015) implemented this instrument when he examined the relationships between academic course engagement and teacher self-efficacy toward influencing student course engagement, which supported connections between student coursework and course engagement. Svanum and Bigatti (2009) also implemented this instrument while they studied the significance of course engagement specific courses taken by postsecondary students and three outcome variables demonstrating student success. If the main effect analysis and interaction analysis were deemed significant, then additional follow-up analysis have been completed to determine between which variables the significance(s) occurred (Gall et al., 2007; Green & Salkind, 2017; Rovai et al., 2013; Warner, 2013).

### **Research Question**

The research question for this study was:

**RQ1:** Are there differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary academic cohorts?

### **Null Hypothesis**

The null hypothesis for this study was:

**H<sub>01</sub>:** There are no statistically significant differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary sophomore, junior, senior, and graduate level academic cohorts.

### **Participants and Setting**

The participants for this quantitative, causal-comparative study have been ascertained by a convenience sample method to promote access to the desired sample population and feasibility of conducting this study. The participant population for this research study were ethnically diverse, consisting of naturally occurring male and female college/university students within the age range of 18 – 65, who were healthy enough to meet the demands of being enrolled as full time Athletic Training Students. The participants will be recruited from a population enrolled in postsecondary institutions of higher education having degree awarding Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA) during the spring 2018 academic semester. The Athletic Training Students will be aligned within Athletic Training Programs' predetermined, postsecondary Academic Cohorts classification, which consist of sophomore, junior, senior, and graduate levels. There are 40 ( $N = 40$ ) institutions of higher education with “Active” status of having degree awarding Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA) (Commission on Accreditation of Athletic Training Education, n.d. b). The institutions of higher education

contained within the NATA District 3 Mid-Atlantic Athletic Trainers' Association (MAATA) encompasses the following states: District of Columbia ( $n = 0$ ), Maryland ( $n = 3$ ), North Carolina ( $n = 15$ ), South Carolina ( $n = 5$ ), Virginia ( $n = 10$ ), and West Virginia ( $n = 7$ ).

Sixteen of the 40 Athletic Training Program Directors at Institutions of Higher Education did not respond to the request to allow the researcher to contact/recruit/invite participants and conduct research on their Academic Cohorts of Athletic Training Students. (See Appendix P for Program Director/Faculty/Institution Permission Request Letter) One ATP Director at an Institution of Higher Education denied granting permission to allow the researcher to contact/recruit/invite participants and conduct research on their Academic Cohorts of Athletic Training Students. Twenty-three (57.5%) of the 40 ATP Directors of Institutions of Higher Education replied and granted the researcher permission to allow the researcher to contact/recruit/invite participants and conduct research on their Academic Cohorts of Athletic Training Students. (See Appendix R for Program Director/Faculty/Institution Permission Granted Replies) Resulting in 23 ( $N = 23$ ) institutions of higher education with "Active" status of having degree awarding Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA) (Commission on Accreditation of Athletic Training Education, n.d. b). These 23 institutions of higher education ( $N = 23$ ) granting permission were contained within the NATA District 3 Mid-Atlantic Athletic Trainers' Association (MAATA) and encompassed the following states: District of Columbia ( $n = 0$ ), Maryland ( $n = 2$ ), North Carolina ( $n = 7$ ), South Carolina ( $n = 2$ ), Virginia ( $n = 7$ ), and West Virginia ( $n = 5$ ).

The participant enrollment status within postsecondary academic cohorts of institutions of higher education having CAATE-accredited ATP were predetermined by their postsecondary academic cohort classification. The participant population of postsecondary academic cohort groups consisted of sophomore ( $n = 25$ ), junior ( $n = 33$ ), senior, ( $n = 27$ ), and graduate level ( $n = 27$ ); resulting in ( $N = 112$ ) total participants. According to Warner (2013), 112 participants, with 28 participants per group, were required for a large effect size with the statistical power of 0.70 at the 0.05 alpha ( $\alpha$ ) level. A statistical power of 0.70 was chosen. A total of 112 athletic training students participated in this study, meeting the minimum requirement to achieve a large effect size for a multivariate analysis of variance (MANOVA).

Power analysis for a MANOVA with four levels [independent variables] and two dependent variables was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, and a medium effect size ( $f = 0.25$ ). Based on the aforementioned assumptions, the desired sample size is 92. (Faul, Erdfelder, Buchner, & Lang, 2013)

Therefore, the convenience sample size met the required minimums for a medium effect size ( $N = 112$ ; male  $n = 29$ ; female  $n = 83$ ; sophomore  $n = 25$ ; junior  $n = 33$ ; senior,  $n = 27$ ; and graduate level  $n = 27$ ).

### **Participant Demographics**

The descriptive statistics for the participants' demographics participating in this study are shown in Table 1. The convenience sample population of 112 athletic training students ( $N = 112$ ) participated in this study. Twenty-nine (25.89%) of the participants were male and 83 (74.11%) were female. All 112 ( $N = 112$ ) postsecondary athletic training students were between the ages of 18 and 49 years and indicated they were enrolled (and/or seeking full acceptance) in

Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP). The sample population ( $N = 112$ ) consisted of 15 (13.39%) African American / Black, two (1.79%) American Indian / Native Alaskan, one (0.89%) Asian / Pacific Islander, two (1.79%) Hispanic / Latino, 87 (77.68%) Caucasian / White, and five (4.46%) all other ethnicities. The participant group of male students ( $n = 29$ ) consisted of six African American / Black, zero American Indian / Native Alaskan, one Asian / Pacific Islander, zero Hispanic / Latino, 19 White / Caucasian, and three all other ethnicities. The participant group of female students ( $n = 83$ ) consisted nine African American / Black, two American Indian / Native Alaskan, zero Asian / Pacific Islander, two Hispanic / Latino, 68 White / Caucasian, and two all other ethnicities.

Table 1

*Descriptive Statistics for Participant Demographics*

| Demographics                     | <i>n</i> | %     |
|----------------------------------|----------|-------|
| Gender                           |          |       |
| Male                             | 29       | 25.89 |
| Female                           | 83       | 74.11 |
| Race/Ethnicity                   |          |       |
| African American / Black         | 15       | 13.39 |
| American Indian / Native Alaskan | 2        | 1.79  |
| Asian / Pacific Islander         | 1        | 0.89  |
| Hispanic / Latino                | 2        | 1.79  |
| White / Caucasian                | 87       | 77.68 |
| All Other Ethnicities            | 5        | 4.46  |

*Note.*  $N = 112$

The convenience sample of naturally occurring postsecondary academic cohorts sub group categories participating in the two dependent variables consisted of: sophomores ( $n = 25$ ; 22.32%) participants males ( $n = 7$ ; 28.00%) and females ( $n = 18$ ; 72.00%); juniors ( $n = 33$ ; 29.46%), participants males ( $n = 9$ ; 27.27%) and females ( $n = 24$ ; 72.72%); seniors, ( $n = 27$ ;

24.11%), participants males ( $n = 8$ ; 29.63%) and females ( $n = 19$ ; 70.37%); graduate levels ( $n = 27$ ; 24.11%) participants males ( $n = 5$ ; 18.52%) and females ( $n = 22$ ; 81.48%) and total participants ( $N = 113$ ; 100.00%), total participants males ( $N = 29$ ; 25.89%) and total participants females ( $N = 83$ ; 74.11%). The descriptive statistics for the participants within the non-equivalent postsecondary academic cohort sub-groups (sophomore, junior, senior, or graduate level) based on gender are listed in Table 2.

Table 2

*Descriptive Statistics for Participant Postsecondary Academic Cohorts Based on Gender*

| Postsecondary Academic Cohorts | Gender | <i>N</i> | %      |
|--------------------------------|--------|----------|--------|
| Sophomore                      | Male   | 7        | 28.00  |
|                                | Female | 18       | 72.00  |
|                                | Total  | 25       | 22.32  |
| Junior                         | Male   | 9        | 27.27  |
|                                | Female | 24       | 72.73  |
|                                | Total  | 33       | 29.46  |
| Senior                         | Male   | 8        | 29.63  |
|                                | Female | 19       | 70.37  |
|                                | Total  | 27       | 24.11  |
| Graduate Level                 | Male   | 5        | 18.52  |
|                                | Female | 22       | 81.48  |
|                                | Total  | 27       | 24.11  |
| Total Participants             | Male   | 29       | 25.89  |
|                                | Female | 83       | 74.11  |
|                                | Total  | 112      | 100.00 |

**Participant Postsecondary Academic Cohorts**

One convenience sample group ( $N = 112$ ) called postsecondary academic cohorts (sophomore, junior, senior, or graduate level) consisted of male ( $n = 29$ ; 25.89%) and female ( $n$

= 83; 74.11%) were sampled. Sub-groups have been predetermined from naturally occurring classifications of sophomore, junior, senior or graduate level academic cohorts within various postsecondary institutions of higher education having degree awarding Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA). The sample participants of naturally occurring postsecondary academic cohorts sub group categories consisted of 25 sophomores (22.32%), 33 juniors (29.46%), 27 seniors (24.11%), and 27 graduate level students (24.11%). The descriptive statistics for the participants within the non-equivalent postsecondary academic cohort sub-groups (sophomore, junior, senior, or graduate level) are listed in Table 3.

Table 3

*Descriptive Statistics for Participant Postsecondary Academic Cohorts*

| Postsecondary Academic Cohorts | <i>n</i> | %     |
|--------------------------------|----------|-------|
| Sophomore                      | 25       | 22.32 |
| Junior                         | 33       | 29.46 |
| Senior                         | 27       | 24.11 |
| Graduate Level                 | 27       | 24.11 |

Note. *N* = 112

**Instrumentation**

Two instruments have been deemed reliable, stable, and valid through peer-reviewed, evidence-based research have been administered to the participants for this study. The first instrument is the College Academic Self-Efficacy Scale (CASES) developed by Owen and Froman (1988). This instrument was adapted from Jerusalem and Schwarzer's (1995) 10-item General Self-Efficacy Scale (GSE), originally developed 1979 and modified in 1981 (See Appendix A for the General Self-Efficacy Scale; see Appendix B for General Self-Efficacy Scale (GSE) Permissions, Instructions, and Procedures). The Student Course Engagement

Questionnaire (SCEQ) developed by Handelsman, Briggs, Sullivan, and Towler (2005) was the second instrument. The intent of this study was to obtain data from postsecondary ATS participants enrolled in CAATE-accredited ATP. The convenience sample participants were requested to complete a general demographic data questionnaire; in conjunction with completing the CASES and SCEQ instruments (see Appendix C for CASES Procedures, instructions and Instrument; see Appendix E for SCEQ Procedures, Instructions & Instrument). Several other researchers have recommended the use of participants' mean composite scores or the use of a one-factor structure for both the CASES and SCEQ instruments (Brown et al., 2017; Choi, 2005; Handelsman, et al., 2005; Lampert, 2017, Koludrovic, & Ercegovac, 2017; Owen & Froman, 1988; Papa, 2015). Therefore, each participant had a mean composite score from each of the two dependent variables defined as student self-efficacy, as measured by the College Academic Self-Efficacy Scale (CASES) and student course engagement as measured by Student Course Engagement Questionnaire (SCEQ) (Handelsman, et al., 2005; Owen & Froman, 1988). For the purposes of this quantitative, causal-comparative research study, proper documentation granting full authorization permissions to utilize the CASES and SCEQ instruments was obtained prior to implementation. (See Appendix D for CASES Approval for Use; see Appendix F for SCEQ Approval for Use).

### **College Academic Self-Efficacy Scale (CASES)**

This study implemented the College Academic Self Efficacy Scale (CASES) developed by Owen and Froman (1988) (Appendix C for College Academic Self-Efficacy Scale (CASES) Procedures, Instructions, & Instrument). This instrument was based on the General Self-Efficacy Scale (GSE) developed by Schwarzer and Jerusalem (1995), in the German language (see Appendix A for the General Self-Efficacy Scale) (see Appendix B for General Self-Efficacy



Scale (GSE) Permissions, Instructions, and Procedures) (Schwarzer, 2014). This instrument was used in numerous studies (Choi, 2005; Koludrovic, & Ercegovac, 2017; Lampert, 2007; Papa, 2015). The purpose of this instrument was to measure student confidence levels while participating in or completing various postsecondary tasks, such as communication skills with faculty members and note taking during classes (Owen & Froman, 1988; Ozmun, 2013;). The College Academic Self-Efficacy Scale (CASES) survey has 33 equally weighted statement items (see Appendix C for College Academic Self-Efficacy Scale (CASES) Procedures, Instructions, & Instrument). Each participant rated each item based on a 1 – 5 point, Likert-type scale indicating their level or amount of confidence, ranging from 5 (*Quite a lot*) to 1 (*Very little*). The sum of all 33 items yielded a final composite score with a range of 33 to 165. The CASES composite score were derived from the mean score. Higher self-efficacy was indicated with higher scores (130 – 165) and lower self-efficacy was indicated by lower scores (33 – 65). The time frame allotted by the researcher for the participants to complete this survey was approximately 15 minutes. Owen and Froman (1988) completed two sessions where the pretest was administered eight-weeks before the posttest. Owen and Froman (1988) reported internal consistency (Cronbach's  $\alpha$ ) was 0.90 and 0.92 with a test-re-test reliability of 0.85, as shown in Table 4. Papa (2015) reported acceptable reliability coefficients of 0.91 (pretest) and 0.94 (posttest), as shown in Table 4. Choi (2005), Koludrovic, and Ercegovac (2017), and Lampert (2007) research implemented and recommended the use of a composite score or one-factor structure of the CASES instrument. For the purposes of this quantitative, causal-comparative research study, proper documentation granting full authorization permissions was obtained prior to implementation of the College Academic Self-Efficacy Scale (CASES) instrument (Owen & Froman, 1988) (see Appendix D for CASES Approval for Use).

Table 4

*CASES Reliability and Validity Data*

|  | Pre-Test | Post-Test | Composite<br>Score |
|--|----------|-----------|--------------------|
| Cronbach's Alpha ( $\alpha$ )<br>(Choi, 2005)                    |          |           | 0.92               |
| Cronbach's Alpha ( $\alpha$ )<br>(Koludrovic, & Ercegovac, 2017) |          |           | 0.87               |
| Cronbach's Alpha ( $\alpha$ )<br>(Lampert, 2007)                 |          |           | 0.87               |
| Cronbach's Alpha ( $\alpha$ )<br>(Owen & Froman, 1988)           | 0.90     | 0.92      | 0.92               |
| Cronbach's Alpha ( $\alpha$ )<br>(Papa, 2015)                    | 0.91     | 0.94      |                    |

**Student Course Engagement Questionnaire (SCEQ)**

This study implemented the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman, Briggs, Sullivan, and Towler (2005) used to assess overall student engagement within their courses (see Appendix E for Student Course Engagement Questionnaire (SCEQ) Procedures, Instructions, & Instrument). This instrument was used in numerous studies (Brown, White, Bowmar, & Power, 2017; Marx, Simonsen, & Kitchel, 2016; Nkhoma, Sriratanaviriyakul, Hiep, & Lam, 2014; Papa, 2015). The purpose of this SCEQ instrument was to measure four subcategories of postsecondary student course engagement (Handelsman, Briggs, Sullivan, & Towler, 2005). The SCEQ instrument consisted of 23 items broken down into four subscales (see Appendix E for Student Course Engagement Questionnaire (SCEQ) Procedures, Instructions, & Instrument). These subscales were constructed and validated for assessment of students' skills engagement (nine items), emotional engagement (five items),

participation engagement (six items), and performance engagement (3 items). The subscales constructed for assessing skills engagement of students practicing skills, assessing students' emotional engagement within their course materials, assessing students' class participation and interaction engagement with faculty and classmates within their classes, and assessing performance engagement of students' level of performance within classes (Nkhoma, Sriratanaviriyakul, Hiep, & Lam, 2014). For the purposes of this study, the Student Course Engagement Questionnaire (SCEQ) survey instrument was designed to help understand the kinds of things that create difficulties for Athletic Training Students within Athletic Training Program classrooms and laboratories to improve the educational and clinical experiences of CAATE-accredited Athletic Training Programs.

Each participant read 23 statements and rated each to the extent that each of these statements described or applied as characteristic of them. The participants' rating was based on a 1 – 5 point, Likert-type scale indicating their understanding of the kinds of things that created difficulties for them ranging from 5 (*Very Characteristic of Me*), 4 (*Moderately Characteristic of Me*), 3 (*Neutral Characteristic of Me*), 2 (*Not Really Characteristic of Me*), to 1 (*Not At All Characteristic of Me*). The sum of all 23 items yielded a final composite mean score with a range of 23 to 115. Higher levels of student course engagement was indicated with higher scores (92 – 115) and lower levels of student course engagement was indicated by lower scores (23 – 46). The time frame allotted by the researcher for the participants to complete this survey portion of this proposed study was approximately 10 minutes. Handelsman et al. (2005) reported acceptable reliability coefficients (Cronbach's  $\alpha$ ) for skills, emotional, participation/interaction, and performance engagement subscales as 0.82, 0.82, 0.79, and 0.76, respectively, as shown in Table 5. Papa (2015) reported acceptable reliability coefficients of 0.87, 0.82, 0.72, and 0.86 for

each of the respective subscales and 0.91 for the composite, as shown in Table 5. For the purposes of this quantitative, causal-comparatives research study, proper documentation granting full authorization permissions was obtained prior to implementation of the Student Course Engagement Questionnaire (SCEQ) instrument (Handelsman, Briggs, Sullivan, & Towler, 2005) (see Appendix F for SCEQ Approval for Use).

Table 5

*SCEQ Reliability and Validity Data*

|  | Skills | Emotional | Participation/<br>Interaction | Performance<br>Engagement | Composite<br>Score |
|--|--------|-----------|-------------------------------|---------------------------|--------------------|
| Cronbach's Alpha ( $\alpha$ )<br>(Handelsman et al., 2005) | 0.82   | 0.82      | 0.79                          | 0.76                      | 0.80               |
| Cronbach's Alpha ( $\alpha$ )<br>(Brown et al., 2017)      |        |           |                               |                           | 0.74               |
| Cronbach's Alpha ( $\alpha$ )<br>(Papa, 2015)              | 0.87   | 0.82      | 0.72                          | 0.86                      | 0.91               |

**Procedures**

This research study was conducted using the following procedures. The researcher acquired appropriate approval via Liberty University's Institutional Review Board (IRB) application form for the use of human participants (see Appendix G for IRB Approval). Athletic Training Program Directors of CAATE-accredited ATP were contacted via email informing them of the purpose of this research study requesting permission to contact/recruit/invite their Athletic Training Students to participate in this study. All required permissions to contact/recruit/invite postsecondary academic cohorts of Athletic Training Students (ATS) to participate in this study have been secured from Athletic Training Program Directors having Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) located within the National Athletic Trainers' Association (NATA) –

District 3 – Mid-Atlantic Athletic Trainers’ Association (MAATA) region. (See Appendix P for Institution Permission Request Letter; See Appendix Q for Institution Permission Granted Letter Template) Only Athletic Training Students enrolled in MAATA institutions of high education who’s Athletic Training Program Directors provide permission granting letters/emails were included as participants in this study. (See Appendix R for Program Director/Faculty/Institution Permission Granted Replies) Each Athletic Training Program Director who granted permission for his or her Athletic Training Students to participate in this study was requested to identify their Athletic Training Students in pursuit of obtaining a (Bachelor and/or Master) degree in Athletic Training. Each Athletic Training Program Director was emailed detailed instructions (see Appendix H for Athletic Training Program Director/Faculty Instructional Letter) including a Participant Recruitment Letter (see Appendix I for Participant Recruitment Letter) for distribution via email to their sophomore, junior, senior and graduate level Athletic Training Students interested in participating in this study. The Participant Recruitment Letter contained participant information describing the background and purpose of the study. This Participant Recruitment letter also provided appropriate instructions for accessing the Survey Monkey Platform website link required for completing the survey instruments for this study: College Academic Self-Efficacy Scale (CASES) and Student Course Engagement Questionnaire (SCEQ). The Survey Monkey Platform is a website-based program allowing individuals to create and administer online surveys that are only accessible to those participants who are provided a link.

Athletic Training Students interested in participating in this study were asked to go to Survey Monkey via the link provided and complete a brief demographic questionnaire followed by two anonymous surveys. In the demographics section at the beginning of the survey, the participants were asked to identify their age (age range). If participants indicate that they were

under the age of 18, then any data they provide will be removed from the study prior to data analysis by the researcher. Additionally, within the demographics section of the survey, each participant was asked to identify the following demographic information: age, race, sex, and classify themselves into one of four category groupings of Postsecondary Academic Cohort (sophomore, junior, senior, or graduate level). For the purposes of this research study, the instrument administration of the College Academic Self-Efficacy Scale (CASES) and the Student Course Engagement Questionnaire (SCEQ) were employed. (See Appendix C for the College Academic Self-Efficacy Scale (CASES) Procedures, Instructions, & Instrument; See Appendix E for the Student Course Engagement Questionnaire (SCEQ) Procedures, Instructions, and Instrument; See Appendix J Participant Procedures and Instructions for CASES and SCEQ Instruments). Acknowledgement of the Participant Consent Form (see Appendix K for Participant Consent Form) by clicking the NEXT (Take the Survey) button, completing a brief demographic questionnaire followed by two anonymous surveys indicated the participant consented to participate in the study. The researcher responsible for conducting this study did not administer these survey instruments to the participants (Athletic Training Students) with whom he was responsible for teaching or assessing.

Data were collected three to four weeks prior to the last regular scheduled class date for the 2018 Academic Spring Semester from Athletic Training Students enrolled in postsecondary institutions of higher education having CAATE-accredited ATP within the NATA District 3 MAATA region. During the last three to four weeks of the spring 2018 academic semester of instruction, an announcement via email was made by each Athletic Training Program Director regarding Athletic Training Students voluntary participation in the study. The Survey Monkey Platform website link was opened for a total of three weeks for the ATS to complete the brief

demographic questionnaire, CASES, and SCEQ survey instruments. An initial invitation was sent to each Athletic Training Program Director on April 2, 2018 with instructions to forward the Participant Recruitment Letter and hyperlink to the Survey Monkey web-based platform to their identified academic cohorts of athletic training students. Additional follow-up emails were sent to each Athletic Training Program Director on April 8, 2018 and April 15, 2018. The Survey Monkey data collection processes were closed to participants on April 22, 2018.

Those participants who consented to participate in this study completed the demographic questionnaire (age, race, sex, and postsecondary academic cohort level), CASES, and SCEQ survey instruments. Each participant's data were collected by the online Survey Monkey platform website and stored in a secure file on a password-protected computer/server. The Survey Monkey website-based survey program provided the participants with study information and participant consent form (see Appendix K for Participant Consent Form). This participant consent form invited students to participate in this study, providing background information describing the nature and purpose of this research, outlining what was involved and required for participants, and described procedures, as well as a provided full disclosure of the risk and benefits associated with participation. Participants were provided with both the researcher's and his dissertation committee chair's contact information. In addition, they were notified of their ability to decide whether or not to participate in this study. The time frame allotted by the researcher for the participants to complete the entire survey was approximately 20 – 30 minutes.

The CASES and the SCEQ instruments were selected as reliable, stable, and validated instruments that generated the appropriate data necessary to fulfill the purposes of this proposed study and provided answers to the proposed research questions. Survey instruments including the demographics questionnaire, the CASES instrument, and the SCEQ instrument were

administered three to four weeks prior to the end of the spring 2018 academic semesters. Each participant had three weeks to access and to complete the survey. Upon completion of the surveys by the participants on Survey Monkey, the data were automatically accessed/mailed to the principal investigator/researcher. Once the deadline was reached for completion of the surveys, the data was be uploaded into IBM© *Statistical Package for Social Sciences* (SPSS©) – Windows Version 24.0 software for statistical analysis. All electronically collected data from participant consent forms and completed surveys were saved on a password-protected computer. Following the successful defense of the study all electronically collected data were permanently deleted from the password-protected computer and stored in a password-protected file on a removable jump-drive stored in a locked file cabinet in the principal researcher's home for a period of three years. The results of the surveys were made available, upon request, as a professional courtesy to all CAATE-accredited ATP program directors and any participants participated in this study.

### **Data Analysis**

Data were collected from the instruments surveys and stored as a file in a folder on a secure (password-protected) computer. Data were analyzed using IBM© *Statistical Package for Social Sciences* (SPSS©) – Windows Version 24.0. The researcher performed data screening prior to analysis. To screen the data for errors, a frequency distribution was completed to determine if there were any missing values and/or coding errors. Prior to statistical testing all participants who did not complete both dependent variables (CASES and SCEQ) were eliminated. Any determined data errors, missing values, coding errors, and/or extreme outliers were removed prior to performing the statistical analysis of the data. Histograms and Boxplots (Box and Whiskers plots) were created to examine normality and test for extreme outliers (Green



& Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). Prior to statistical testing all extreme outliers were eliminated.

The data obtained from the convenient sample participants was analyzed by a one-way multivariate analysis of variance (one-way MANOVA) statistical analysis. A one-way MANOVA was run to determine the effect of CASES and SCEQ among postsecondary academic cohorts. Two dependent measures were assessed: perceived student self-efficacy scores, as measured College Academic Self-Efficacy Scale (CASES) developed by Owen and Froman (1988) and perceived student course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman, Briggs, Sullivan, and Towler (2005). Demographic questionnaire data (postsecondary academic cohort level) reported by the participants and the participant scores on the CASES and SCEQ were included in the data analysis. The researcher employed a one-way MANOVA to determine if there were significant differences between the independent categorical variables: postsecondary academic cohort classifications (sophomore, junior, senior, and graduate level) on the two dependent variables: the participant mean scores on the CASES instrument and mean scores on SCEQ instrument.

A one-way MANOVA was determined tenable when the study met the first three assumptions: had two dependent variables that are measured at the continuous level, one independent variable that consisted of four categorical, independent groups, and demonstrated an independence of observations based on participants being classified by academic cohort levels (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). This study was also deemed tenable based on having met seven additional assumptions: no extreme univariate or multivariate outliers (Box and Whiskers plots or boxplots), has multivariate normality (Shapiro-Wilk test of normality), has a linear relationship between the dependent variables with each

group of the independent variables (Scatterplot matrices), has homogeneity of variance-covariance matrices (Box's test), no multicollinearity (Pearson  $r$ ), and demonstrates homogeneity of variances (Levene's Test for equality of variances at  $p < 0.05$ ) (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). Multivariate tests included Wilks's Lambda statistic and partial eta square using the 0.05 alpha level in order to ensure a high level of significance. Any statistically significant results from the one-way MANOVA would require further Post Hoc analysis to be conducted using a series of analysis of variances (ANOVA) on the dependent variables using a Bonferroni correction and/or Tukey test to determine specifically which variables were statistically significant (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013).

## **CHAPTER FOUR: FINDINGS**

### **Overview**

The purpose of this quantitative, causal-comparative study was to compare perceived self-efficacy scores and course engagement scores among four groups of academic cohorts by determining statistically significant differences in perceptions of perceived self-efficacy and student course engagement of sophomore, junior, senior, and graduate level academic cohorts of athletic training students. This chapter will present results of the statistical analysis of the comparison of academic cohorts' perceptions of self-efficacy, as measured by the College Academic Self-Efficacy Scale (CASES) developed by Owen and Froman (1988), and course engagement, as measured by the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman, Briggs, Sullivan, and Towler (2005).

### **Research Question**

The research question for this study was:

**RQ1:** Are there differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary academic cohorts?

### **Null Hypothesis**

The null hypothesis for this study was:

**H<sub>0</sub>1:** There are no statistically significant differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary sophomore, junior, senior, and graduate level academic cohorts.

### **Descriptive Statistics**

The College Academic Self-Efficacy Scale (CASES) and Student Course Engagement Questionnaire (SCEQ) instruments were distributed, via the Survey Monkey web-based

platform, to 23 Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP) within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA) during the spring 2018 academic semester. The ATP Directors disseminated the Participant Recruitment Letter and the Survey Monkey hyperlink by email to their academic cohorts of athletic training students on April 2, 2018. The dependent variables were CASES and SCEQ survey instruments. The independent variable Academic Cohorts were classified as: Sophomore, Junior, Senior, and Graduate Level. Participants were a convenience sample of athletic training students who classified themselves into one of the four sub-groups of academic cohorts; which ensured the independence assumption was not violated.

One hundred and twenty-four total participants had accessed the Survey Monkey web-based platform by the closing deadline of April 22, 2018. One participant indicated she was not enrolled as an Athletic Training Student (ATS) within a CAATE-accredited Athletic Training Program, and her data were removed from the study. Ten participants did not successfully complete one or both of the required instruments used as part this research, and their data were removed from the study. One participant's data were removed because he failed to completed the CASES instrument properly (ranking all items with a score of 5 on a 1 – 5 Likert Scale). The final total sample size was one hundred and twelve ( $N = 112$ ) participants who indicated academic cohort classification as either a sophomore, junior, senior, or graduate level Athletic Training Student (ATS) within an CAATE-accredited Athletic Training Program and whose data were included in the study.

### Dependent Variables Among Postsecondary Academic Cohorts

Data obtained for the dependent variables, CASES mean scores and SCEQ mean scores based on participants within the non-equivalent postsecondary academic cohort sub-groups (sophomore, junior, senior, or graduate level) can be found in Table 6. Postsecondary academic cohort (sophomore, junior, senior or graduate level) mean scores and standard deviations on their College Academic Self-Efficacy Scale (CASES) were ( $M = 3.66$ ,  $SD = 0.38$ ;  $M = 3.85$ ,  $SD = 0.38$ ;  $M = 3.97$ ,  $SD = 0.53$ ; and  $M = 3.74$ ,  $SD = 0.43$  respectively), as indicated in Table 6. Postsecondary academic cohort (sophomore, junior, senior, or graduate level) mean scores and standard deviations on their Student Course Engagement Questionnaire (SCEQ) were ( $M = 3.89$ ,  $SD = 0.45$ ;  $M = 3.99$ ,  $SD = 0.42$ ;  $M = 4.05$ ,  $SD = 0.49$ ; and  $M = 3.94$ ,  $SD = 0.44$  respectively), as indicated in Table 6.

Table 6

| <i>Descriptive Statistics - Dependent Variables Among Postsecondary Academic Cohorts</i> |                               |          |           |          |
|--|-------------------------------|----------|-----------|----------|
|  | Postsecondary Academic Cohort | <i>M</i> | <i>SD</i> | <i>N</i> |
| College Academic Self-Efficacy Scale (CASES) Mean Scores                                 | Sophomore                     | 3.66     | 0.38      | 25       |
|  | Junior                        | 3.85     | 0.38      | 33       |
|  | Senior                        | 3.97     | 0.53      | 27       |
|  | Graduate Level                | 3.74     | 0.43      | 27       |
| Student Course Engagement Questionnaire (SCEQ) Mean Scores                               | Sophomore                     | 3.89     | 0.45      | 25       |
|  | Junior                        | 3.99     | 0.42      | 33       |
|  | Senior                        | 4.05     | 0.49      | 27       |
|  | Graduate Level                | 3.94     | 0.44      | 27       |

## Results

The results of this quantitative, causal-comparative research study include initial data screening procedures, tests of the hypothesis, including assumption test, and a one-way MANOVA statistical analysis. A one-way multivariate analysis of variance (one-way MANOVA) identified seven assumptions required for conducting a one-way MANOVA (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013).

### Data Screening

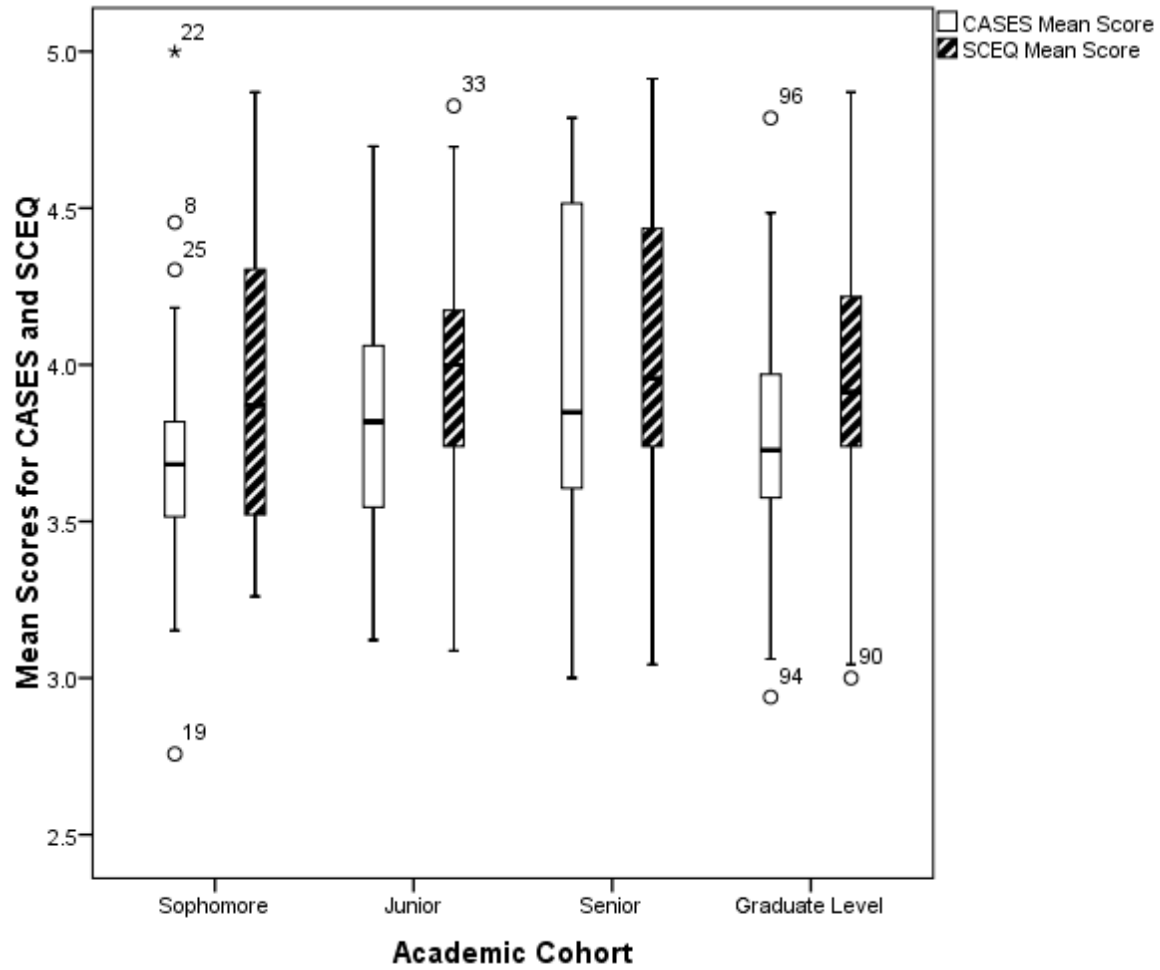
Data screening was conducted for the two dependent variables (CASES mean scores and SCEQ mean scores) on independent variable (postsecondary academic cohorts including four subgroups: sophomore, junior, senior, or graduate levels) in search of inconsistencies and extreme outliers. The researcher sorted, organized, screened, and assessed the data on each variable to determine any unusual scores, errors, irregularities, or inconsistencies. Three methods of initial data screening were used for ensuring tenable sampling assumptions relative to this study.

One hundred and twenty-four total participants had accessed the Survey Monkey web-based platform by the closing deadline of April 22, 2018. One participant indicated she was not enrolled as an Athletic Training Student (ATS) within a CAATE-accredited Athletic Training Program, and her data were removed from the study. Ten participants did not successfully complete one or both of the required instruments used as part this research, and their data were removed from the study. One participant's data were removed because he failed to completed the CASES instrument properly (ranking all items with a score of 5 on a 1 – 5 Likert Scale). The final total sample size was one hundred and twelve ( $N = 112$ ) participants who indicated academic cohort classification as either a sophomore, junior, senior, or graduate level Athletic

Training Student (ATS) within an CAATE-accredited Athletic Training Program and whose data were included in the study.

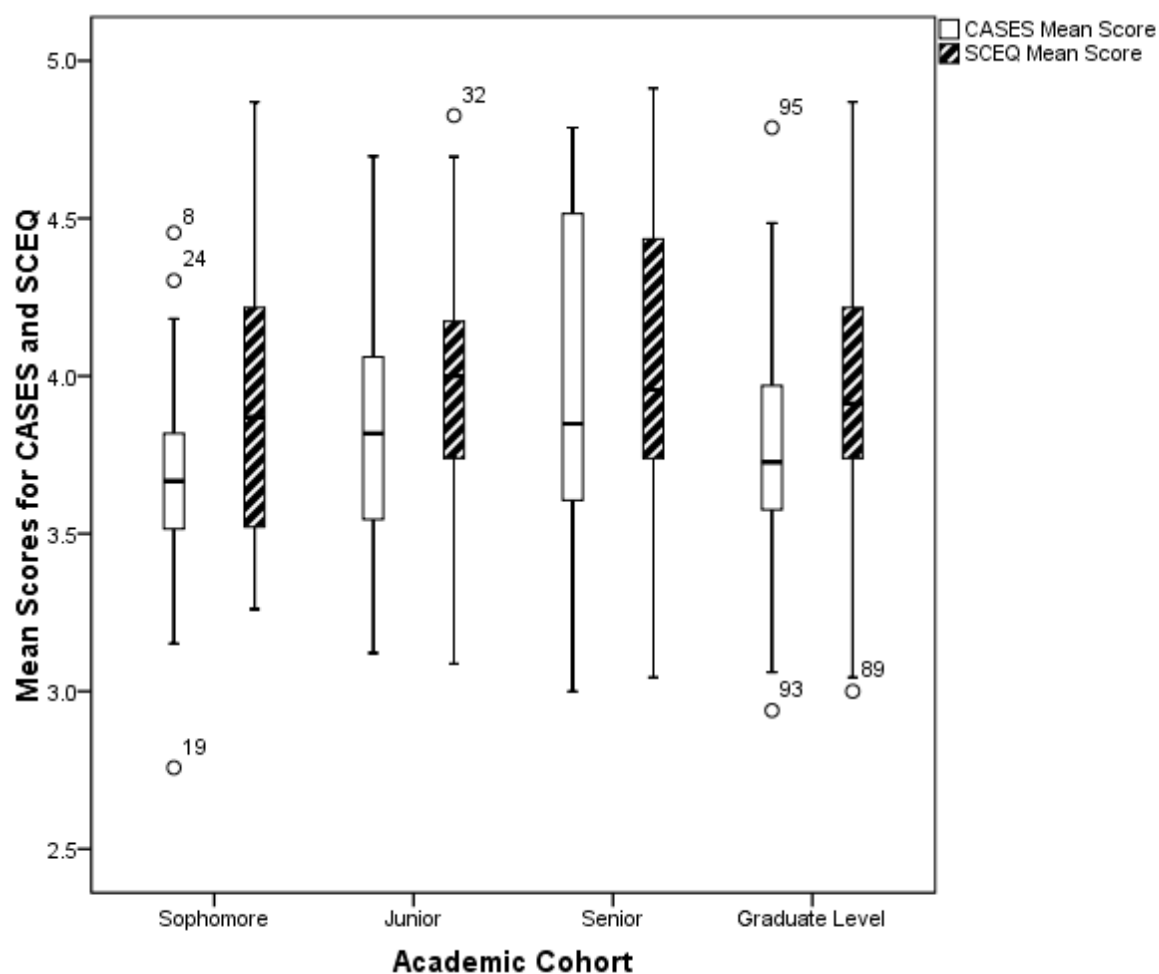
The data screening process was initiated by observing the participants' data, which when completed were determined tenable, as the obtained data indicated no additional obvious errors, omissions, or inconsistencies.

Box and Whiskers plots for each academic cohort group were used to display data to look for outliers. The researcher inspected the data and addressed any extreme outliers displayed in a Box and Whisker plot for each independent and dependent variable. There was one extreme univariate outlier (item #22 within the academic cohort: sophomore that was identified within the CASES mean score data obtained for this study) in the data, as assessed by inspection of a Box and Whiskers plot having a value greater than 3 box-lengths from the edge of the box. The researcher chose to remove the one extreme univariate outlier (item #22) detected prior to further progression with the statistical analysis process. See Figure 1 for Box and Whiskers plots for CASES Mean Scores and SCEQ Mean Scores among Academic Cohorts & Figure 2 for Box and Whiskers plots for CASES Mean Scores and SCEQ Mean Scores among Academic Cohorts (Data Point Extreme Outlier #22 Removed).



*Figure 1:* Box and Whiskers plots for CASES Mean Scores and SCEQ Mean Scores among Academic Cohorts. This figure identifies, within the academic cohorts, one extreme outlier (item # 22 within the academic cohort: sophomore) for the data obtained on CASES mean scores and SCEQ mean scores.





*Figure 2:* Box and Whiskers plots for CASES Mean Scores and SCEQ Mean Scores among Academic Cohorts (Data Point Extreme Outlier #22 Removed). This figure identifies, within the academic cohorts, the results after the one extreme outlier (item # 22 within the academic cohort: sophomore) had been removed for the data obtained on CASES mean scores and SCEQ mean scores.

### Assumptions

A one-way multivariate analysis of variance (one-way MANOVA) was conducted to test the null hypothesis regarding differences in academic cohorts of athletic training students on the dependent variables: perceived self-efficacy and perceived course engagement. Green and

Salkind (2017), Laerd Statistics (2015), and Warner (2013) identified nine assumptions required for conducting a one-way MANOVA. The assumption of linearity, absence of multicollinearity, the assumption of multivariate normality, assumption of univariate and multivariate normal distribution (no extreme outliers), the assumption of homogeneity of variance-covariance matrices, and assumption of variance and covariance were used to test the validity of the data.

Assumptions of normality were met using a test for normality procedure in SPSS (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). Due to the small sample size, (See Table 7) Shapiro-Wilk test was used because sample size was less than 50 participants within each independent group. No violations of normality were found indicating the CASES mean scores and the SCEQ mean scores were normally distributed for each academic cohort, as assessed by Shapiro-Wilk's test. See Table 7 for Test for Normality.

Table 7

*Tests of Normality*

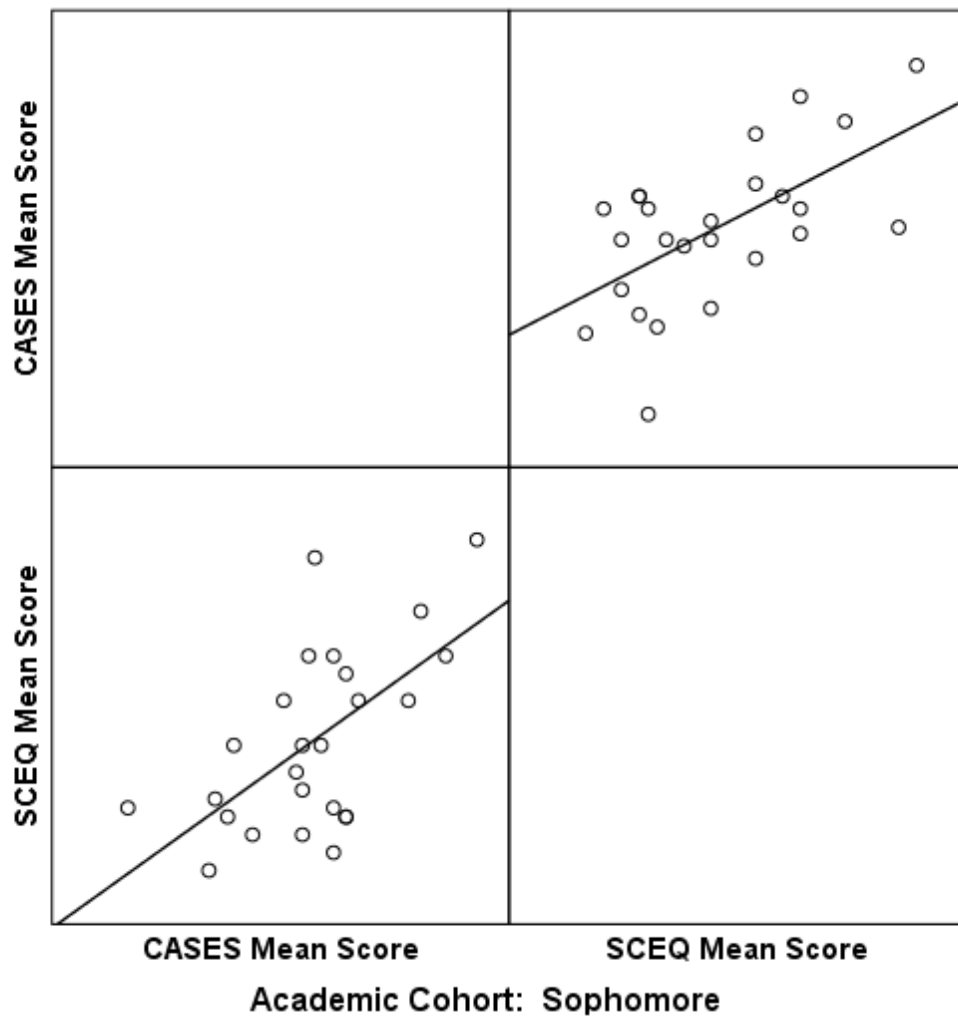
|                   | Academic Cohort | Kolmogorov-Smirnov <sup>a</sup> |    |        | Shapiro-Wilk |    |       |
|-------------------|-----------------|---------------------------------|----|--------|--------------|----|-------|
|                   |                 | Statistic                       | df | Sig.   | Statistic    | df | Sig.  |
| CASES Mean Scores | Sophomore       | 0.140                           | 25 | 0.200* | 0.970        | 25 | 0.653 |
|                   | Junior          | 0.082                           | 33 | 0.200* | 0.976        | 33 | 0.665 |
|                   | Senior          | 0.169                           | 27 | 0.047  | 0.936        | 27 | 0.099 |
|                   | Graduate        | 0.120                           | 27 | 0.200* | 0.967        | 27 | 0.513 |
| SCEQ Mean Scores  | Sophomore       | 0.146                           | 25 | 0.174  | 0.934        | 25 | 0.106 |
|                   | Junior          | 0.093                           | 33 | 0.200* | 0.981        | 33 | 0.810 |
|                   | Senior          | 0.097                           | 27 | 0.200* | 0.969        | 27 | 0.576 |
|                   | Graduate        | 0.136                           | 27 | 0.200* | 0.964        | 27 | 0.445 |

\* This is a lower bound of the true significance.

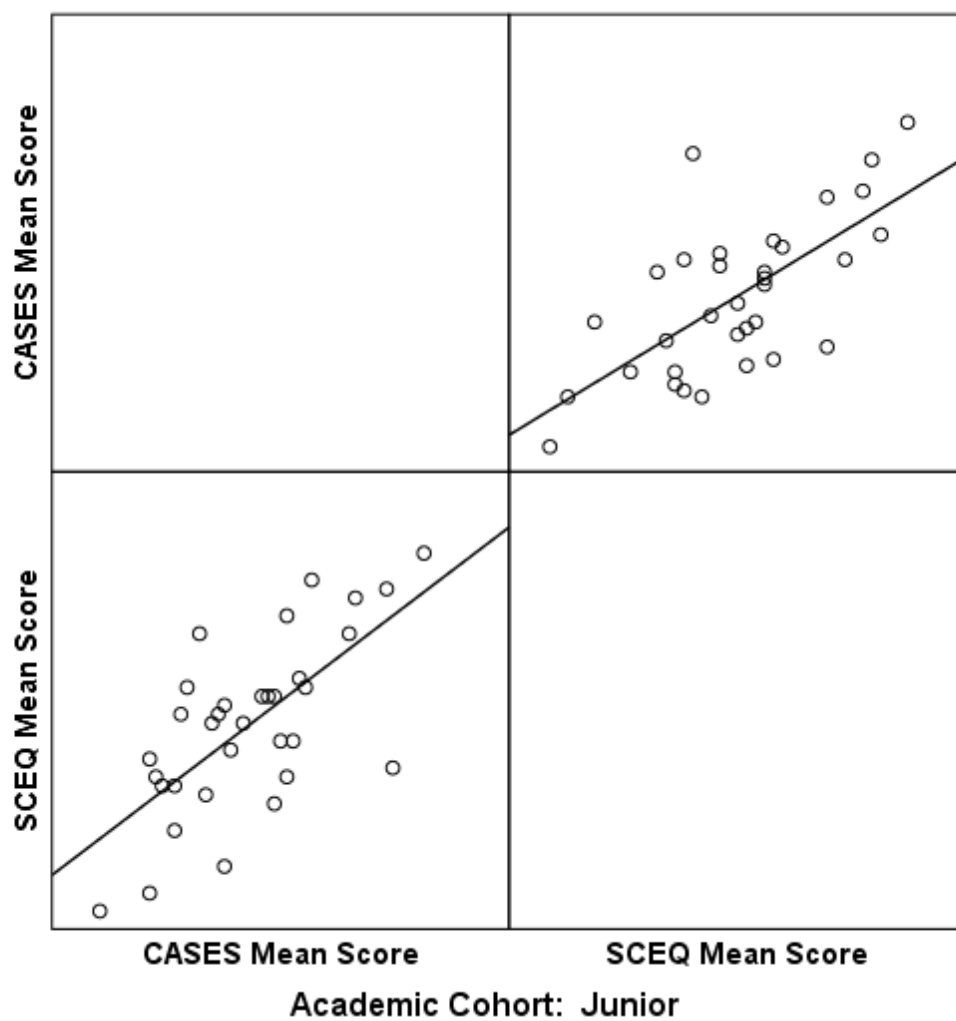
<sup>a</sup> Lilliefors Significance Correction

The researcher performed a test for assumption of multivariate normal distribution with the use of a series of scatterplots. A scatterplot matrix was plotted for both groups of dependent

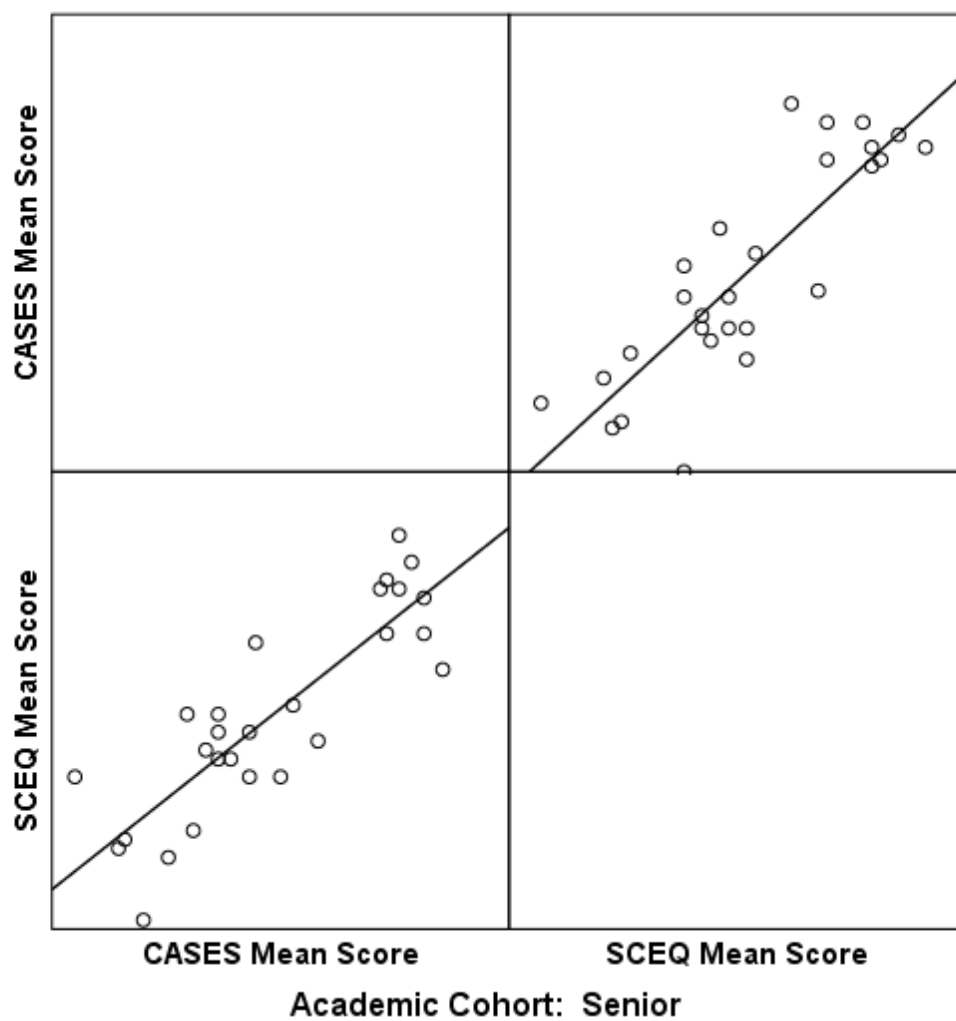
variables (CASES and SCEQ). The scatterplot for CASES and the scatterplot of SCEQ showed multivariate normal distribution; therefore, this assumption was not violated. There was a linear relationship between CASES mean scores and SCEQ mean scores in each academic cohort: sophomore, junior, senior, and graduate level, as assessed by the scatterplots. See Figure 3, Figure 4, Figure 5, and Figure 6 for scatterplots.



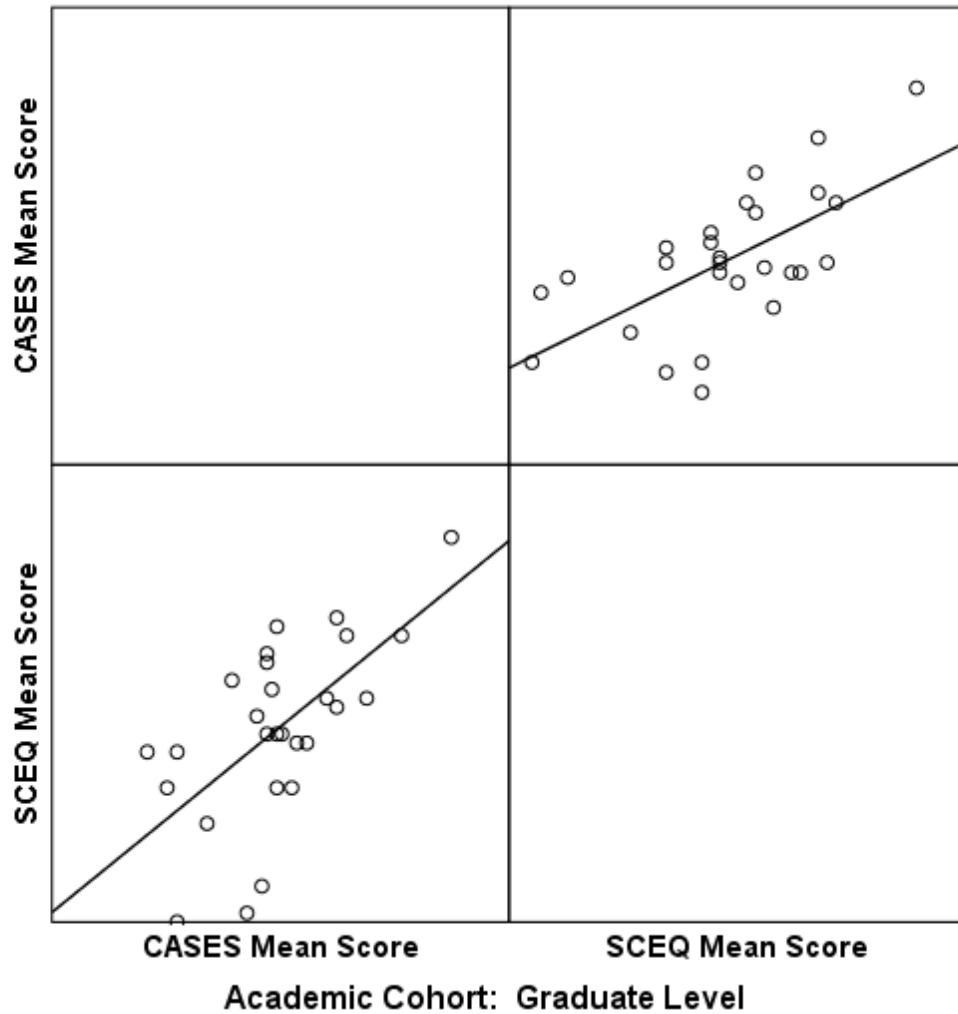
*Figure 3:* Scatterplots for Academic Cohort: Sophomore with CASES Mean Scores and SCEQ Mean Scores.



*Figure 4:* Scatterplots for Academic Cohort: Junior with CASES Mean Scores and SCEQ Mean Scores.



*Figure 5:* Scatterplots for Academic Cohort: Senior with CASES Mean Scores and SCEQ Mean Scores.



*Figure 6:* Scatterplots for Academic Cohort: Graduate Level with CASES Mean Scores and SCEQ Mean Scores.

The homogeneity of variance-covariance matrices was assessed by Box's M test of equality of covariance matrices. There was homogeneity of variances-covariances matrices, as assessed by Box's test of equality of covariance matrices ( $p = 0.597$ ). Thus the assumption was met. See Table 8 for Test for Box's Test of Equality of Covariance Matrices.

Table 8

| <i>Box's M Test of Equality of Covariance Matrices<sup>a</sup></i>  |            |
|---|------------|
| Box's M   | 7.645      |
| F   | 0.821      |
| df1   | 9          |
| df2   | 114765.670 |
| Sig.  | 0.597      |
| Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups. |            |

a. Design: Intercept + Academic\_Cohort

The assumption of homogeneity of variance was assessed by Levene's test of Homogeneity of Variance (Equality of Error Variances) for both CASES mean scores ( $p = 0.054$ ) and SCEQ mean scores ( $p = 0.685$ ). The assumption was met as demonstrated by the homogeneity of variances matrices ( $p > 0.05$ ). See Table 9 for Levene's Test of Equality of Error Variances.

Table 9

| <i>Levene's Test of Equality of Error Variances<sup>a</sup></i>                                     |       |     |     |       |
|---|-------|-----|-----|-------|
|   | F     | df1 | df2 | Sig.  |
| CASES Mean Scores   | 2.631 | 3   | 108 | 0.054 |
| SCEQ Mean Scores  | 0.498 | 3   | 108 | 0.685 |
| Tests the null hypothesis that the error variance of the dependent variable is equal across groups. |       |     |     |       |

a. Design: Intercept + Academic\_Cohort

The researcher used the Pearson Product Moment Correlation test to assess for assumption of multicollinearity. There was no multicollinearity, as assessed by Pearson Product Moment correlation ( $r = 0.710$ ). See Table 10 for Pearson Product Moment Correlation Test.

Table 10

*Pearson Product Moment Correlation Test*

|                      |                 | CASES Mean<br>Scores | SCEQ Mean<br>Scores |
|----------------------|-----------------|----------------------|---------------------|
| CASES Mean<br>Scores | Pearson         | 1                    | 0.710**             |
|                      | Correlation     |                      |                     |
|                      | Sig. (2-tailed) |                      | 0.000               |
|                      | N               | 112                  | 112                 |
| SCEQ Mean Scores     | Pearson         | 0.710**              | 1                   |
|                      | Correlation     |                      |                     |
|                      | Sig. (2-tailed) | 0.000                |                     |
|                      | N               | 112                  | 112                 |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**Null hypothesis – MANOVA Analysis**

A one-way multivariate analysis of variance (MANOVA) was run to test the null hypothesis; the differences between the CASES mean scores and SCEQ mean scores among academic cohorts of athletic training students (sophomore, junior, senior, and graduate level). Preliminary data screening were completed and determined tenable, as the obtained data indicated no additional obvious errors, omissions, or inconsistencies. One extreme outlier was removed, as assessed by Box and Whiskers plots. Assumption tests of normality revealed that the data were normally distributed, as assessed by Shapiro-Wilk Test ( $p > 0.05$ ). Test for assumption of multivariate normal distribution indicated there were linear relationships, as assessed by scatterplots matrices. There was homogeneity of variance-covariance matrices, as assessed by Box's M test ( $p = 0.597$ ). There was homogeneity of variances-covariances matrices, as assessed by Levene's test of equality of error variances for CASES and SCEQ ( $p = 0.054$  and  $p = 0.685$  respectively). There was no multicollinearity, as assessed by Pearson Product Moment correlation ( $r = 0.710$ ).



The results of the one-way MANOVA did not reveal statistically significant differences and as a result the null hypothesis failed to be rejected at the 95% confidence level (alpha level of 0.05), where  $F(6, 214) = 1.389$ ,  $p = 0.220$ , Wilks'  $\Lambda = 0.926$ ; partial  $\eta^2 = 0.037$ . This suggested there were no significant differences on the dependent variables (CASES and SCEQ) among the independent variable values (academic cohorts of athletic training students). The effect size as measured by partial eta squared was medium ( $\eta^2 = 0.037$ ). Because the null hypothesis failed to be rejected, post hoc analysis was not required. See Table 11 for Multivariate Test computed using alpha = 0.05.

Table 11

*Multivariate Test*

|                    | Value | F                  | Hypothesis<br>df | Error df | Sig.  | Partial Eta<br>Squared | Observed<br>Power <sup>c</sup> |
|--------------------|-------|--------------------|------------------|----------|-------|------------------------|--------------------------------|
| Pillai's trace     | 0.074 | 1.375              | 6.000            | 216.000  | 0.226 | 0.037                  | 0.531                          |
| Wilks' lambda      | 0.926 | 1.389 <sup>a</sup> | 6.000            | 214.000  | 0.220 | 0.037                  | 0.536                          |
| Hotelling's trace  | 0.079 | 1.403              | 6.000            | 212.000  | 0.215 | 0.038                  | 0.541                          |
| Roy's largest root | 0.079 | 2.852 <sup>b</sup> | 3.000            | 108.000  | 0.041 | 0.073                  | 0.669                          |

Each F tests the multivariate effect of Academic Cohort. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Computed using alpha = .05

## **CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS**

### **Overview**

The outcomes derived from this study strengthen the researcher's driving forces that precipitated the need for this study and demonstrated a narrowing of the gap in the literature relevant to understanding athletic training students' perceived self-efficacy and course engagement (Brown et al., 2017; Koludrovic & Ercegovac, 2017). Athletic training faculty and clinical preceptors' awareness of these factors orchestrate the foundational elements necessary for enhancing their instructional methodologies and addressing the various student learning styles (Good, Ramos, & D'Amore, 2013; Hawk & Shah, 2007; Sabo et al., 2012; Schellhase, 2006; Urval et al., 2014). Specifically, faculty members and preceptors have pivotal roles toward positively influencing athletic training students' educational development and clinical experiences throughout time spent within a postsecondary CAATE-accredited athletic training program (Bowman & Dodge, 2011; Brown et al., 2017; Choi, 2005; Koludrovic & Ercegovac, 2017; Mazerolle, Bowman, & Benes, 2014; Mazerolle, & Dodge, 2012). In future research, however, the physical, mental/intellectual, emotional, social, and spiritual facets incorporated within student growth and development need to be addressed (Beard, 2017). Specifically, correlating the impact each of these facets has on students' perceived self-efficacy and course engagement. The overarching quest of ATP faculty members and clinical preceptors is to facilitate an educational environment conducive to producing athletic training students (ATS) who become credentialed health care providers capable of providing the highest quality of health care to their respective patients (Alarcon & Edwards, 2013). The results of this study are pertinent for assisting all entry-level bachelor's degree ATP through a smooth transition into a CAATE-accredited entry-level master's degree program by 2022. This CAATE requirement

will enable athletic training students to continue to be eligible to sit for the Board of Certification (BOC) examination (Commission on Accreditation of Athletic Training Education, n.d. a; Commission on Accreditation of Athletic Training Education, 2015; Mazerolle, Bowman, & Pitney, 2015; Ostrowski, & Iadevaia, 2014; Ostrowski, & Marshall, 2015). This chapter will present discussions, conclusions, implications, limitations, and recommendations for future research derived from the results of this current study.

### **Discussion**

The purpose of this quantitative, causal-comparative research study was to investigate differences between self-efficacy scores, as measured by the College Academic Self-Efficacy Scale (CASES), and course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ), among postsecondary academic cohorts of athletic training students (Handelsman, Briggs, Sullivan, & Towler, 2005; Owen & Froman, 1988). The participants were identified postsecondary academic cohorts of athletic training students (ATS) enrolled in a CAATE-accredited athletic training program within the National Athletic Trainers' Association (NATA) District 3: Mid-Atlantic Trainers' Association (MAATA) region. Full IRB approval was received and permission granted by 23 athletic training program (ATP) directors from institutions of higher education for their athletic training students (ATS) to be invited/recruited to participate. The study took place in April 2018 within a three week timeframe prior to the end of the spring academic semester. The data were obtained from naturally occurring participants classified within one of four postsecondary academic cohorts of ATS. The participants within the academic cohorts were representative of various learning styles and different developmental levels. These learning styles and developmental levels incorporated the physical, mental/intellectual, emotional, social, and spiritual aspects of student growth as they traversed

through the rigorous progression of academic coursework and clinical educational experiences required by the CAATE-accredited ATP (Crawford, Alhreish, & Popovich, 2012).

A total of 124 participants responded to the survey instruments by the deadline of April 22, 2018. Eleven participants' data were removed due to incomplete or inaccurate completion of one or more components/instruments required for this study through the Survey Monkey online survey platform. The final number of participants was 112 who indicated academic cohort classification as either a sophomore, junior, senior, or graduate level ATS enrolled in a CAATE-accredited ATP. Each of these participants successfully completed all required components, which consisted of a brief demographic survey, the CASES survey, and the SCEQ survey. The data obtained from these 112 participants were included in this study. Twenty-nine of the participants were male and 83 were female. The postsecondary academic cohorts sub group categories consisted of 25 sophomores, 33 juniors, 27 seniors, and 27 graduate level students.

The collected data were analyzed using a one-way MANOVA for hypothesis testing with the independent variable being academic cohorts of ATS and the dependent variables being the mean scores on the CASES instrument and the mean scores on the SCEQ instrument. The research question for this study sought to determine if there were differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary academic cohorts.

### **Research Question**

The purpose of this quantitative, causal-comparative study was to determine differences between perceived self-efficacy (CASES mean scores) and student course engagement (SCEQ mean scores) among four groups of academic cohorts of athletic training students (sophomore, junior, senior, and graduate level). Null hypothesis stated there are no statistically significant

differences between perceived student self-efficacy scores and perceived student course engagement scores among postsecondary sophomore, junior, senior, and graduate level academic cohorts.

The results of the MANOVA, when analyzing the CASES and SCEQ mean score differences among the academic cohorts of ATS, revealed no statistically significant differences among sophomore, junior, senior, or graduate level athletic training students overall perceptions of self-efficacy and course engagement,  $F(6, 214) = 1.389, p = 0.220$ , Wilks'  $\Lambda = 0.926$ ; partial  $\eta^2 = 0.037$ . Therefore, the null hypothesis failed to be rejected, suggesting there are no statistically significant differences among academic cohorts of athletic training students (sophomore junior, senior or graduate level) regarding perceived self-efficacy and course engagement.

The results of this study indicated no statistically significant differences among the academic cohorts of athletic training student as participants; which contradicted the evidence-based research suggesting that interactions, correlations, and/or differences did exist among various levels of academic levels/cohorts (Brown et al., 2017; Khan, 2013; Koludrovic & Ercegovac, 2017; Marx, Simonsen, & Kitchel, 2016; Ramos-Sanchez & Nichols, 2007; Svanum & Bigatti, 2009; Turgut, 2013; Vugon, Brown-Welty, & Tracz, 2010).

Correlations made between dependent variables using Pearson's product moment during the assumption testing revealed positive, but not statistically significant correlations between the perceived self-efficacy and course engagement ( $p = 0.054$  and  $p = 0.685$  respectively). These results do imply, however, that a student's perception of self-efficacy associates with his or her perception of course engagement, indicating that further research on the correlations between student self-efficacy and student course engagement is necessary. Furthermore, these findings

reinforced Brown et al. (2017) recommendation for the need to find appropriate, valid, and reliable instruments, which accurately measure and quantify course engagement.

### **Conclusions**

The results of this study indicate that there were no statistically significant differences among academic cohorts of athletic training students regarding perceptions of self-efficacy and perceptions of course engagement. The findings from the data analysis contribute to the body of knowledge by validating that academic cohorts of athletic training students are engaged within their required coursework and perceive themselves capable of proficiently completing the competency skills required of them. The results of this study will be beneficial in narrowing the gap in the literature and adding to the body of knowledge, specifically by demonstrating that among academic cohorts of athletic training students, there are no statistically significant differences relevant to their perceived self-efficacy and course engagement. Faculty members and clinical preceptors of sustainable athletic training programs facilitate educational learning environments based on high expectations, which enable students to excel within their academic coursework and clinical education experiences. Educators and students must never underestimate the powerful influences of parents, guardians, relatives, peers, and authority figures on an individual's perception of self-efficacy and course engagement toward the required academic coursework in determining the quality of his or her academic successes (Bandura, 1986; Bandura, 1997; Bandura, 2002; Bandura et al., 1996; Bandura et al., 2001; Christenson, et al. 2008). At the beginning of the study, the researcher predicted there would be significant differences in perceived self-efficacy and perceived course engagement among academic cohorts. Following the analysis of the data, the null hypothesis in this study failed to be rejected, signifying there are no statistically significant differences among academic cohorts of athletic

training students (sophomore junior, senior or graduate level) regarding perceived self-efficacy and course engagement.

### **Implications**

The results of this study show no significant differences existed among the four academic cohorts of athletic training students regarding perceived self-efficacy and course engagement. The implications of these findings remain clear that athletic training programs' expectations of high student proficiency are required throughout all academic cohort levels within each of the ATP's required academic coursework and clinical education experiences. ATP focus on heightened rigor necessitates athletic training students to foster confidence in developing high self-efficacy while being fully engaged in all their required coursework and clinical education experiences throughout their athletic training degree program (Bowman & Dodge, 2013). Specifically, as all ATP are required to transition into entry-level master degree programs by 2022, CAATE standards require higher expectations, greater academic rigor, and enhanced clinical competencies beyond those required currently at the bachelor degree level (Commission on Accreditation of Athletic Training Education, n.d. a; Commission on Accreditation of Athletic Training Education, 2015; Commission on Accreditation of Athletic Training Education, 2017; Commission on Accreditation of Athletic Training Education, 2017, January; Mazerolle, Bowman, & Pitney, 2015; Ostrowski, & Iadevaia, 2014; Ostrowski, & Marshall, 2015). Therefore, entry-level master degree athletic training programs must equip faculty members and clinical preceptors with appropriate mentorship skills, in conjunction with developing programing capable of initiating early intervention/remediation strategies to facilitate the development of high student self-efficacy and course engagement (Bresó, E., Schaufeli, W. B., & Salanova, M., 2011; Byard, 2011; Carr & Volberding, 2014; Hankemeier et al., 2013;

Ostrowski, & Iadevaia, 2014; Ostrowski, & Marshall, 2015). The creation of this pivotal educational environment reinforces the critical elements of investment and mentorship by ATP faculty members and clinical preceptors throughout ATS's pursuit to become proficient and credentialed health care providers (Bowman & Dodge, 2013; Good, Ramos, & D'Amore, 2013; Gurung, Daniel, & Landrum, 2012; Handelsman et al., 2005; Heinerichs, Vela, & Drouin, 2013; Rocca, 2010).

Furthermore, the findings of this study supplement the empirical and theoretical evidence-based knowledge regarding athletic training students' self-efficacy and course engagement. The education and clinical development of athletic training students must be founded on the ATP theoretical framework that is structured on various instructional and learning theories. Bandura's (1977 a; 1986; 2002; 2005) social cognitive learning theory, Knowles' (1978) adult learning theory, and Kolb's (1983) experiential learning theory are three learning theories have been shown to influence students' educational growth and development within educational programs involving allied health care professions (Brookfield, 1986; Curran, 2014a; Curran, 2014b; Knowles, Holton, & Swanson, 2011; Merriam, 2001; Schellhase, 2006). Evidence-based research has revealed affiliations between self-efficacy, course engagement, psychosocial factors, developmental factors, academic achievement, learning styles, and retention (Carr & Volberding, 2014; Crawford, Alhreish, & Popovich, 2012; Sagone & De Caroli, 2013; Turgut, 2013). This current study specifically examined areas and components that have seen little investigation (Brown et al., 2017; Koludrovic & Ercegovac, 2017). The implications of the results determined that potential differences relevant to self-efficacy and course engagement did not exist among academic cohorts. Strong student self-efficacy and course engagement do lead to increased levels of retention, however, within all academic cohorts



enrolled in academic degree awarding programs (Allen & Withey, 2017; Ramos-Sanchez & Nichols, 2007). Retention enhances students' educational and clinical development to become proficient credentialed health care providers. Student retention enhances the production of health care professionals who demonstrate strong characteristics of being responsible, dependable, reliable, engaged, and competent in their respective employment settings, as expected by educational institutions and employers throughout the world (Allen & Withey, 2017; Bandura, 1997; Bandura, 2002; Bowman & Dodge, 2013; Elliott, 2016; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Pitney, 2012; Scholz et al., 2002).

Ultimately, the intended result of this study was to determine potential factors capable of empowering students to become competent, proficient, and credentialed professional health care providers. Athletic training students are a direct reflection of the athletic training programs from which they completed their respective required academic coursework and clinical experiences, and earned the Athletic Training degree. Athletic training students' self-efficacy toward becoming competent and proficient health care providers, in conjunction with their engagement within the required coursework of the athletic training program, determines their overall effectiveness in providing the highest quality of care to their physically active patients (Mazerolle, Bowman, & Benes, 2014).

### **Limitations**

Threats to the internal and external validity of this study may have been caused by practical limitations involving both the study design and study population aspects. The non-equivalent gender diversity of the population sample may have weakened the internal validity. There were 29 males and 83 females. There were three times as many female participants (74.11%) compared to male participants (25.89%). The number of female participants was

significantly higher than male participants across each of the four academic cohort levels.

Therefore, the gender discrepancies may not accurately represent the total population of athletic training students. Rather, the sample population was reflective only of the proportion of male and female athletic training students within the MAATA who voluntarily chose to participate in the study. The researcher was unable to obtain the actual number and gender of all athletic training students who were emailed a participant recruitment letter from the 23 permission granting ATP directors within the MAATA. A correlation between tests of main effects and interactions may have been caused by unequal sample sizes based on gender with the independent variables groups (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). Therefore, the researcher used the Wilks' Lambda test which provided a robust test of between-subjects factors and adjust for errors caused by imbalances in sample sizes (Green & Salkind, 2017; Laerd Statistics, 2015; Warner, 2013). It is important to note, however, that the internal validity may have been strengthened by similar total number of students participating within each of the academic cohorts (sophomore = 25 students, junior = 33 students, senior = 27 students, and graduate level = 27 students). The sample participant numbers within each of four the academic cohort groups were well balanced based on the number of valid data responses received, indicating that sophomore, junior, senior, and graduate levels cohorts were accurately represented.

The external validity of this study was limited by the specific population recruited from CAATE-accredited ATP within the Mid-Atlantic Athletic Trainers' Association (MAATA) geographical region. The researcher initially invited 40 institutions of higher education to participate with the potential for inviting/recruiting over 1,900 participants. The intent was to increase the likelihood of a diverse sample population and gather enough data points to ensure a

valid and reliable statistical significance result. However, the researcher must take into consideration only 23 (57.5%) of the 40 MAATA ATP Directors of institutions of higher education granted permission to invite/recruit their respective ATS to take part in the study. This resulted in a reduction of the total sample population being invited to approximately 625 potential participants. In addition, the sample population of 112 may not have been representative of the total ATS population of the 23 institutions of higher education from the NATA District 3: MAATA with CAATE-accredited ATP.

A final limitation to this study was the 20 – 30 minutes as the length of time needed to complete the brief demographics questionnaire, the CASES instrument, and the SCEQ instrument in the Survey Monkey web platform, as suggested by the researcher in the participant recruitment letter. Perhaps this suggested timeframe reduced, limited, or deterred participants from voluntarily choosing to participate in this study, resulting in lower participant response from the academic cohorts of athletic training students enrolled in the 23 CAATE-accredited ATP. The brief demographics questionnaire, the CASES instrument, and the SCEQ instrument were separated into different pages or sections on the Survey Monkey Platform. Eleven participants were removed during data screening process prior to statistical analysis; as indicated above and in chapter four. However, during the three week timeframe in which the survey was opened, the actual typical time spent per participant for completion of the entire Survey Monkey website platform survey was five minutes and twenty-seven seconds. The data supporting the actual typical time spent per participant were provided by and acquired from the Survey Monkey website platform survey administration overview, which was based on averages of the actual participants' start times and end times.

### **Recommendations for Future Research**

There are several recommendations for future research that would add to the body of knowledge based on the independent and dependent variables relevant to academic cohorts of athletic training students, perceived self-efficacy, and perceived course engagement. The results of this study imply that there is a potential relationship between students' perception of self-efficacy and their perception of course engagement. This indicates that further research on the significance of the relationships between student self-efficacy and student course engagement is necessary (Brown et al., 2017). Additionally, future research could examine these relationships in conjunction with athletic training programs' high expectations of academic rigor and clinical education proficiencies required of all academic cohorts of athletic training students earning full acceptance into ATP.

Future research could examine the sample participants' overall composite scores on the CASES and SQEC instruments and further examine possible factors, sub-categories, or individual item analyses contained within each of the instruments. For example, the CASES instrument was developed to provide sample participants composite scores, however, the initial researchers indicated three factors they had examined in a factor analysis as being: "(1) Overt, Social Situations (e.g., participating in a class discussion), (2) Cognitive Operations (e.g., listening carefully during a lecture on a difficult topic), and (3) technical skills (e.g., using a computer)" (Owens & Froman, 1988). Using and analyzing the mean composite scores to determine participants' self-efficacy were recommended in published research and by the creators of the CASES instrument (Choi, 2005; Koludrovic, & Ercegovac, 2017; Lampert, 2007; Owens & Froman, 1988; Papa, 2015). Additionally, the creators of the SCEQ instrument designed and recommended analyzing sample participants mean composite scores to determine

course engagement, however, the capability to measure four subcategories of student course engagement had also been studied (Handelsman, Briggs, Sullivan, & Towler, 2005; Papa, 2015). These subscales were constructed and validated for assessment of students' skills engagement (nine items), emotional engagement (five items), participation engagement (six items), and performance engagement (3 items). Primarily examinations of CASES and SCEQ instruments mean scores and secondary examinations of the CASES instrument factors and the SCEQ subscales, within future studies, could provide greater insight as to specific areas that faculty members and clinical preceptors should focus on in their mentorship and intervention strategies for their athletic training students.

Further research could increase the number of sample participants within each of the academic cohort levels by expanding the geographical region to include institutions of higher education having CAATE-accredited athletic training programs located within the remaining nine districts identified by the National Athletic Trainer's Association. The anticipated result would be a greater response from ATP directors who are willing to grant permission to invite/recruit/contact their athletic training students to participate in research. Achievement of data points would ensure that the results truly incorporate participants from more demographic and geographic possibilities.

The design of the present study allowed for data collection to take place during the last 3 – 4 weeks of the spring academic semester. Future research recommendation for the data collection timeframe would be to conduct the data collection portion of the study during the first 3 – 4 weeks of the fall academic semester. Then obtain a second data collection within the last 3 – 4 weeks of the spring academic semester. One could then perform an analysis to determine if differences exist between academic semesters relevant to self-efficacy and course engagement

among academic cohorts. This could potentially influence the results based on the timing of the data collection. In addition, interesting outcomes could result by examining if students strengthen their perceived self-efficacy and/or increase their course engagement over time with comparisons between scores at the beginning of a new academic year and from the ending of an academic year. A longitudinal study could be conducted to determine if individual participant scores change as the athletic training student progresses through his or her entire CAATE-accredited ATP. Specifically, examining student's perceived self-efficacy and course engagement throughout his or her individual education and clinical development as academic cohorts (freshman, sophomore, junior, senior, and graduate level). The more ATP faculty members and clinical preceptors understand all the individual characteristics driving the aforementioned facets of students' growth and development; the greater their ability to facilitate learning environments capable of influencing students' perceptions of self-efficacy and course engagement. Results from further research in these areas can enable deeper mentorship and guidance for the students as they grow and mature throughout their educational development and clinical education experiences.

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### General Self-Efficacy Scale

[illegible]

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## Appendix B

### General Self-Efficacy Scale (GSE) Permissions, Instructions, and Procedures



Freie Universität Berlin, Gesundheitspsychologie (PF 10),  
Habelschwerdter Allee 45, 14195 Berlin, Germany

Fachbereich Erziehungs-  
wissenschaft und Psychologie  
- Gesundheitspsychologie -

Professor Dr. Ralf Schwarzer  
Habelschwerdter Allee 45  
14195 Berlin, Germany

Fax +49 30 838 55634  
health@zedat.fu-berlin.de  
www.fu-berlin.de/gesund

#### Permission granted

to use the General Self-Efficacy Scale for non-commercial research and development purposes. The scale may be shortened and/or modified to meet the particular requirements of the research context.

<http://userpage.fu-berlin.de/~health/selfscal.htm>

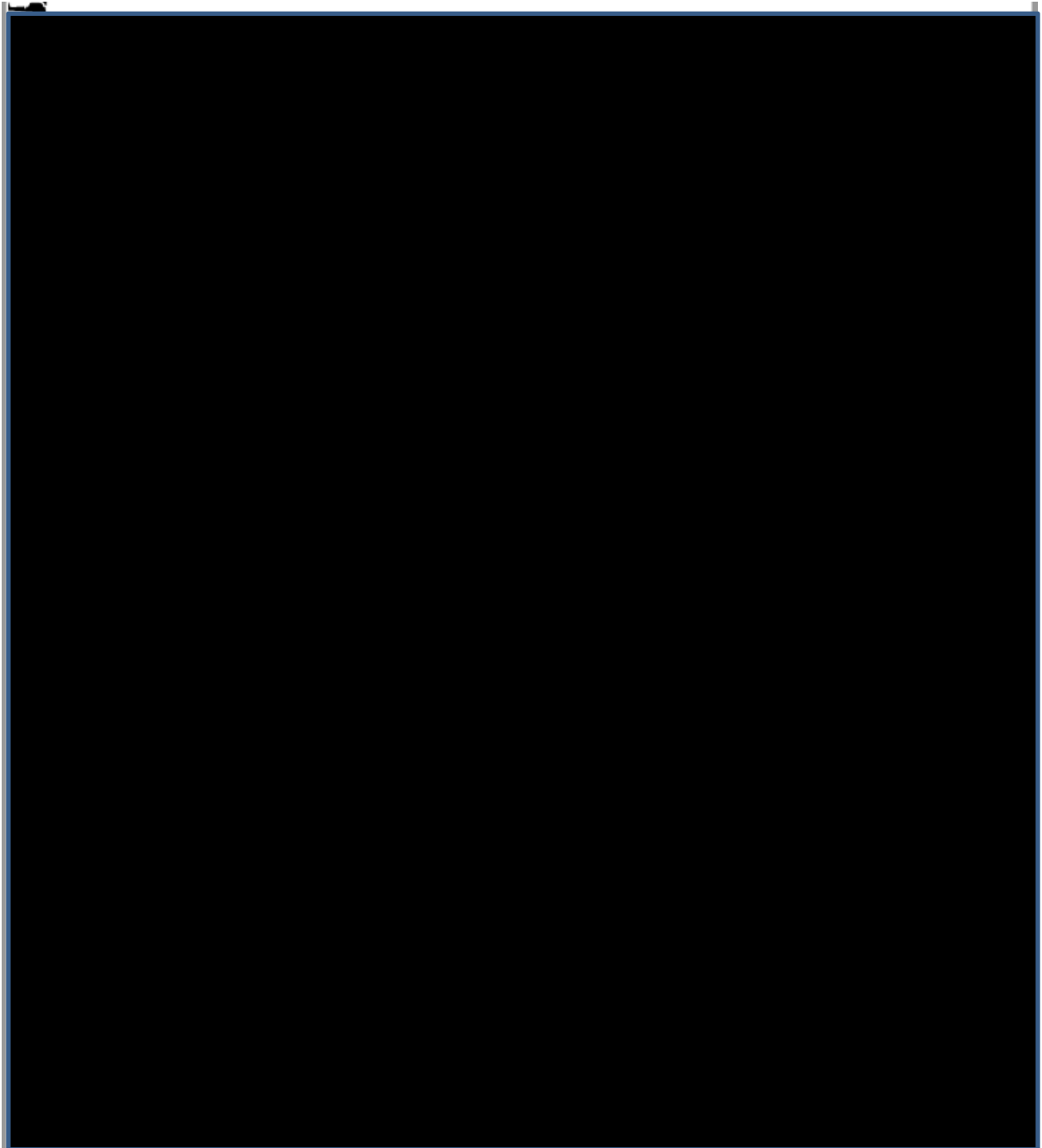
You may print an unlimited number of copies on paper for distribution to research participants. Or the scale may be used in online survey research if the user group is limited to certified users who enter the website with a password.

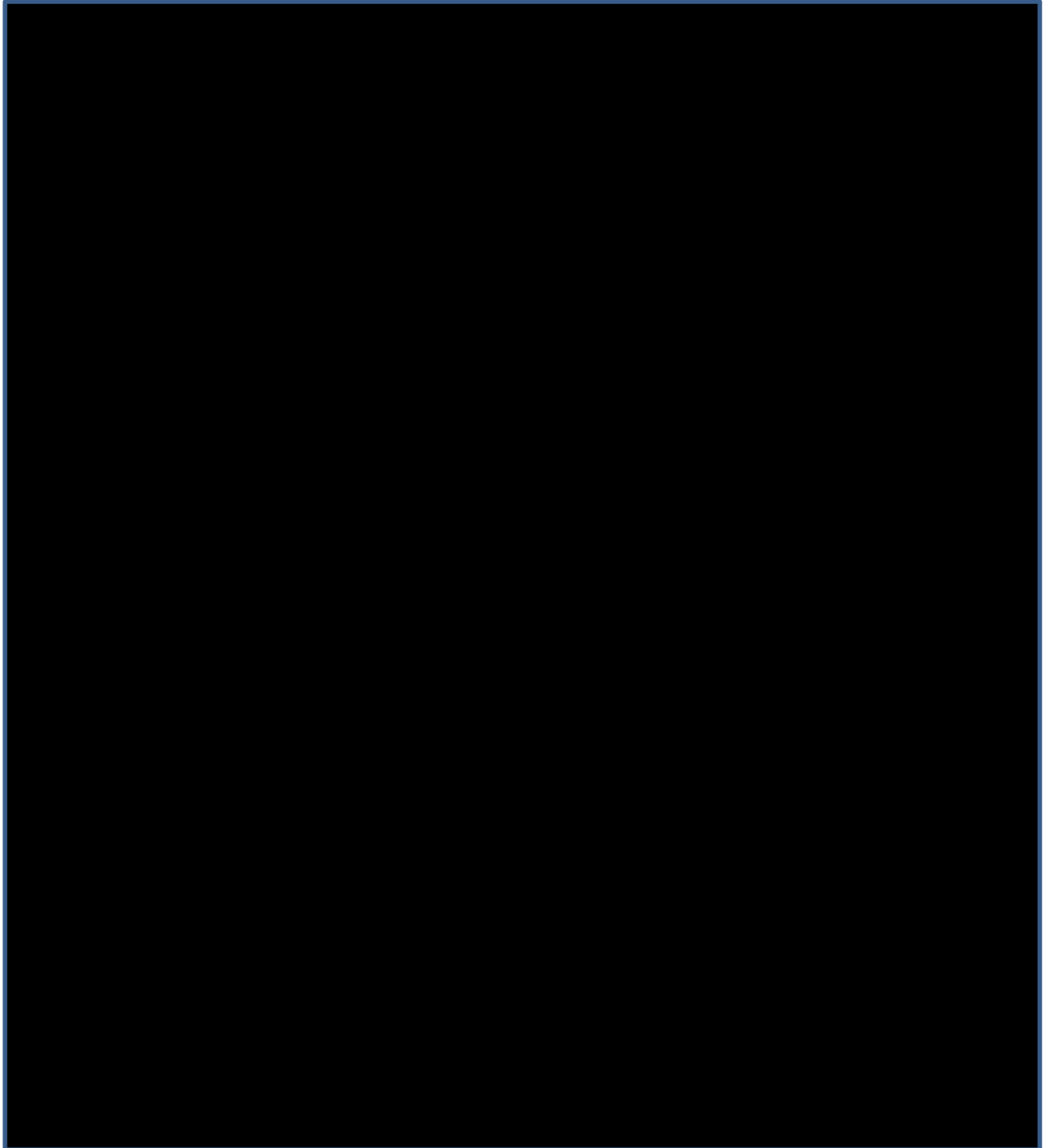
There is no permission to publish the scale in the Internet, or to print it in publications (except 1 sample item).

The source needs to be cited, the URL mentioned above as well as the book publication:

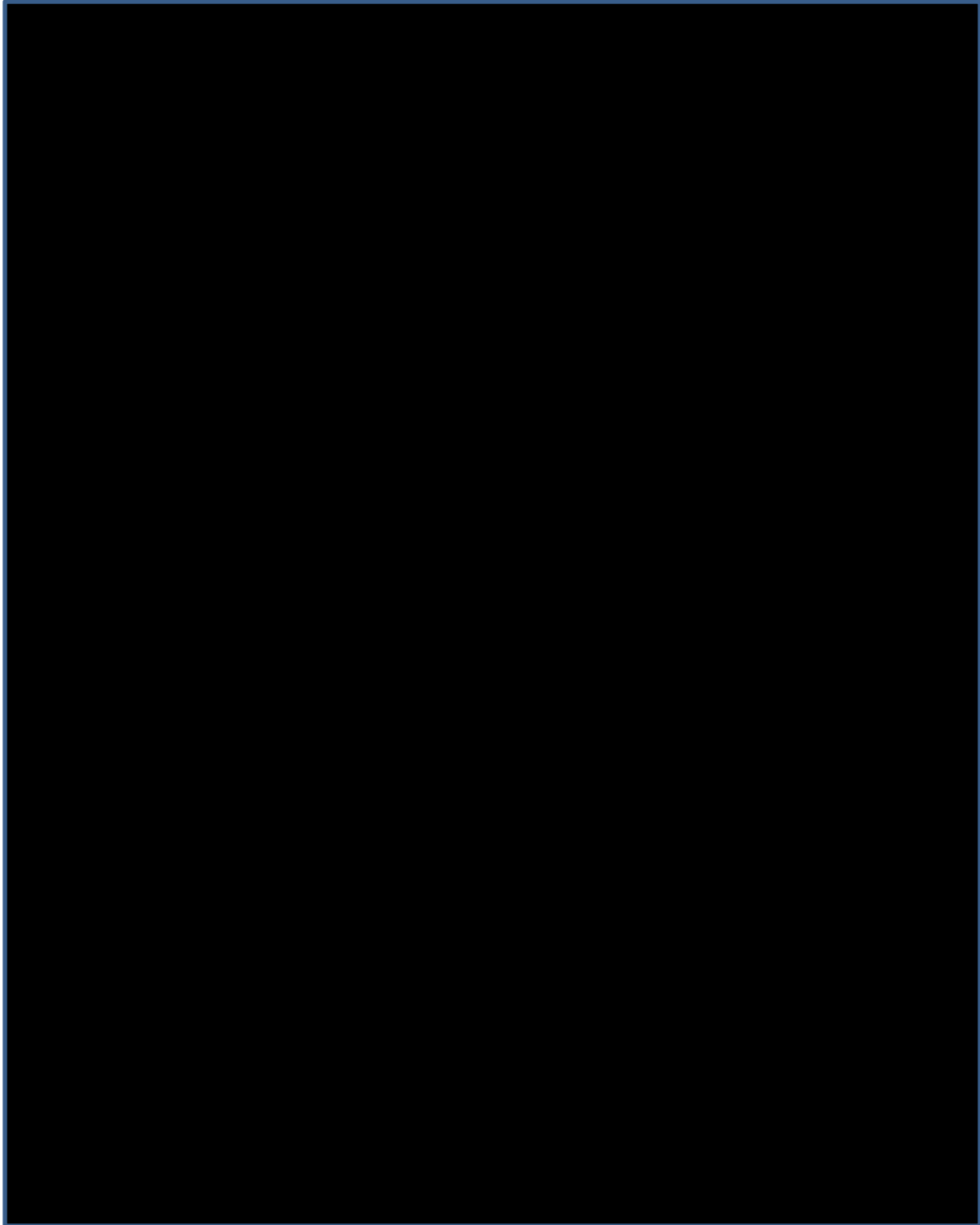
Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp.35-37). Windsor, UK: NFER-NELSON.

Professor Dr. Ralf Schwarzer  
[www.ralfschwarzer.de](http://www.ralfschwarzer.de)









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ntial

## **Appendix C**

### **College Academic Self-Efficacy Scale (CASES) Procedures, Instructions, & Instrument**

- The College Academic Self-Efficacy Scale (CASES) survey instrument is designed to learn more about you as an Athletic Training Student to help improve the educational and clinical experiences of CAATE-accredited Athletic Training Programs.
- The CASES survey instrument contains a number of statements specifically designed to measure student confidence levels while participating in or completing various behaviors involving postsecondary tasks within your respective Athletic Training Program's required coursework as indicated on your Degree Completion Plan (DCP) for your institution.
- You will be asked to consider the following questions about each item listed on the CASES questionnaire survey instrument; "How much confidence do you have about doing each of the behaviors listed below?" There are no 'right' or 'wrong' answers.
- If you perceive your level of confidence in doing the statement is "Quite a Lot" choose a response of 5..., if your perceived level of confidence in doing the statement is "Very Little" choose a response of 1.
- For questions, 1 – 33, select the appropriate response between 1 and 5 as your choice.

## College Academic Self-Efficacy Scale (CASES)

Level of Confidence

1

2

3

4

5

Very Little ←-----→ Quite a Lot

|    | How much confidence do you have about doing each of the behaviors listed below? |  |
|----|---|--|
| 1  |   |  |
| 2  |   |  |
| 3  |   |  |
| 4  |   |  |
| 5  |   |  |
| 6  |   |  |
| 7  |   |  |
| 8  |   |  |
| 9  |   |  |
| 10 |   |  |
| 11 |   |  |
| 12 |   |  |
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| 28 |   |  |
| 29 |   |  |
| 30 |   |  |
| 31 |   |  |
| 32 |   |  |
| 33 |   |  |

## Appendix D

### Approval for Use of the College Academic Self-Efficacy Scale (CASES)

The screenshot shows a web browser window with the URL [https://www.researchgate.net/publication/286383760\\_CASES\\_permission](https://www.researchgate.net/publication/286383760_CASES_permission). The page title is "CASES permission". It shows the publication was posted in December 2015 with 210 reads. The authors listed are Steven V. Owen (University of Connecticut) and Robin D. Froman (University of Connecticut). A file named "CASES permission.doc" (60.5 KB) is available for download. The page also features a Google ad and a "Cite this publication" button.

Retrieved from: [https://www.researchgate.net/publication/286383760\\_CASES\\_permission](https://www.researchgate.net/publication/286383760_CASES_permission)

11 October 2015

Dear Researcher,

Thank you for your inquiry about the College Academic Self-Efficacy Scale (CASES). You are welcome to use CASES. I've included a copy of the scale below. Here are a few summary points about the scale.

Items are scored as A ("quite a lot") = 5...E ("very little") = 1. On the other hand, because we read from left to right, data entry is faster letting A = 1, and E = 5. If you enter data with A = 1, then let the computer recode the values so that A becomes 5, B becomes 4, etc.

In calculating an overall CASES score, we prefer calculating a mean rather than a sum.

You may wish to modify questionnaire instructions to best fit your application. For example, if you need informed consent, you might say something like "Filling out this questionnaire is completely voluntary and confidential. There are no penalties for not participating, and you may quit at any time."

The next page shows the CASES items. Following that is a conversation about scoring CASES,

plus some normative data.

Best wishes in your research.

Sincerely,

[REDACTED]

S [REDACTED] V. O [REDACTED], Professor (retired)

[REDACTED]

Internet: [svo@vbbn.com](mailto:svo@vbbn.com)

OR [REDACTED]@[uconn.edu](mailto:[REDACTED]@uconn.edu)

[REDACTED]

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\_\_\_\_\_

\_\_\_\_\_





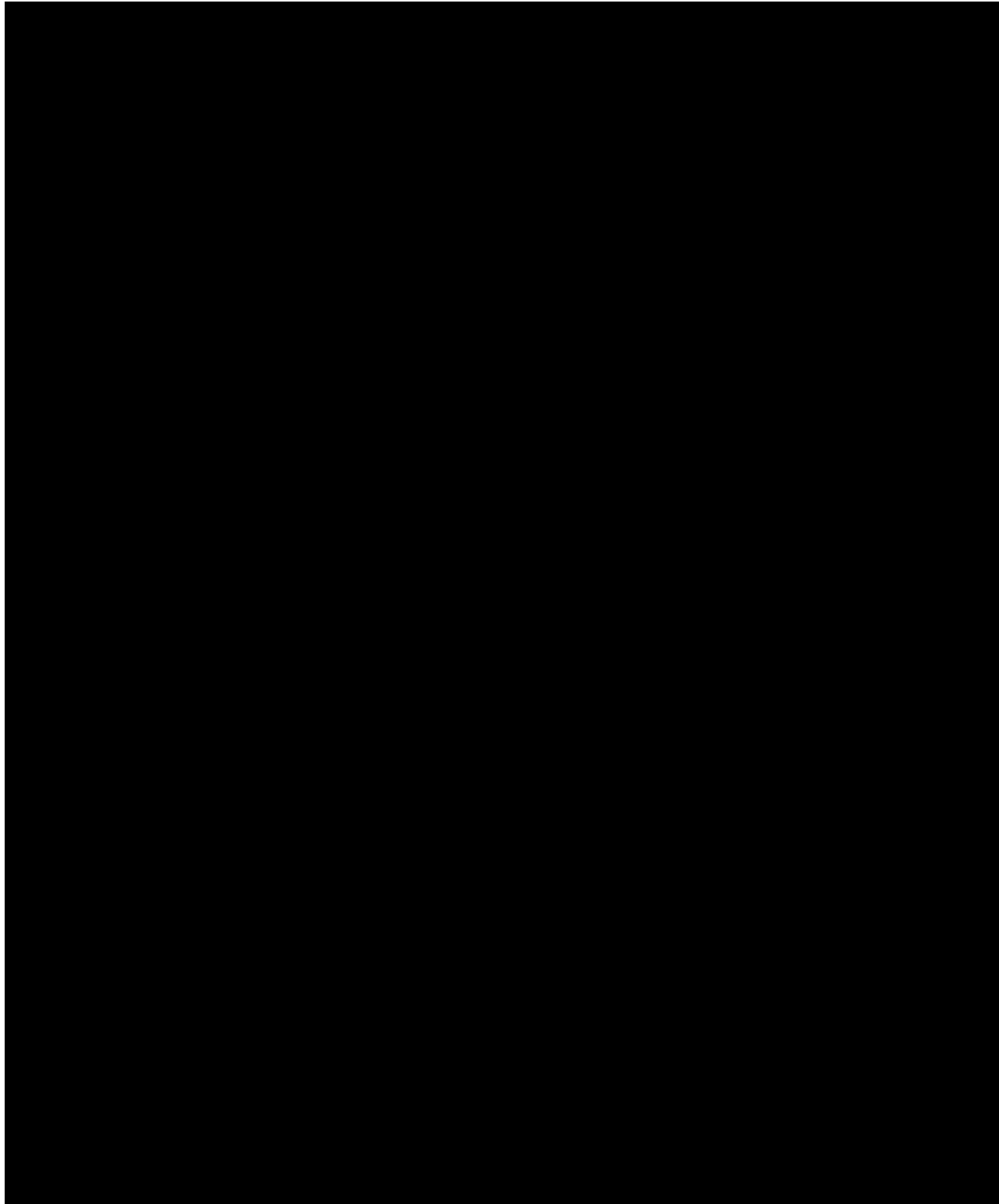
## **Appendix E**

### **Student Course Engagement Questionnaire (SCEQ) Procedures, Instructions, & Instrument**

- This Student Course Engagement Questionnaire (SCEQ) survey instrument is designed to assist in understanding the kinds of things that create difficulties for Athletic Training Students within Athletic Training Program classrooms and laboratories to improve the educational and clinical experiences of CAATE-accredited Athletic Training Programs.
- The SCEQ survey instrument contains a number of statements about your course engagement toward learning within your respective Athletic Training Program's required coursework as indicated on your Degree Completion Plan (DCP) for your institution of higher education.
- You will be asked what you think (your perceptions) about each of these statements, and how they describe or apply as being characteristic of you. Specifically, to what extent do the following behaviors, thoughts, and feelings describe you within your required academic and clinical coursework, as listed on your Athletic Training Program Degree Completion Plan (DCP) for your respective institution of higher education? There are no 'right' or 'wrong' answers.
- If the statement is, "Moderately Characteristic of Me" choose a response of 4, if it is "Very Characteristic of Me" choose a response of 5.
- If the statement is, "Not Really Characteristic of Me" choose a response of 2, if it is "Not At All Characteristic of Me" choose a response of 1.
- If the statement is "Neutral," i.e. nether "Not At All" or "Very," then choose response 3.

- For questions, 1 – 23, select the appropriate response between 1 and 5 as your choice.  
(Brown, White, Bowmar, & Power, 2017).

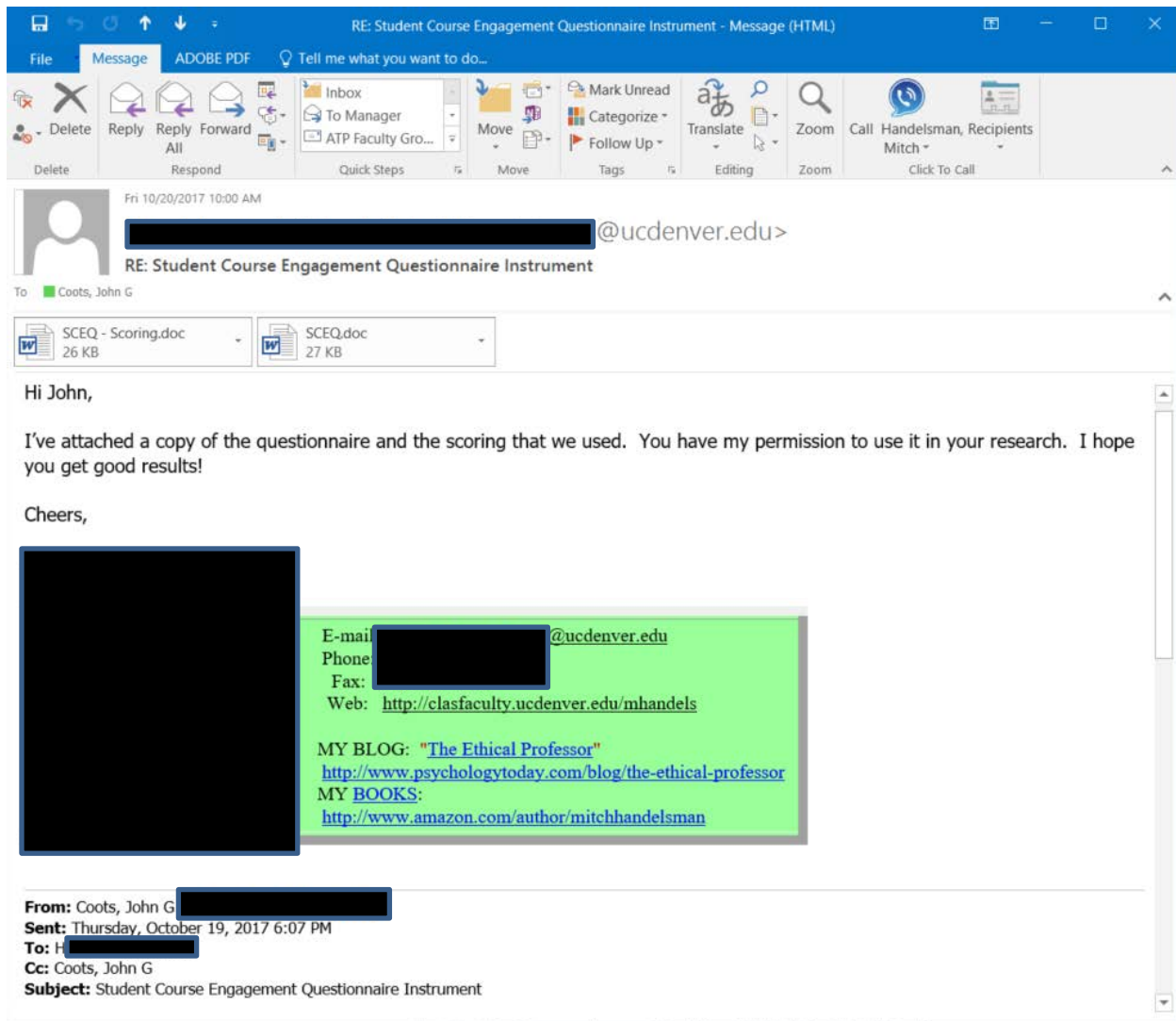
**Student Course Engagement Questionnaire (SCEQ)**

A large black rectangular area covering the majority of the page, indicating that the content of the Student Course Engagement Questionnaire (SCEQ) has been redacted.

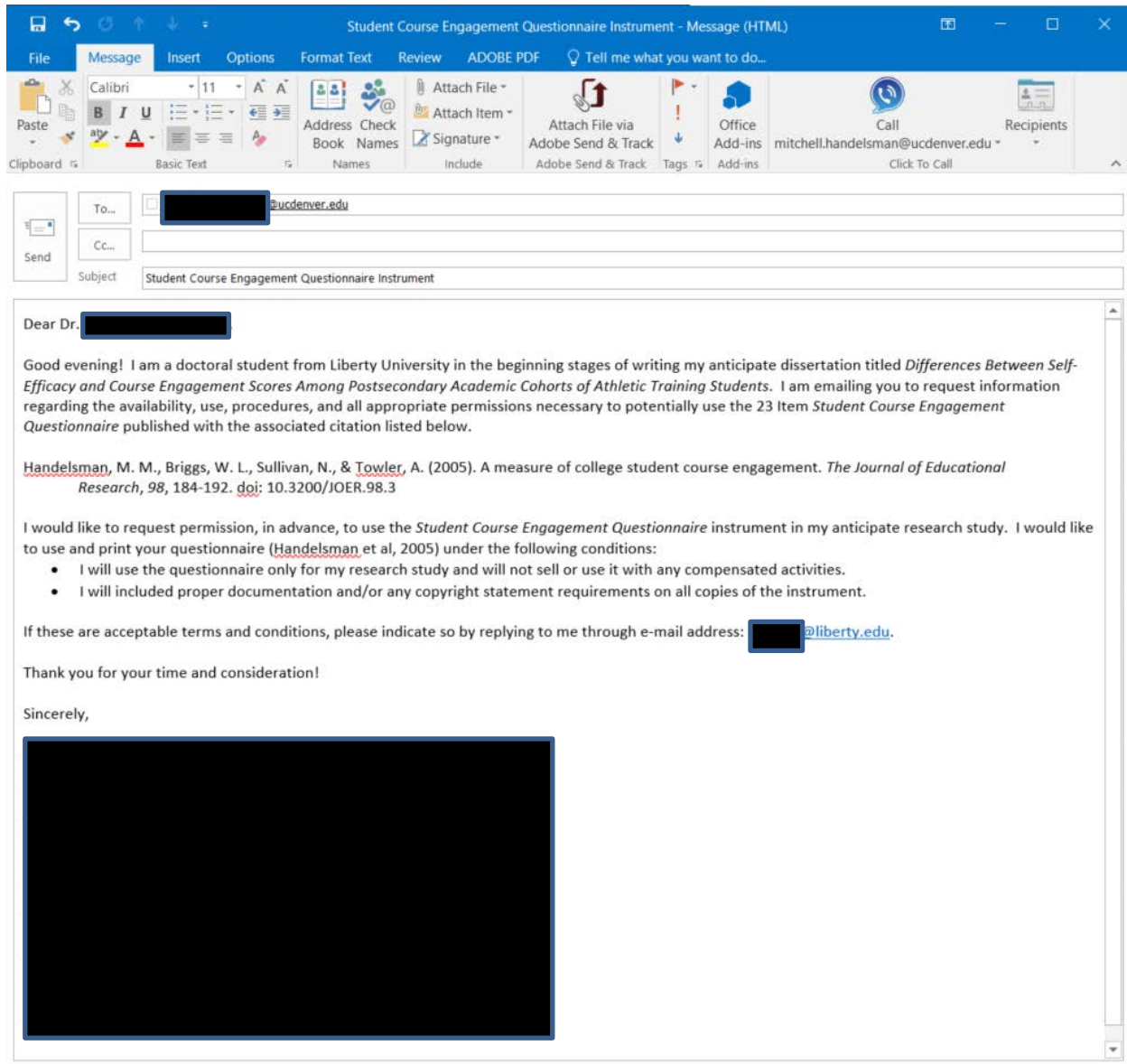
## Appendix F

## Approval for Use of the Student Course Engagement Questionnaire (SCEQ)

**\*\*Email letter reply granting appropriate permissions, instructions, and procedures received from Dr. M [REDACTED] H [REDACTED].**



**\*\*Email letter requesting appropriate permissions, instructions, and procedures sent to Dr. M [REDACTED] H [REDACTED].**



**STUDENT COURSE ENGAGEMENT QUESTIONNAIRE (SCEQ)**

[REDACTED]

|            |
|------------|
| [REDACTED] |
| [REDACTED] |
| [REDACTED] |
| [REDACTED] |
| [REDACTED] |

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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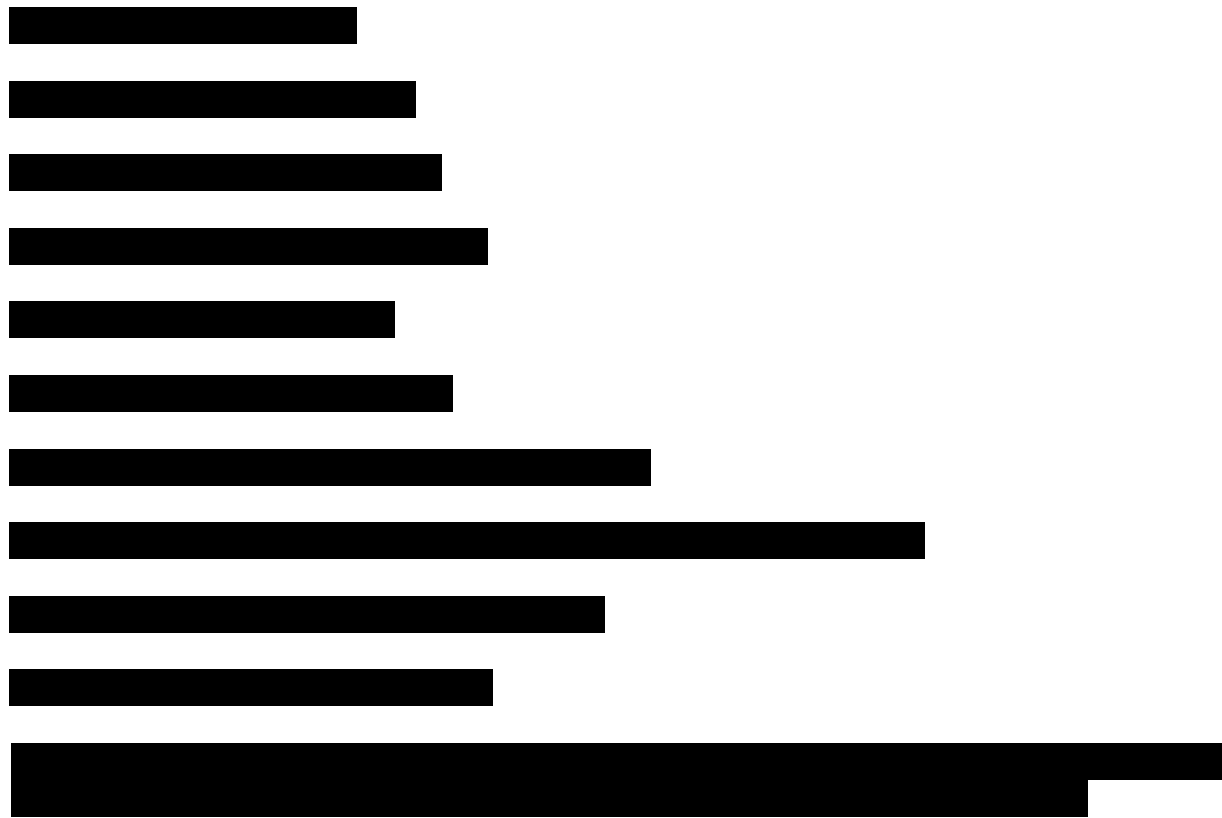
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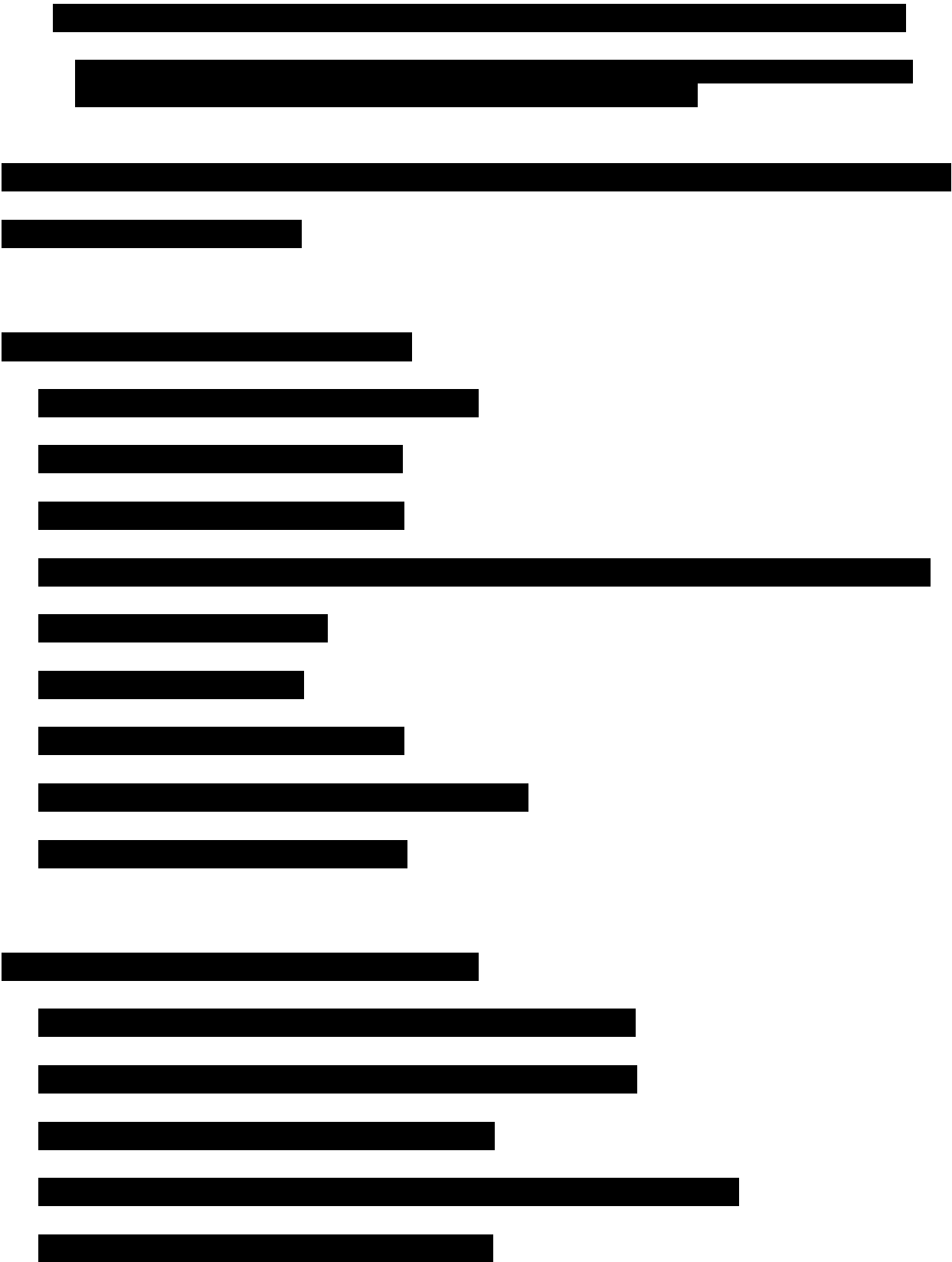
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]







[REDACTED]

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[REDACTED]

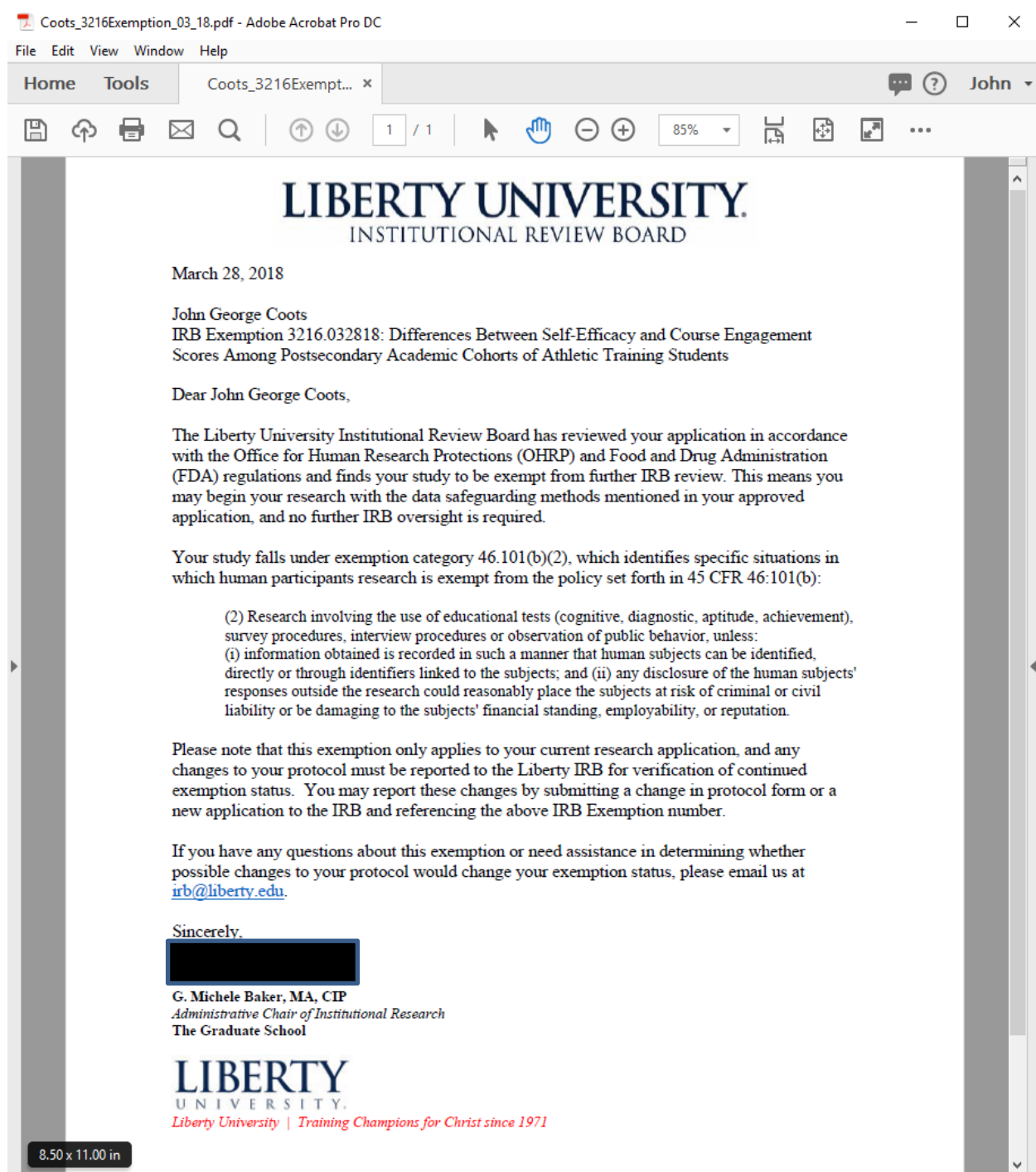
[REDACTED]

[REDACTED]

[REDACTED]

## Appendix G

### IRB Approval



## Appendix H

### Athletic Training Program Director/Faculty Instructional Letter

[Insert Date]

[Recipient]

[Title]

[Company]

[Address 1]

[Address 2]

Dear [Recipient] – Athletic Training Program Director/Faculty:

Thank you for granting permission to contact/recruit/invite participants and conduct my research on athletic training students enrolled in [Recipient's Institution of Higher Education]'s Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training program and who are in pursuit of obtaining a (bachelor's and/or master's) degree in athletic training. This study has received full approval by Liberty University's IRB: LU IRB application approval Protocol # 3216.032818. Upon completion of the study, the results will be provided to you upon request.

I am contacting you, the athletic training program director at [Recipient's Institution of Higher Education], via email with instructions and a participant recruitment letter to be distributed to all of your identified postsecondary academic cohorts of athletic training students (sophomore, junior, senior and graduate level). Participants will be asked to go to the Survey Monkey platform website via a link provided in their participant recruitment letter and click on the link provided to complete two survey instruments: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. Participants will be presented with participant consent information prior to participating. Taking part in this study is voluntary, and participants are welcome to discontinue participation at any time.

At your earliest convenience, please email the attached participant recruitment letter to all of your postsecondary academic cohorts of athletic training students (sophomore, junior, senior and graduate level) for them to anonymously and voluntarily chose to take part in my research study.

Sincerely,

John George Coots

Doctoral Candidate – (Assistant Professor/Clinical Education Coordinator for the ATP – LU)

## Appendix I

### Participant Recruitment Letter

[Insert Date]

Dear Athletic Training Student:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree in Educational Leadership. The title of my research study is “Differences between Self-Efficacy and Course Engagement Scores among Postsecondary Academic Cohorts of Athletic Training Students.” The purpose of this study is to better understand and investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate level athletic training students. This study has been approved by Liberty University’s IRB: LU IRB application approval Protocol # 3216.032818.

The participant population for my research study consists of postsecondary academic cohorts of athletic training students within the National Athletic Trainers’ Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers’ Association (MAATA) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training programs.

Because you have been identified by your athletic training program director as an athletic training student enrolled in a CAATE-accredited athletic training program in pursuit of obtaining a (bachelor’s and/or master’s) degree in athletic training, I am writing to invite you to participate in my research study.

If you are 18 years of age or older and are willing to participate, you are asked to go online to the Survey Monkey platform website via the link provided below and complete a survey containing two survey instruments: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. It should take you approximately 20 – 30 minutes to complete. Your participation will be anonymous, and no personal, identifying information will be collected.

To participate, go to the following link: [REDACTED]

A participant consent form is provided as the first page you will see after you click on the Survey Monkey website link. The consent document contains additional information about my research. Please click on the survey link at the end of the consent information to indicate that you have read the consent information and would like to take part in the survey.

Thank you for considering my request to take part in my research study! I trust that you will answer each item honestly, to the best of your ability. Please contact me with any questions at [REDACTED]@liberty.edu or [REDACTED]

Sincerely,

John George Coots

Doctoral Candidate – (Assistant Professor/Clinical Education Coordinator for the ATP – LU)

## **Appendix J**

### **Participant Procedures and Instructions for CASES and SCEQ Instruments**

#### **Instructions: College Academic Self-Efficacy Scale (CASES) Survey Instrument**

- The College Academic Self-Efficacy Scale (CASES) survey instrument is designed to learn more about you as an Athletic Training Student to help improve the educational and clinical experiences of CAATE-accredited Athletic Training Programs.
- The CASES survey instrument contains a number of statements specifically designed to measure student confidence levels while participating in or completing various behaviors involving postsecondary tasks within your respective Athletic Training Program's required coursework as indicated on your Degree Completion Plan (DCP) for your institution.
- You will be asked to consider the following questions about each item listed on the CASES questionnaire survey instrument; "How much confidence do you have about doing each of the behaviors listed below?" There are no 'right' or 'wrong' answers.
- If you perceive your level of confidence in doing the statement is "Quite a Lot" choose a response of 5..., if your perceived level of confidence in doing the statement is "Very Little" choose a response of 1.
- For questions, 1 – 33, select the appropriate response between 1 and 5 as your choice.

#### **Instructions: Student Course Engagement Questionnaire (SCEQ) Survey Instrument**

- This Student Course Engagement Questionnaire (SCEQ) survey instrument is designed to assist in understanding the kinds of things that create difficulties for Athletic Training Students within Athletic Training Program classrooms and laboratories to improve the educational and clinical experiences of CAATE-accredited Athletic Training Programs.

- The SCEQ survey instrument contains a number of statements about your course engagement toward learning within your respective Athletic Training Program's required coursework as indicated on your Degree Completion Plan (DCP) for your institution of higher education.
  - You will be asked what you think (your perceptions) about each of these statements, and how they describe or apply as being characteristic of you. Specifically, to what extent do the following behaviors, thoughts, and feelings describe you within your required academic and clinical coursework, as listed on your Athletic Training Program Degree Completion Plan (DCP) for your respective institution of higher education? There are no 'right' or 'wrong' answers.
  - If the statement is, "Moderately Characteristic of Me" choose a response of 4, if it is "Very Characteristic of Me" choose a response of 5.
  - If the statement is, "Not Really Characteristic of Me" choose a response of 2, if it is "Not At All Characteristic of Me" choose a response of 1.
  - If the statement is "Neutral," i.e. nether "Not At All" or "Very," then choose response 3.
  - For questions, 1 – 23, select the appropriate response between 1 and 5 as your choice.
- (Brown, White, Bowmar, & Power, 2017).

## Appendix K

### Participant Consent Form

#### **DIFFERENCES BETWEEN SELF-EFFICACY AND COURSE ENGAGEMENT SCORES AMONG POSTSECONDARY ACADEMIC COHORTS OF ATHLETIC TRAINING STUDENTS**

**John George Coots  
Liberty University  
School of Education**

You are invited to be in a research study investigating differences between self-efficacy and course engagement among postsecondary athletic training students (ATS) academic cohorts. You were selected as a possible participant because your athletic training program director/faculty has identified you and indicated that you meet the following criteria. You are:

- An athletic training student (ATS) currently enrolled full-time in a United States' public or private university.
- Pursuing a either a bachelor's or master's degree in athletic training from a Commission on Accreditation of Athletic Training Education (CAATE) accredited postsecondary athletic training program (ATP).
- 18 years of age or older.

Please read this form and ask any questions you may have before agreeing to be in the study.

John George Coots, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

**Background Information:** The purpose of this study is to investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate athletic training students. The primary research question for this study is as follows:

- **RQ1:** Are there statistically significant differences between perceived student self-efficacy scores, as measured by the College Academic Self-Efficacy Scale (CASES), and perceived student course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ), among postsecondary academic cohorts?

**Procedures:** If you agree to be in this study, I ask you to do the following things (please read all procedures before beginning):

- Complete a brief demographic questionnaire and two anonymous surveys: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. (Approximately 20 – 30 minutes).



**Risks and Benefits of Being in the Study:** The risks of participation in this study are minimal, no more than you would encounter in everyday life. Participants should not expect to receive a direct benefit from taking part in this study.

**Benefits to Society:** This study may provide critical data toward strengthening future educational and clinical development processes required for Athletic Training Students (ATS) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP). Which could result in enhancement of Athletic Training Students' competencies toward becoming credentialed health care providers, who are proficient in delivering the highest quality of health care to their patients. Additional benefits of this study to society may result in postsecondary institutions of higher education producing Athletic Training Students as graduates who demonstrate higher perceptions of self-efficacy and course engagement toward providing competent and proficient health care as credentialed, Certified Athletic Trainers.

**Compensation:** Participants will not be compensated for their participating in this study.

**Confidentiality:** The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- The Survey Monkey questionnaire will be completed anonymously. If participants would like to receive the results of this study, **they are encouraged** to contact the researcher by phone at [REDACTED] or by email at [REDACTED][@liberty.edu](mailto:[REDACTED]@liberty.edu). All demographic information gathered will be used only for the purpose of analysis related to this study and will not be used to identify individual respondents.
- All electronically collected data from participants participating in this study and research records will be stored securely on a password-protected computer and stored in a password-protected file on a removable jump-drive. After three years, I will completely destroy all data files using a data-shredding program such as Digital File Shredder© or FileBoss©. Limits to confidentiality are limited to those posed by outside malicious or deliberate attempts to gain access to the data.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or your institution of higher education. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

**Contacts and Questions:** The researcher conducting this study is John George Coots. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him by phone at [REDACTED] or by email at [REDACTED][@liberty.edu](mailto:[REDACTED]@liberty.edu). You may also contact the

researcher's faculty advisor (Liberty University dissertation committee chair), Dr. P [REDACTED] A [REDACTED] p,  
at [REDACTED]@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Green Hall Ste. 1887, Lynchburg, VA, 24502, or email at [irb@liberty.edu](mailto:irb@liberty.edu).

*Please notify the researcher if you would like a copy of this information for your records.*

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION  
WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

☐ NEXT (Take the Survey)

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The Liberty University Institutional Review Board has approved this document for use from 3/28/2018 to -- Protocol # 3216.032818

**Participant Consent Form**

**DIFFERENCES BETWEEN SELF-EFFICACY AND COURSE ENGAGEMENT SCORES AMONG POSTSECONDARY ACADEMIC COHORTS OF ATHLETIC TRAINING STUDENTS**  
**John George Coots**  
**Liberty University**  
**School of Education**

You are invited to be in a research study investigating differences between self-efficacy and course engagement among postsecondary athletic training students (ATS) academic cohorts. You were selected as a possible participant because your athletic training program director/faculty has identified you and indicated that you meet the following criteria. You are:

- An athletic training student (ATS) currently enrolled full-time in a United States' public or private university.
- Pursuing a either a bachelor's or master's degree in athletic training from a Commission on Accreditation of Athletic Training Education (CAATE) accredited postsecondary athletic training program (ATP).
- 18 years of age or older.

Please read this form and ask any questions you may have before agreeing to be in the study.

John George Coots, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

**Background Information:** The purpose of this study is to investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate athletic training students. The primary research question for this study is as follows:

- RQ1: Are there statistically significant differences between perceived student self-efficacy scores, as measured by the College Academic Self-Efficacy Scale (CASES), and perceived student course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ), among postsecondary academic cohorts?

**Procedures:** If you agree to be in this study, I ask you to do the following things (please read all procedures before beginning):

- Complete a brief demographic questionnaire and two anonymous surveys: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. (Approximately 20 – 30 minutes).

**Risks and Benefits of Being in the Study:** The risks of participation in this study are minimal, no more than you would encounter in everyday life. Participants should not expect to receive a direct benefit from taking part in this study.

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The Liberty University Institutional Review Board has approved this document for use from 3/28/2018 to -- Protocol # 3216.032818

**Benefits to Society:** This study may provide critical data toward strengthening future educational and clinical development processes required for Athletic Training Students (ATS) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs (ATP). Which could result in enhancement of Athletic Training Students' competencies toward becoming credentialed health care providers, who are proficient in delivering the highest quality of health care to their patients. Additional benefits of this study to society may result in postsecondary institutions of higher education producing Athletic Training Students as graduates who demonstrate higher perceptions of self-efficacy and course engagement toward providing competent and proficient health care as credentialed, Certified Athletic Trainers.

**Compensation:** Participants will not be compensated for their participating in this study.

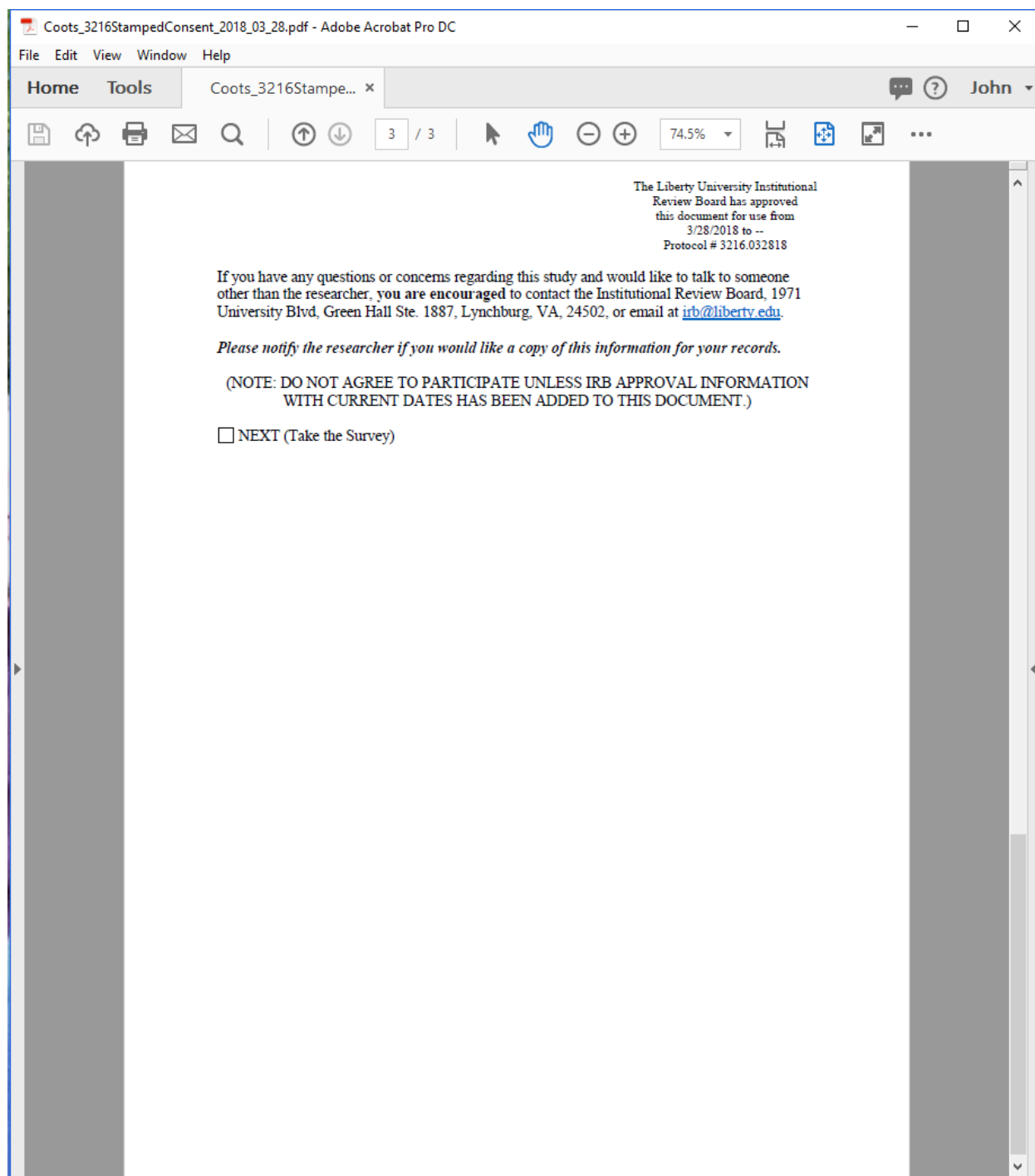
**Confidentiality:** The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- The Survey Monkey questionnaire will be completed anonymously. If participants would like to receive the results of this study, they are encouraged to contact the researcher by phone at [REDACTED]. All demographic information gathered will be used only for the purpose of analysis related to this study and will not be used to identify individual respondents.
- All electronically collected data from participants participating in this study and research records will be stored securely on a password-protected computer and stored in a password-protected file on a removable jump-drive. After three years, I will completely destroy all data files using a data-shredding program such as Digital File Shredder® or FileBoss®. Limits to confidentiality are limited to those posed by outside malicious or deliberate attempts to gain access to the data.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or your institution of higher education. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

**Contacts and Questions:** The researcher conducting this study is John George Coots. You may ask any questions you have now. If you have questions later, you are encouraged to contact him by phone at [REDACTED] or [REDACTED]@liberty.edu. You may also contact the researcher's faculty advisor (Liberty University dissertation committee chair), Dr. P. [REDACTED] A. [REDACTED] at [REDACTED]@liberty.edu.



## Appendix L

## Investigator Agreement &amp; Signature Page

## INVESTIGATOR AGREEMENT &amp; SIGNATURE PAGE\*

## BY SIGNING THIS DOCUMENT, THE INVESTIGATOR AGREES:

1. That no participants will be recruited or entered under the protocol until the Investigator has received the final approval or exemption email from the chair of the Institutional Review Board.
2. That no participants will be recruited or entered under the protocol until all key personnel for the project have been properly educated on the protocol for the study.
3. That any modifications of the protocol or consent form will not be initiated without prior written approval, by email, from the IRB and the faculty mentor/chair, except when necessary to eliminate immediate hazards to the participants.
4. The PI agrees to carry out the protocol as stated in the approved application: all participants will be recruited and consented as stated in the protocol approved or exempted by the IRB. If written consent is required, all participants will be consented by signing a copy of the approved consent form.
5. That any unanticipated problems involving risks to participants or others participating in the approved protocol, which must be in accordance with the [Liberty Way](#) (and/or the [Honor Code](#)) and the [Confidentiality Statement](#), will be promptly reported in writing to the IRB.
6. That the IRB office will be notified within 30 days of a change in the PI for the study.
7. That the IRB office will be notified within 30 days of the completion of this study.
8. That the PI will inform the IRB and complete all necessary reports should he/she terminate University Association.
9. To maintain records and keep informed consent documents for three years after completion of the project, even if the PI terminates association with the University.
10. That he/she has access to copies of [45 CFR 46](#) and the [Belmont Report](#).

John George Coots  
Principal Investigator (Print)

[Redacted Signature]  
Principal Investigator (Signature)

2/11/2018  
Date

\_\_\_\_\_  
Co-Investigator (Print)

\_\_\_\_\_  
Co-Investigator (Signature)

\_\_\_\_\_  
Date

## FOR STUDENT PROPOSALS ONLY:

## BY SIGNING THIS DOCUMENT, THE FACULTY MENTOR/CHAIR AGREES:

1. To assume responsibility for the oversight of the student's current investigation, as outlined in the approved IRB application.
2. To work with the investigator, and the Institutional Review Board, as needed, in maintaining compliance with this agreement.
3. To monitor email contact between the Institutional Review Board and principle investigator. Faculty mentors/chairs are cc'ed on all IRB emails to PIs.
4. That the principal investigator is qualified to perform this study.
5. That by signing this document you verify you have carefully read this application and approve of the procedures described herein, and also verify that the application complies with all instructions listed above. If you have any questions, please contact our office ([irb@liberty.edu](mailto:irb@liberty.edu)).

P. [Redacted] A. [Redacted]  
Faculty Mentor/Chair (Print)

[Redacted Signature]

3/15/18  
Date

\*The Institutional Review Board reserves the right to terminate this study at any time if, in its opinion, (1) the risks of further experimentation are prohibitive, or (2) the above agreement is breached.



**Appendix M****Liberty University's Department Chair Permission Request Letter**

February 13, 2018

Dr. J [REDACTED] S [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Lynchburg, Virginia 24515

Dear Dr. J [REDACTED] S [REDACTED] Professions:

As a graduate student in the School of Education at [REDACTED] University, I am conducting research as part of the requirements for a Doctor of Education degree. The title of my research project is "Differences between Self-Efficacy and Course Engagement Scores among Postsecondary Academic Cohorts of Athletic Training Students." The purpose of this study is to better understand and investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate Athletic Training Students. The primary research question for this study is as follows:

- **RQ1:** Are there statistically significant differences between perceived student self-efficacy scores, as measured by the College Academic Self-Efficacy Scale (CASES), and perceived student course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ), among postsecondary academic cohorts?

I intend to use postsecondary academic cohorts of Athletic Training Students within the National Athletic Trainers' Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers' Association (MAATA) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Programs as participants for my study. I am currently in the process of completing my Liberty University (LU) Institutional Review Board's (IRB) Application. The LU IRB requires receiving permission from the [REDACTED] (Athletic Training Program) and submission of the original Department Chair's signature or email documentation to the IRB for verification. Therefore, I am writing to request your permission to contact/recruit/invite participants and conduct my research on Athletic Training Students enrolled in [REDACTED] University's CAATE-accredited Athletic Training Program and who are in pursuit of obtaining a (Bachelor and/or Master) degree in Athletic Training.

Participants will be asked to go the official Survey Monkey webpage (currently in development) [<https://www.surveymonkey.com>] and click on the link provided to complete two surveys: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. Participants will be presented with informed consent information

prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on Liberty University's official letterhead indicating your approval OR respond with your approval by email to [REDACTED]@liberty.edu. Please refer to the attached [REDACTED] **Permission Granted Letter Template** to complete and submit granting your permission.

Sincerely,

John George Coots

Doctoral Candidate – ([REDACTED])



**Appendix N****Liberty University's Department Chair Permission Granted Letter Template**

[This permission letter template is provided for your convenience. Recommended information is included in brackets. Please select the desired information, remove the brackets, and remove the information that does not apply.]

[Please provide this document on official letterhead or copy and paste into an email. The letter/email must be returned to the researcher requesting permission.]

[Insert Date]

Mr. John George Coots

Doctoral Candidate – ([REDACTED])

Dear Mr. John George Coots:

After careful review of your research proposal entitled “Differences between Self-Efficacy and Course Engagement Scores among Postsecondary Academic Cohorts of Athletic Training Students”, I have decided to grant you permission to contact/recruit/invite participants and conduct your research on Athletic Training Students enrolled in [REDACTED] University’s Commission on Accreditation of Athletic Training Education (CAATE) accredited Athletic Training Program and who are in pursuit of obtaining a (Bachelor and/or Master) degree in Athletic Training.

Check the following boxes, as applicable:

☐ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

Dr. J

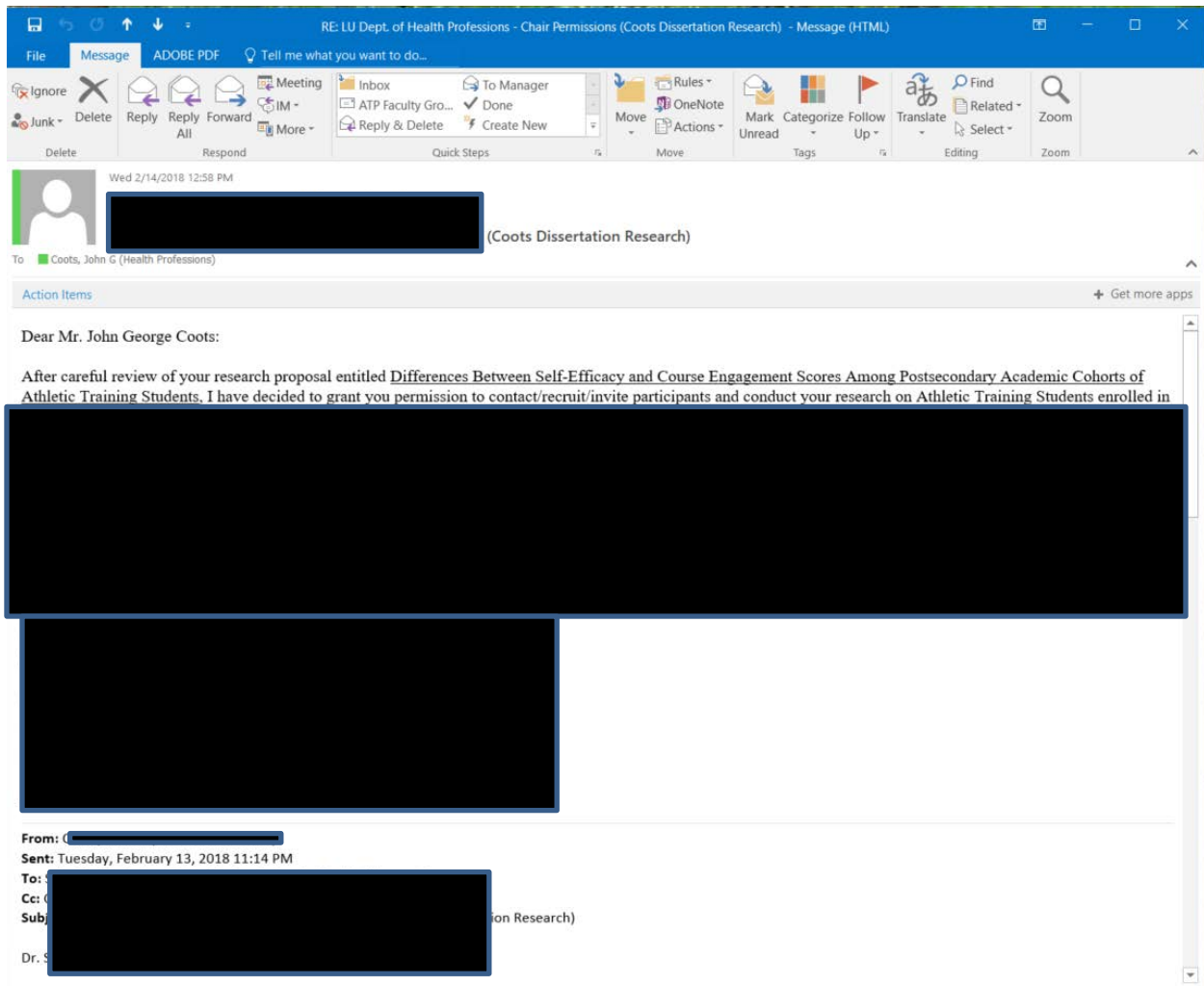
S

[REDACTED]

## Appendix O

## Liberty University Department Chair Permission Granted Email Reply

Dr. J [REDACTED] S [REDACTED] – Liberty University’s Chair/Dept. of Health Professions’ Reply



## Appendix P

### Program Director/Faculty/Institution Permission Request Letter

[Insert Date]

[Recipient]

[Title]

[Company]

[Address 1]

[Address 2]

Dear [Recipient] – Athletic Training Program Director/Faculty:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree in Educational Leadership. The title of my research project is “Differences between Self-Efficacy and Course Engagement Scores among Postsecondary Academic Cohorts of Athletic Training Students.” The purpose of this study is to better understand and investigate differences between perceived self-efficacy mean scores and perceived course engagement mean scores among postsecondary academic cohorts involving sophomore, junior, senior, and graduate athletic training students. The primary research question for this study is as follows:

- **RQ1:** Are there statistically significant differences between perceived student self-efficacy scores, as measured by the College Academic Self-Efficacy Scale (CASES), and perceived student course engagement scores, as measured by the Student Course Engagement Questionnaire (SCEQ), among postsecondary academic cohorts?

I intend to use postsecondary academic cohorts of athletic training students within the National Athletic Trainers’ Association (NATA) – District 3 – Mid-Atlantic Athletic Trainers’ Association (MAATA) enrolled in Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training programs as participants for my study. I am currently in the process of completing my Liberty University (LU) Institutional Review Board’s (IRB) application. The LU IRB requires receiving permission from the appropriate dean, department chair, or athletic training program director and submission of their original signature or email documentation to the IRB for verification. I am writing to request your permission to contact/recruit/invite participants and conduct my research on athletic training students enrolled in [Recipient’s Institution of Higher Education]’s CAATE-accredited Athletic Training Program and who are in pursuit of obtaining a (bachelor’s and/or master’s) degree in athletic training.

Upon receipt of your permission granting email/letter and LU IRB approval, I will be contacting you, the athletic training program director at [Recipient’s Institution of Higher Education], via email with instructions and a participant recruitment letter to be distributed to your identified athletic training students. (Anticipated data collection will occur within the last three to four weeks of the spring 2018 academic semester.) Participants will be asked to go to the Survey Monkey site via a link provided in their participant recruitment letter

[<https://www.surveymonkey.com>] (*currently in development*) and click on the link provided to complete two surveys: The College Academic Self-Efficacy Scale (CASES) survey and the Student Course Engagement Questionnaire (SCEQ) survey. Participants will be presented with participant consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time. This study is currently pending approval by Liberty University's IRB. Upon completion of the study, the results will be provided to you upon request.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on [[Recipient's Institution of Higher Education](#)]'s official letterhead indicating your approval OR respond with your approval by email to [REDACTED]@[liberty.edu](mailto:[REDACTED]@liberty.edu). Please refer to the attached **Program Director/Faculty/Institution Permission Granted Letter Template** to complete and submit granting your permission.

Sincerely,

John George Coots

Doctoral Candidate – ([REDACTED])

## Appendix Q

### Program Director/Faculty/Institution Permission Granted Letter Template

[This permission letter template is provided for your convenience. Recommended information is included in brackets. Please select the desired information, remove the brackets, and remove the information that does not apply.]

[Please provide this document on official letterhead or copy and paste into an email. The letter/email must be returned to the researcher requesting permission.]

[Insert Date]



Dear John George Coots:

After careful review of your research proposal entitled “Differences between Self-Efficacy and Course Engagement Scores among Postsecondary Academic Cohorts of Athletic Training Students,” [I/We] have decided to grant you permission to contact/recruit/invite participants and conduct your research on athletic training students enrolled in [Recipient’s Institution of Higher Education]’s Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training program and who are in pursuit of obtaining a (bachelor’s and/or master’s) degree in athletic training.

Check the following box as applicable:

☐ I/We are requesting a copy of the results upon study completion and/or publication.  
Sincerely,

[Your Name]

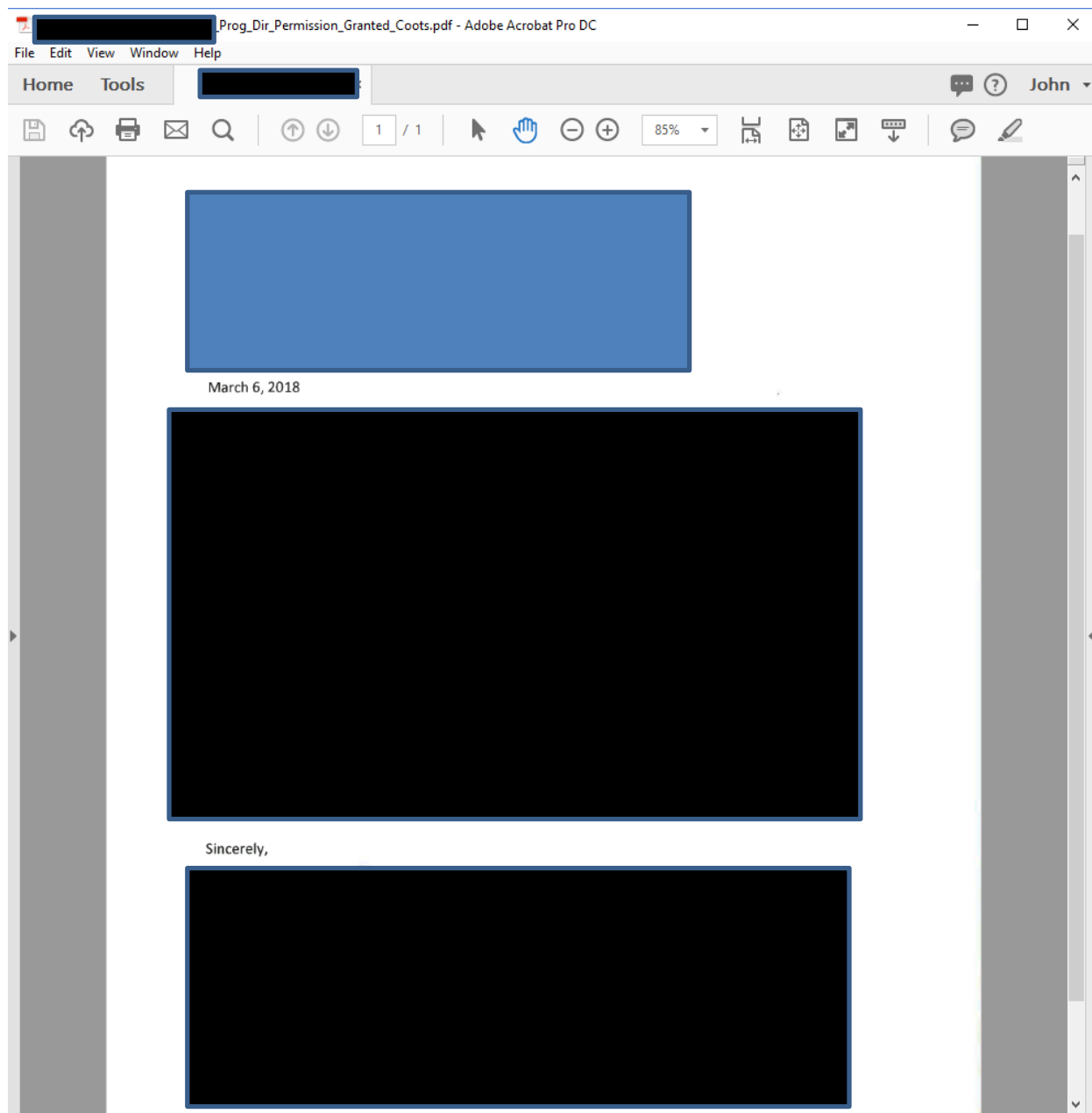
[Your Title]

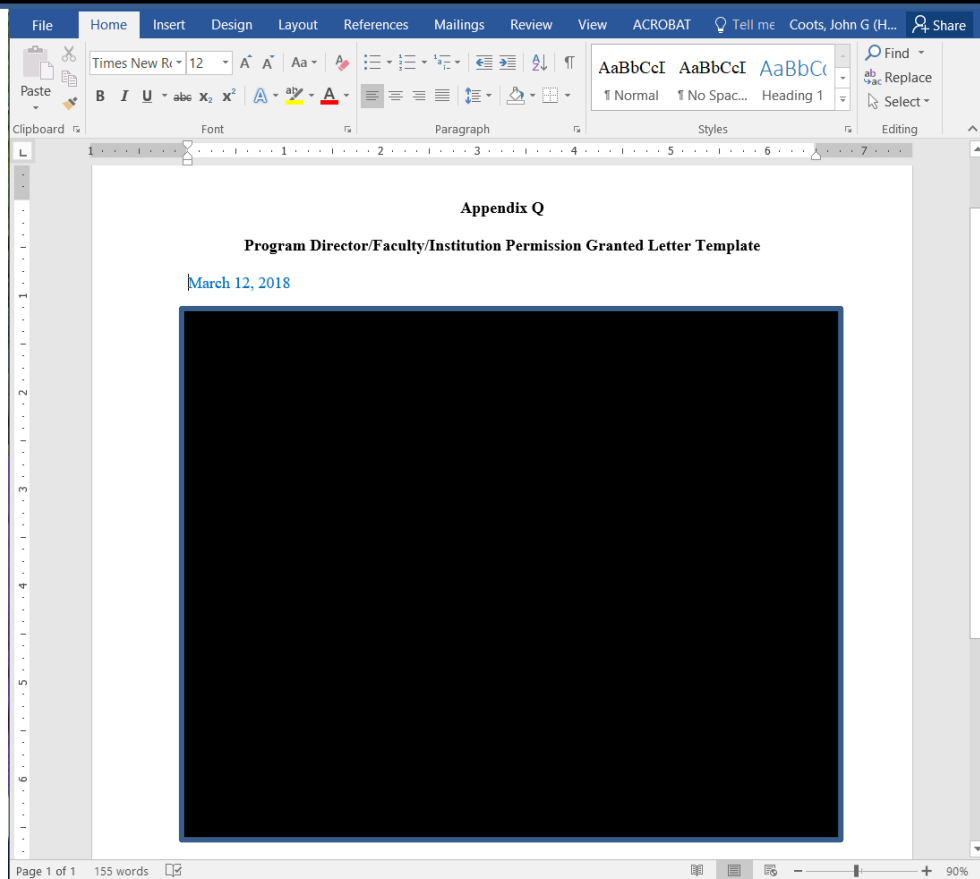
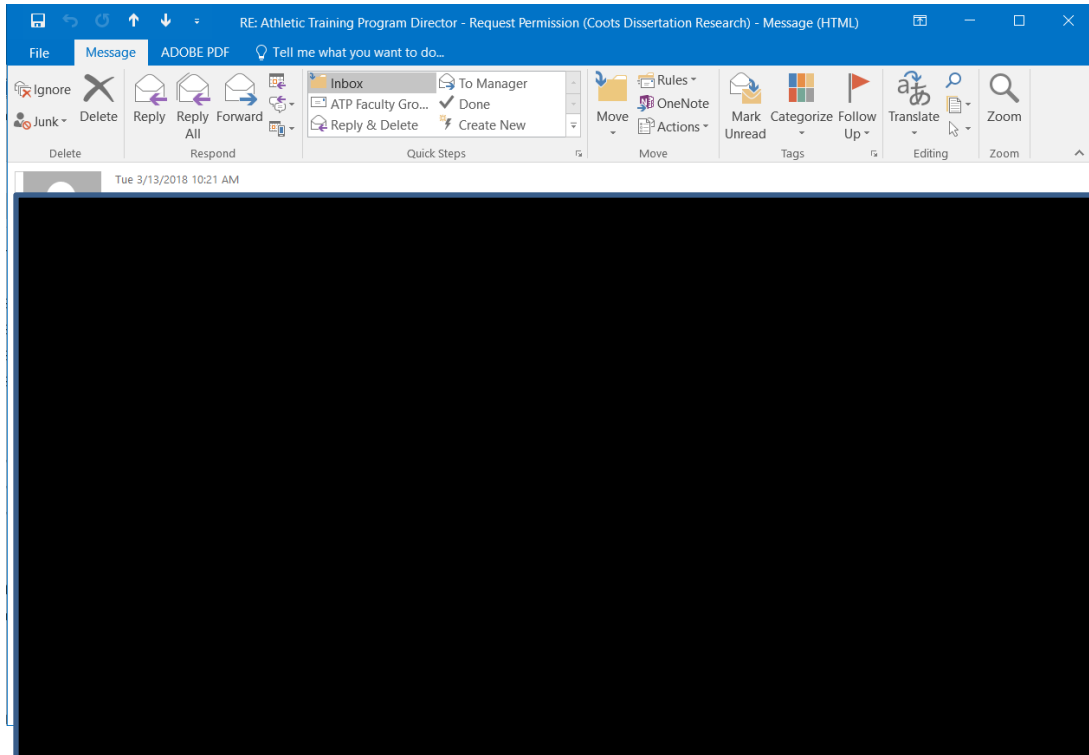
[Your Company/Organization]

## Appendix R

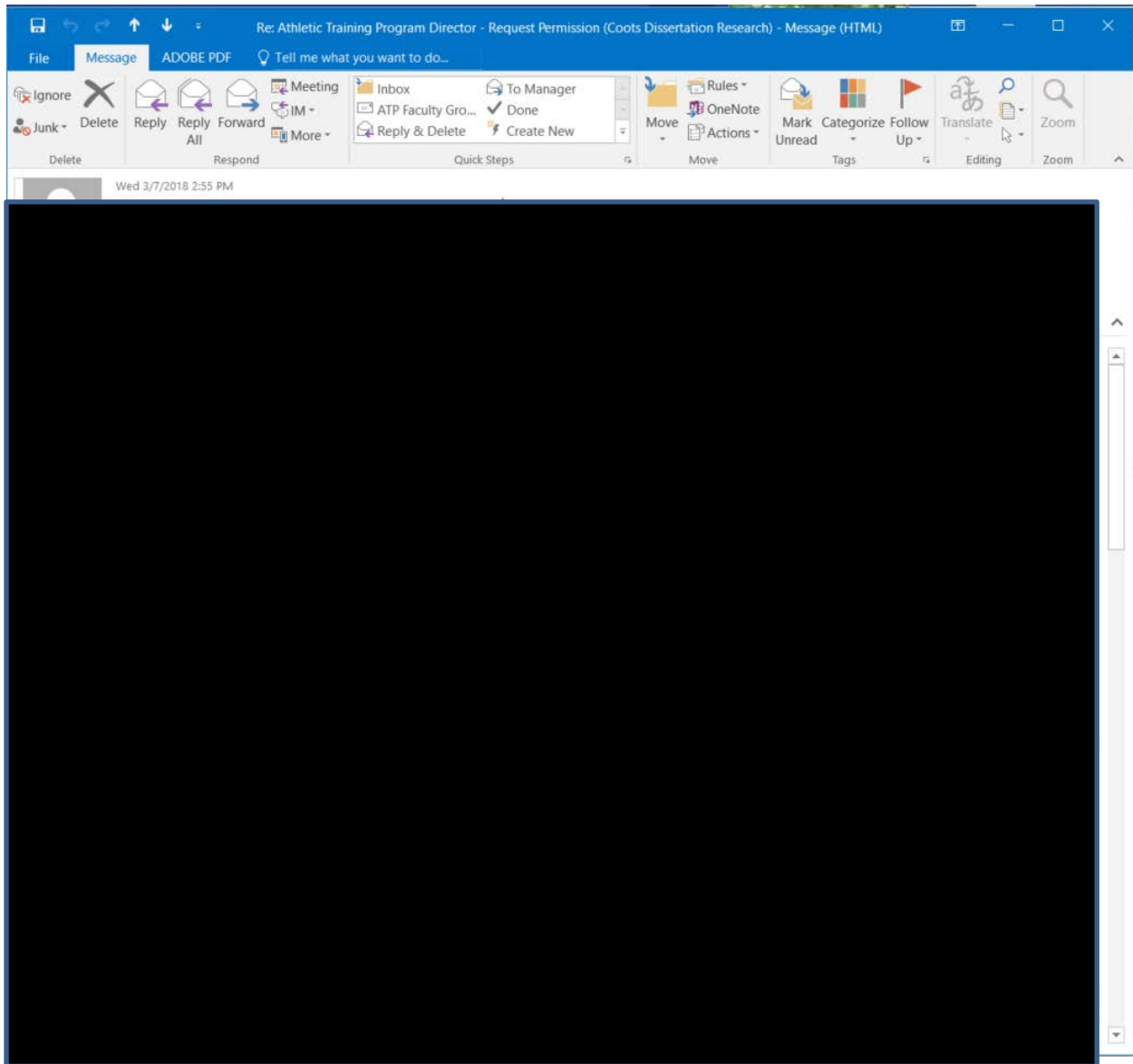
## Program Director/Faculty/Institution Permission Granted Replies

Dr. J [REDACTED] B [REDACTED] University's Athletic Training Program Director's Reply

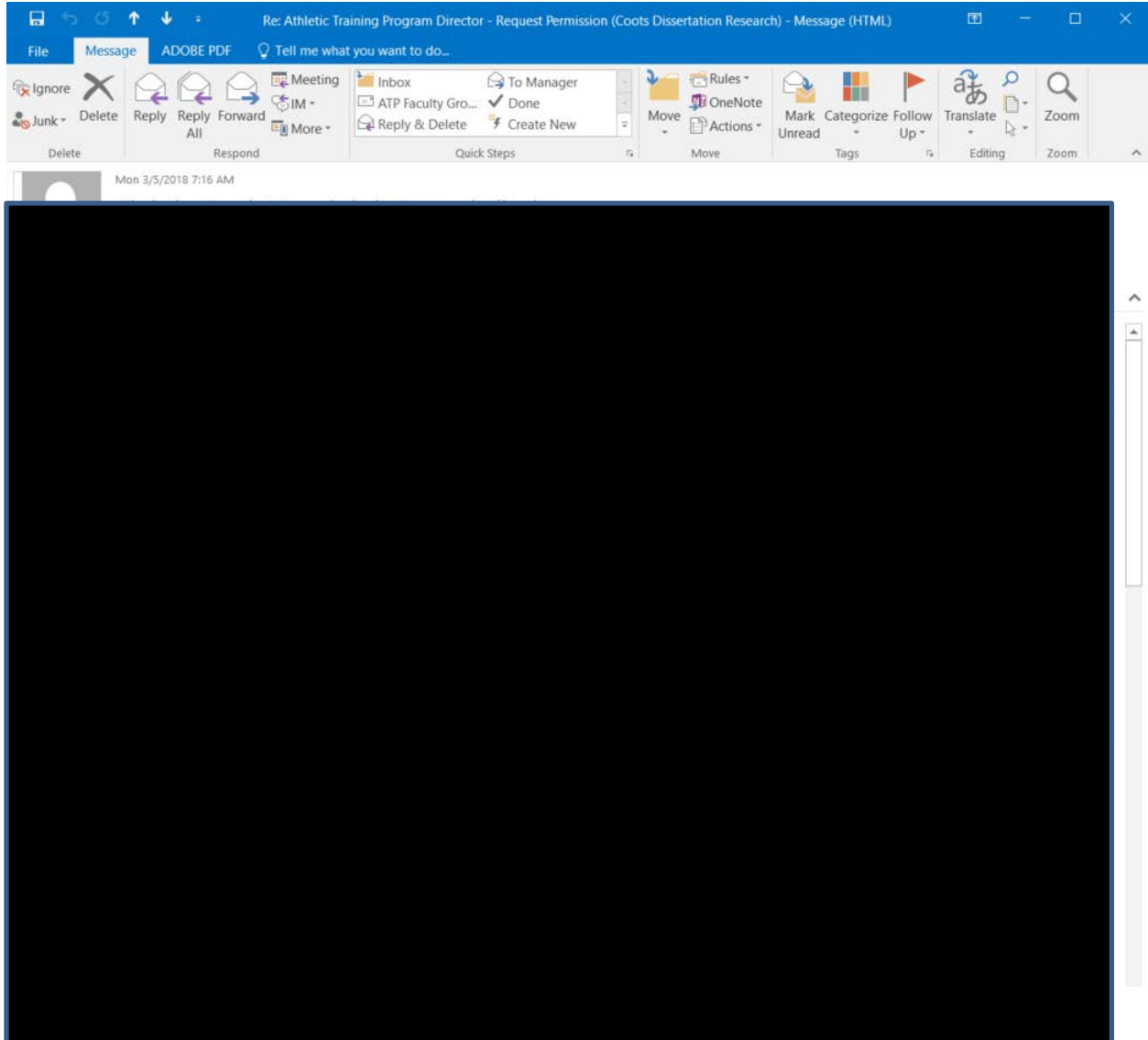


**Dr. D [REDACTED] B [REDACTED] College's Athletic Training Program Director's Reply**

**Dr. A [REDACTED] C [REDACTED] University's Athletic Training Program Director's**  
**Reply**

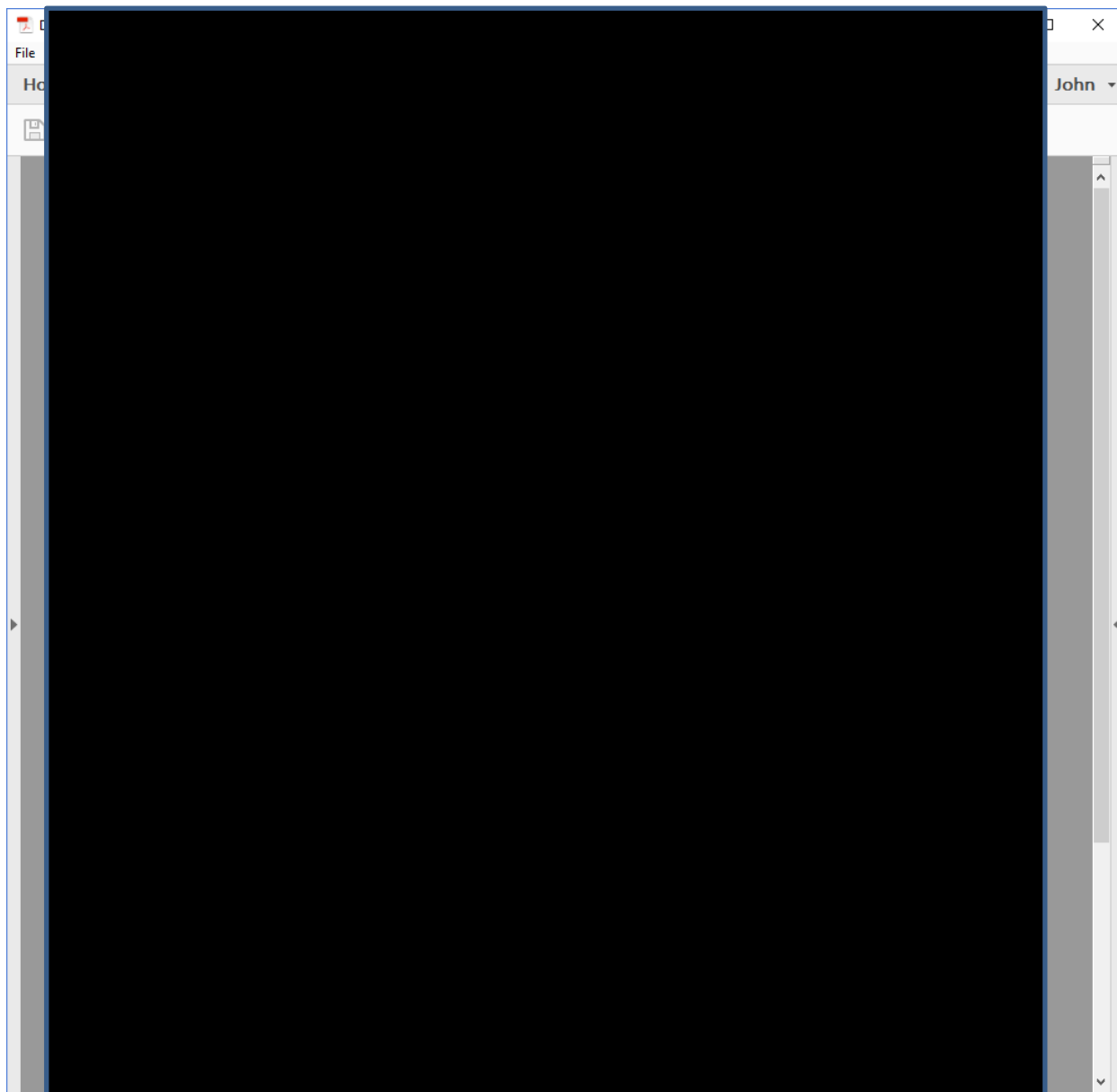




**Dr. S [REDACTED] C [REDACTED] University's Athletic Training Program Director's Reply**

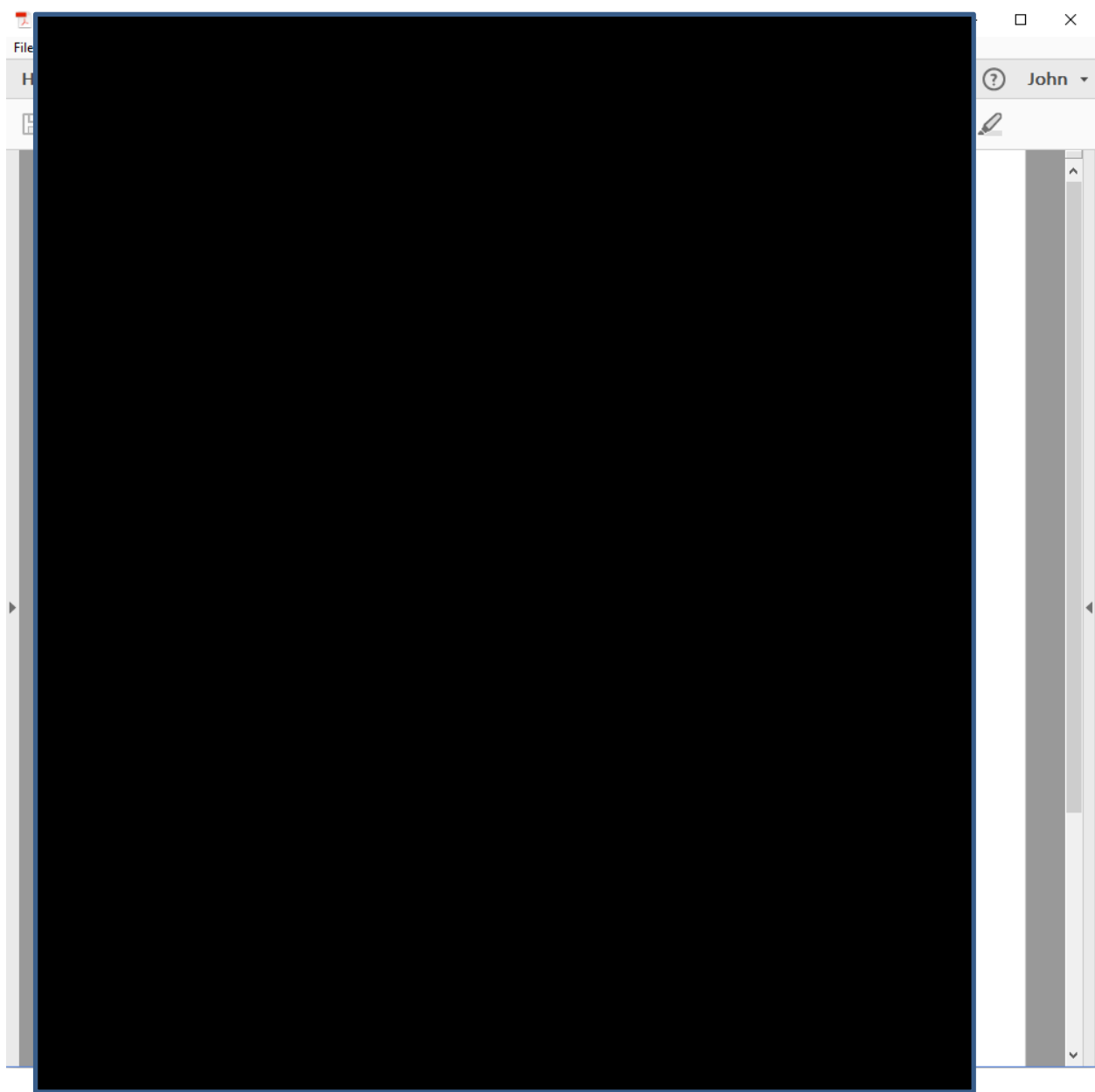
Mr. D [REDACTED] D [REDACTED] University's Athletic Training Program Director's

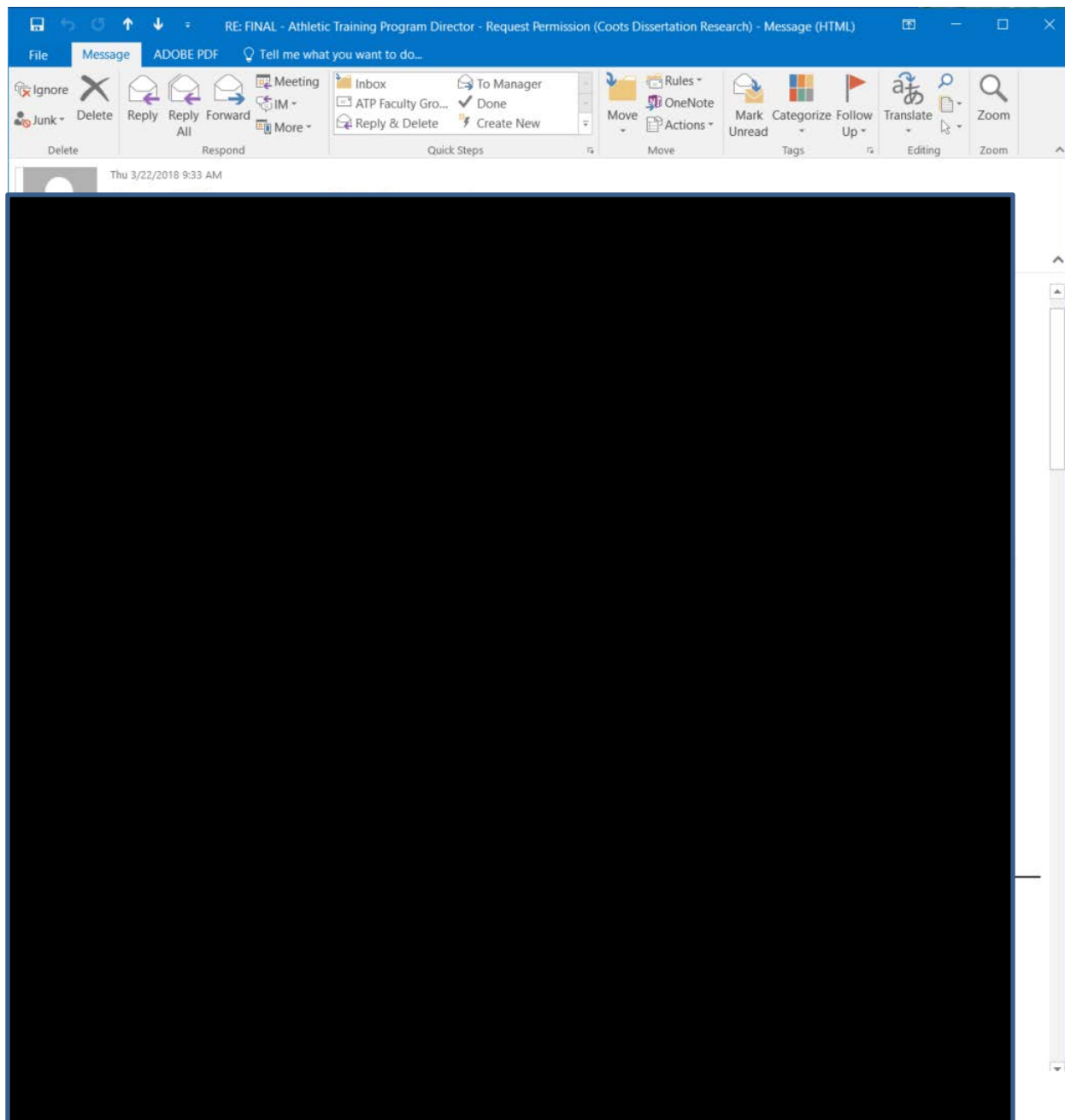
Reply



**Dr. J [REDACTED] D [REDACTED] University's Athletic Training Program Director's**

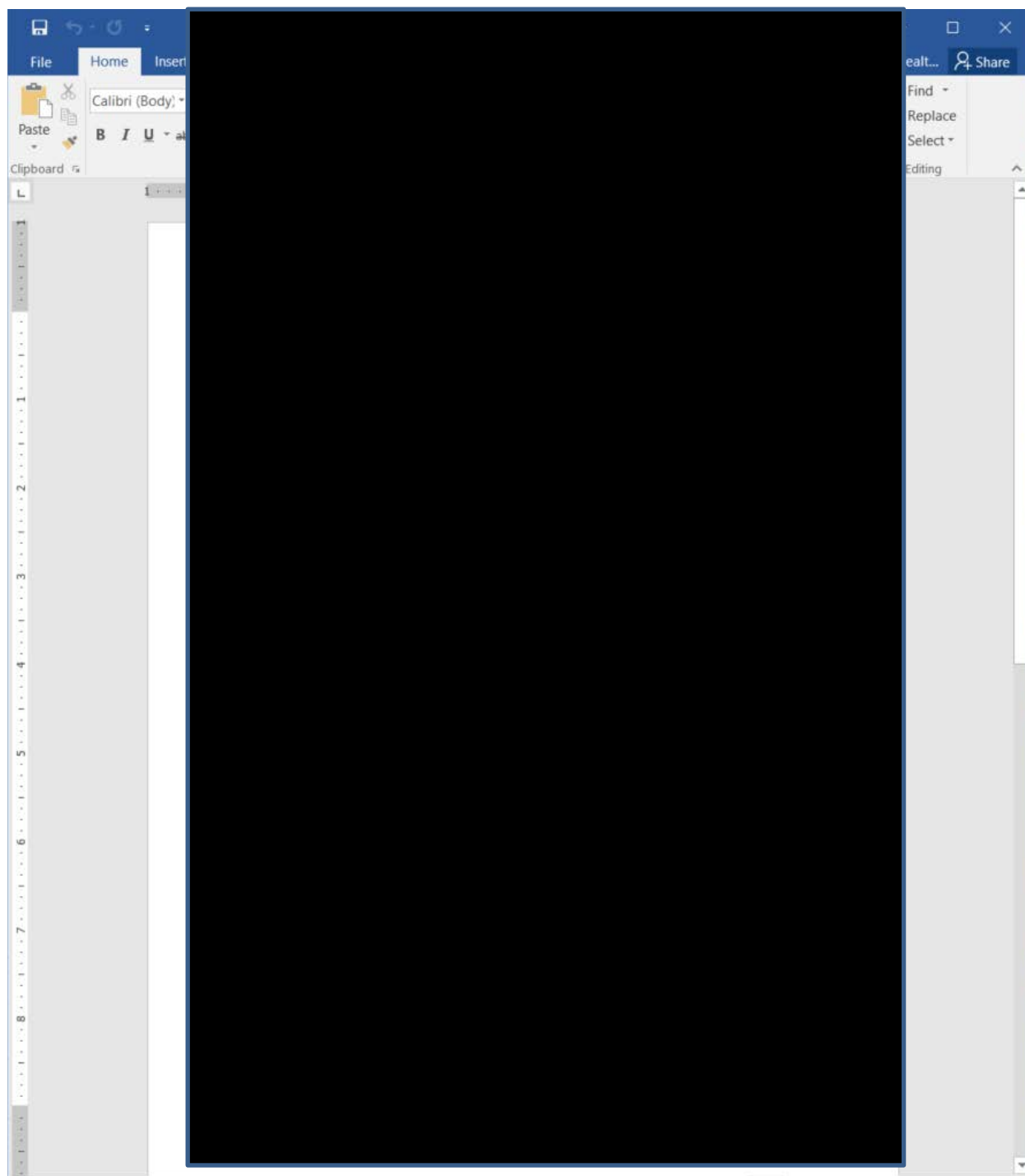
**Reply**



**Dr. S [REDACTED] E [REDACTED] Athletic Training Program Director's Reply**

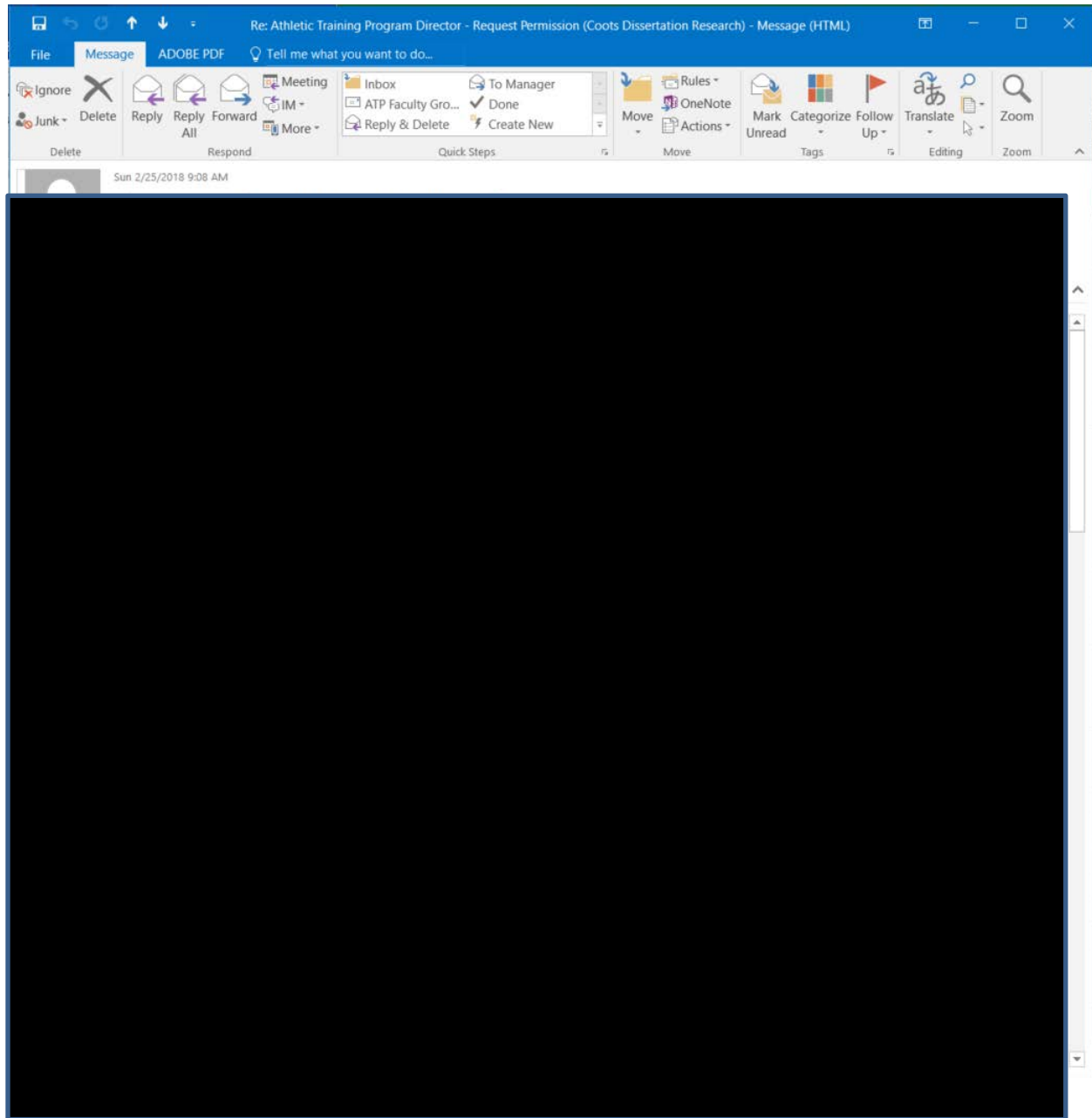
Dr. R E [REDACTED] College's Athletic Training Program Director's

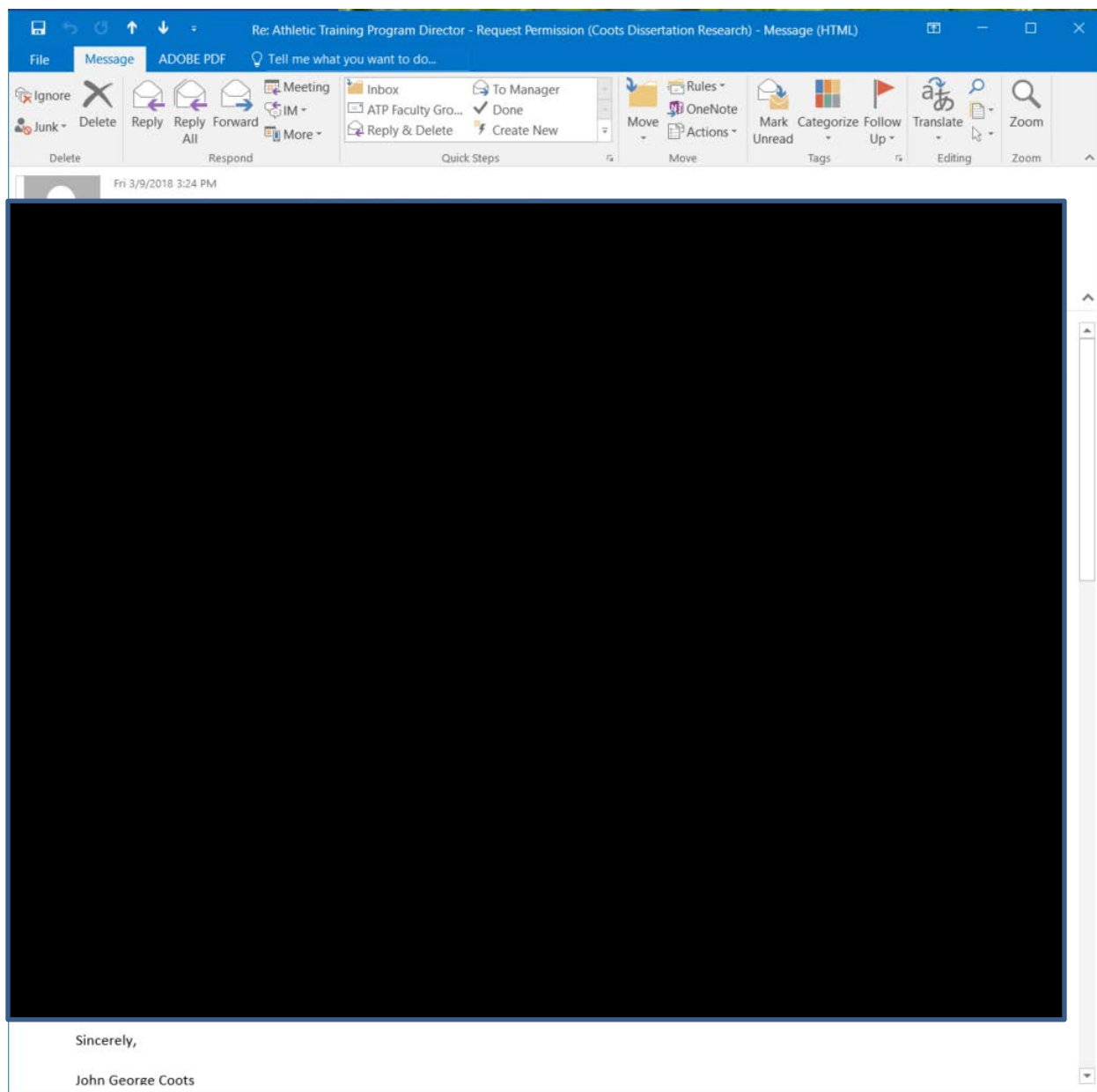
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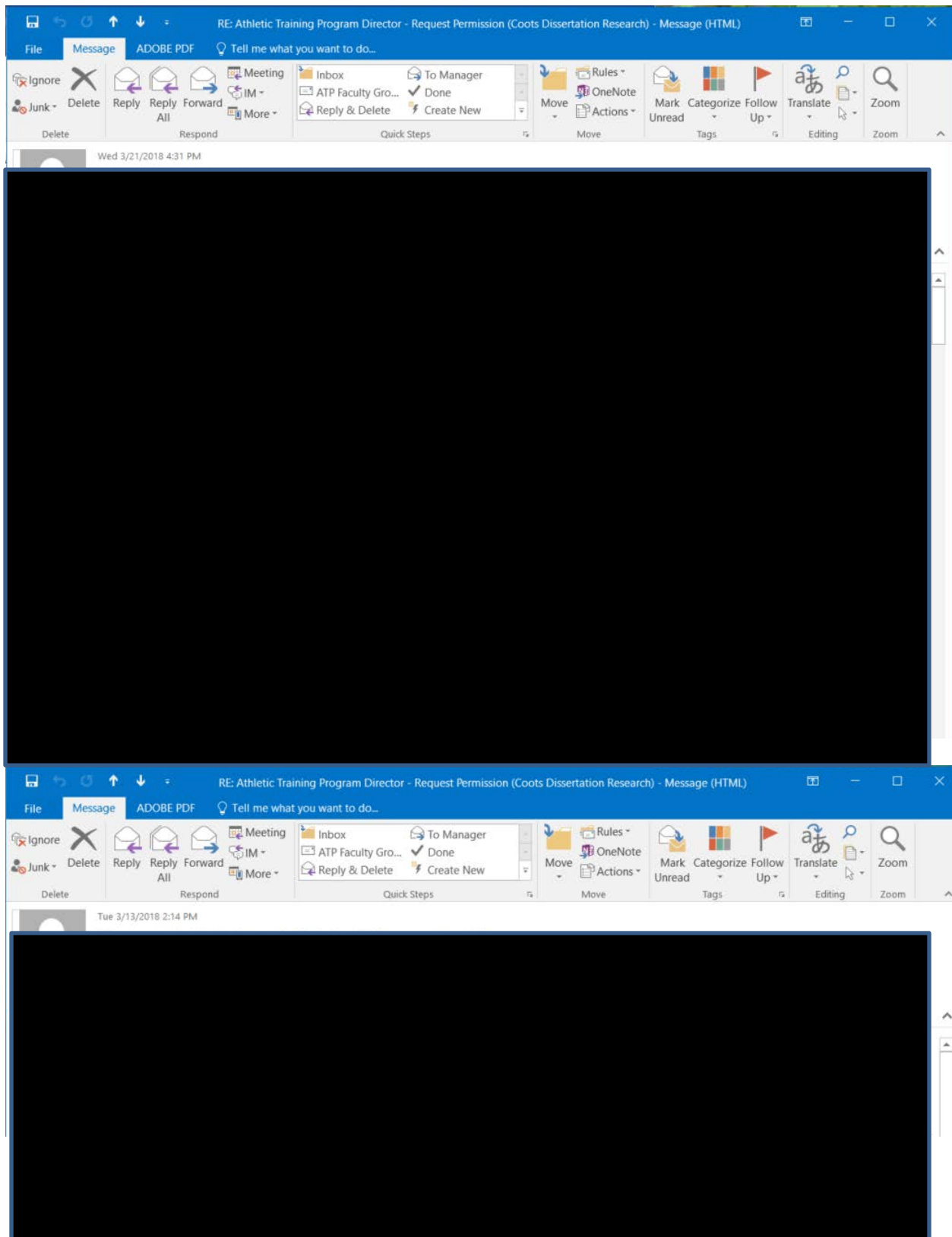
Dr. K [REDACTED] F [REDACTED] University's Athletic Training Program Director's

Reply

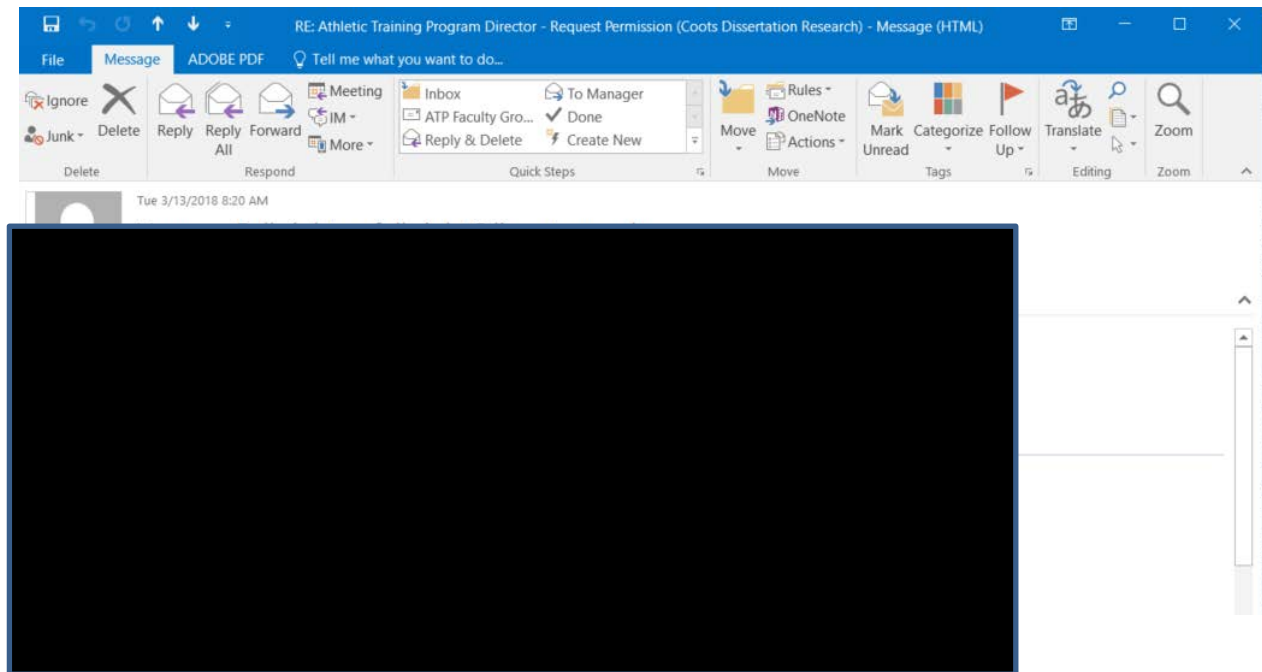


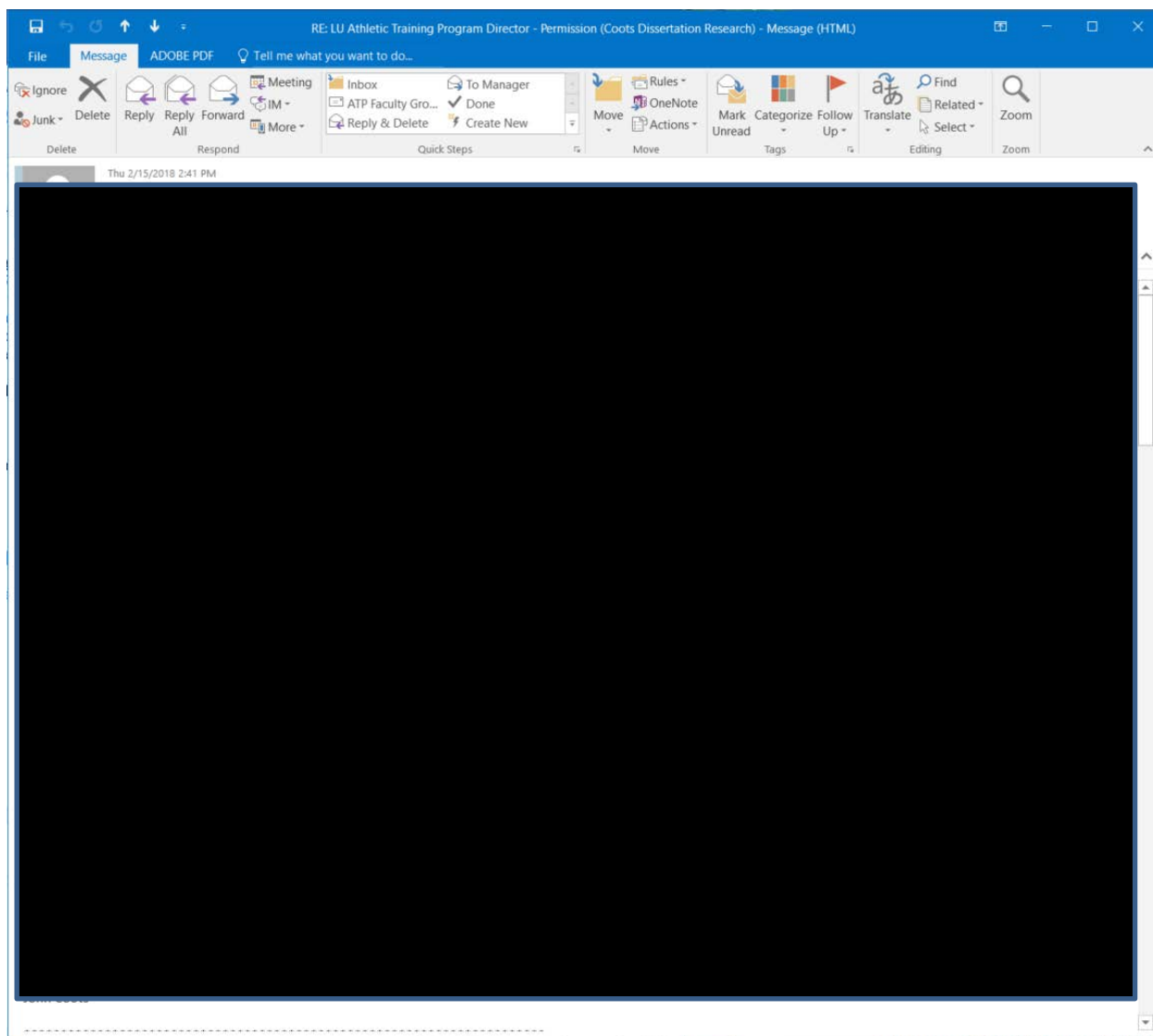
**Dr. J [REDACTED] F [REDACTED] University's Athletic Training Program Director's Reply**

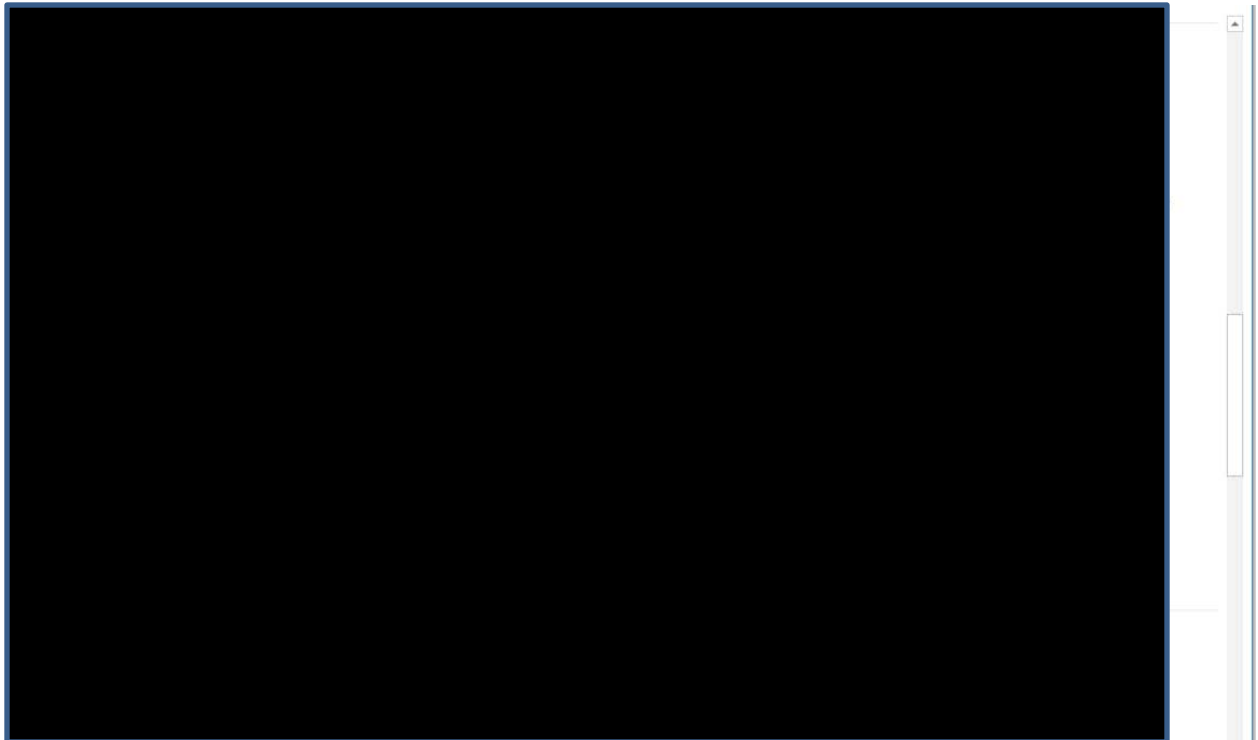
**Dr. V [REDACTED] F [REDACTED] College's Athletic Training Program Director's Reply**  
**& Dr. B [REDACTED] W [REDACTED] – IRB Chair [REDACTED] College's Approval Reply**



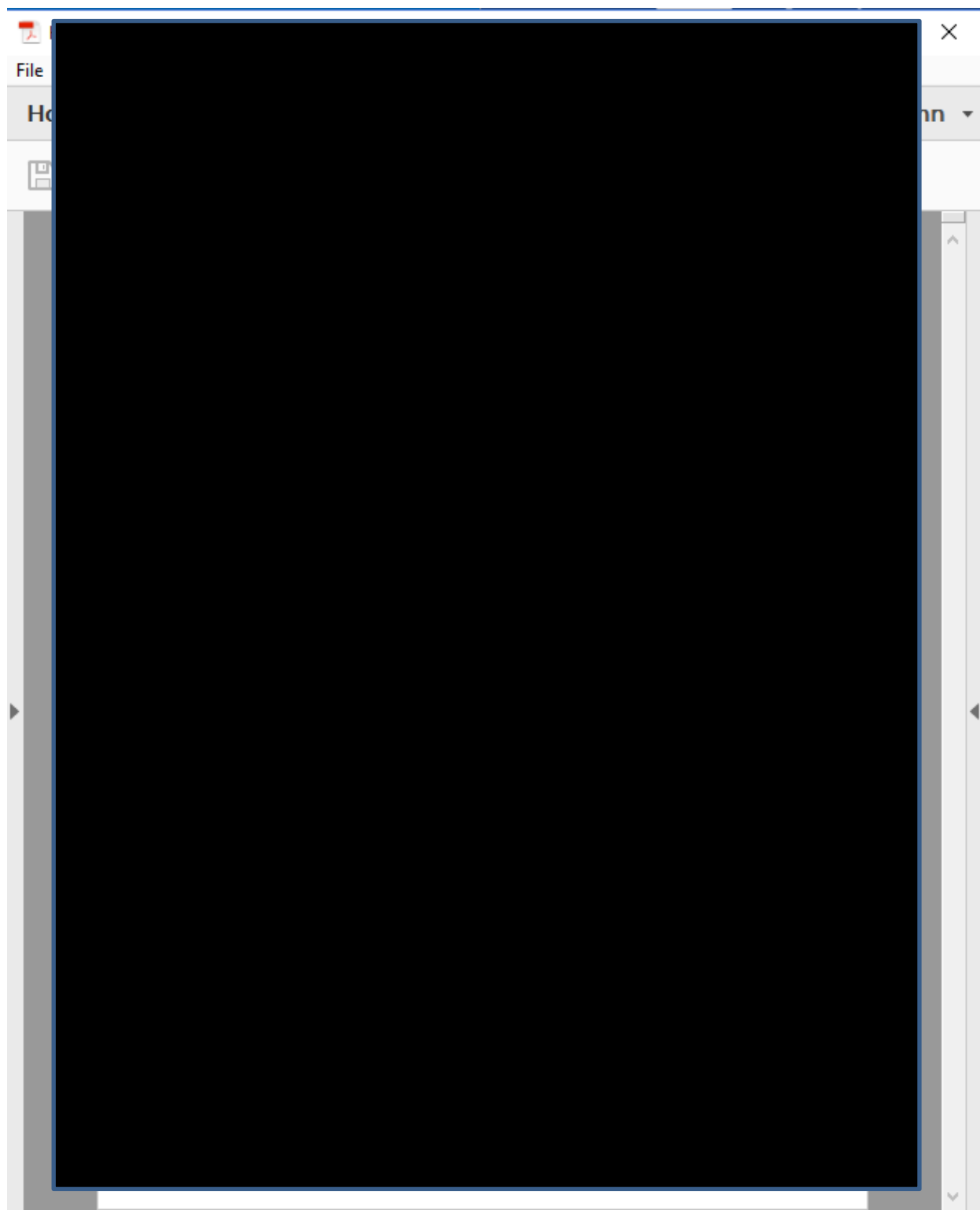


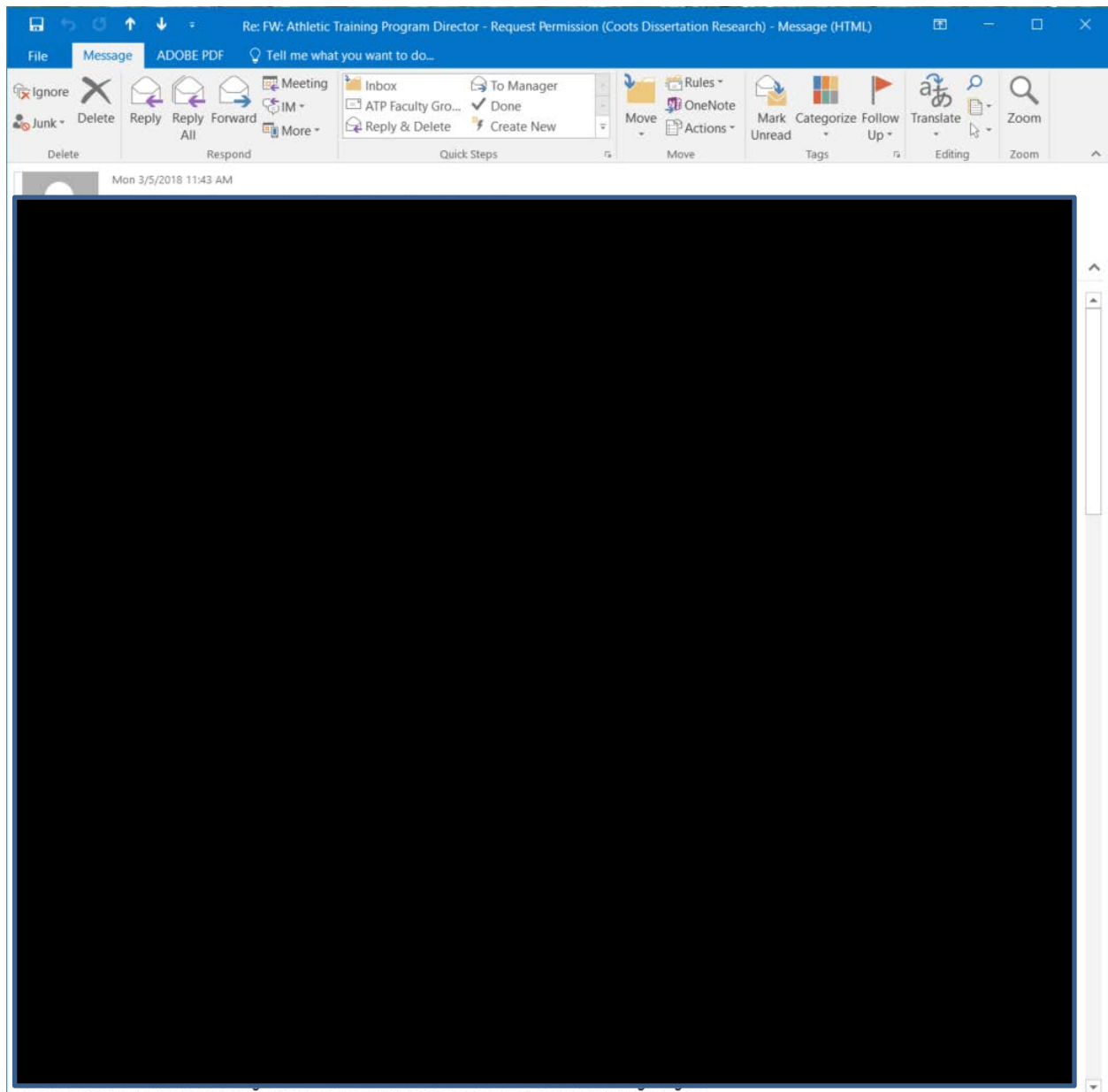


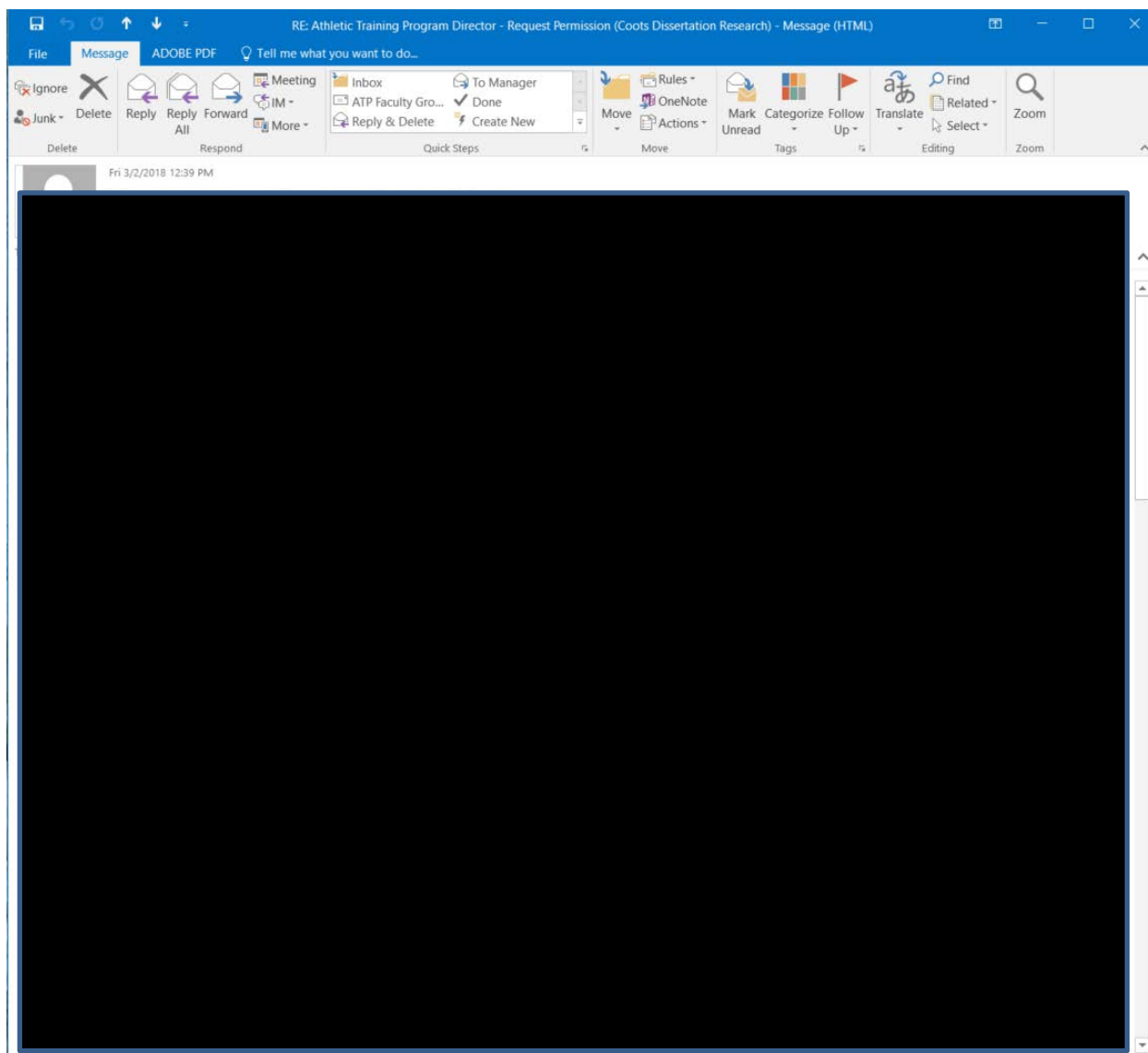
**Dr. M [REDACTED] G [REDACTED] University's Athletic Training Program Director's Reply**

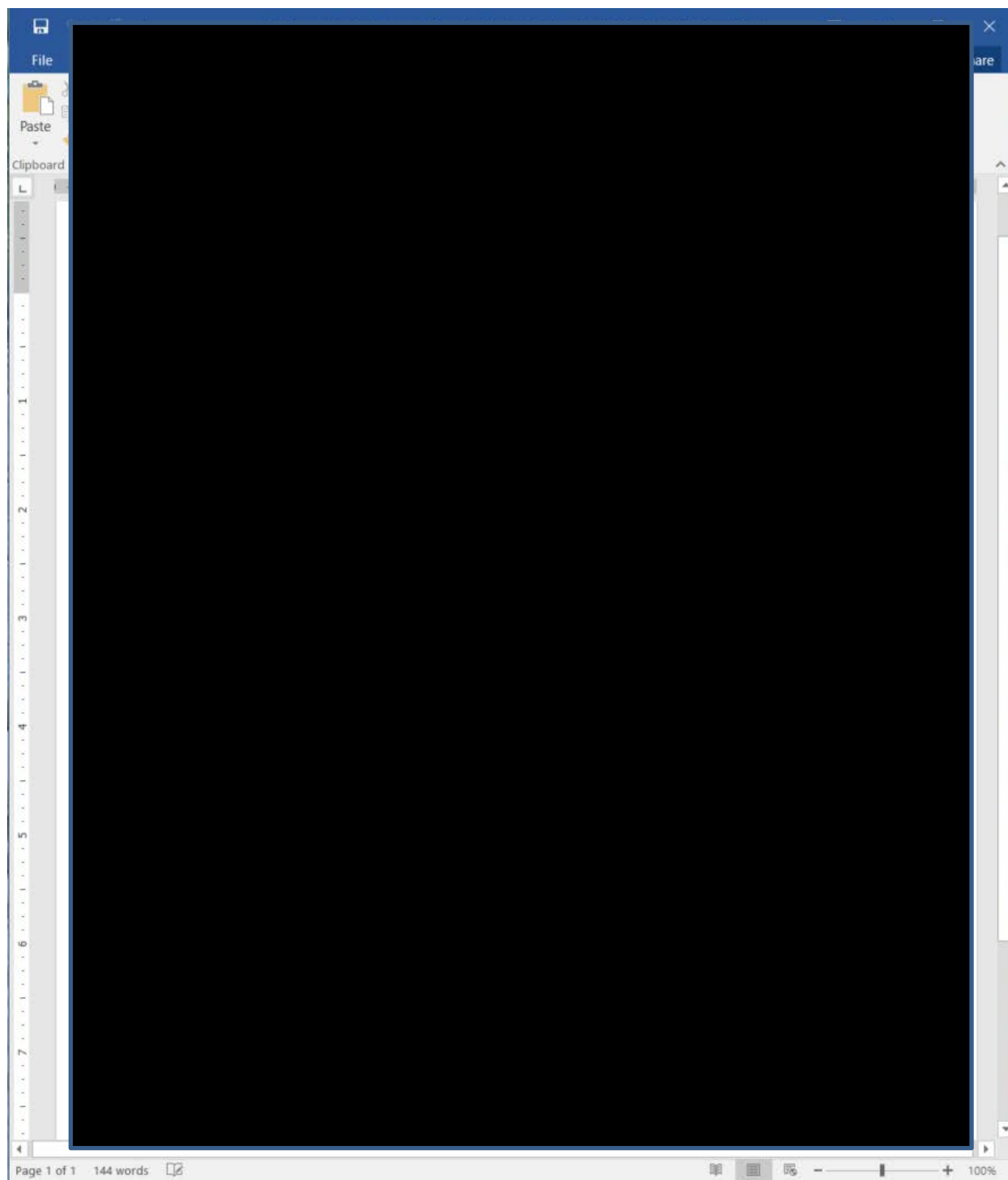


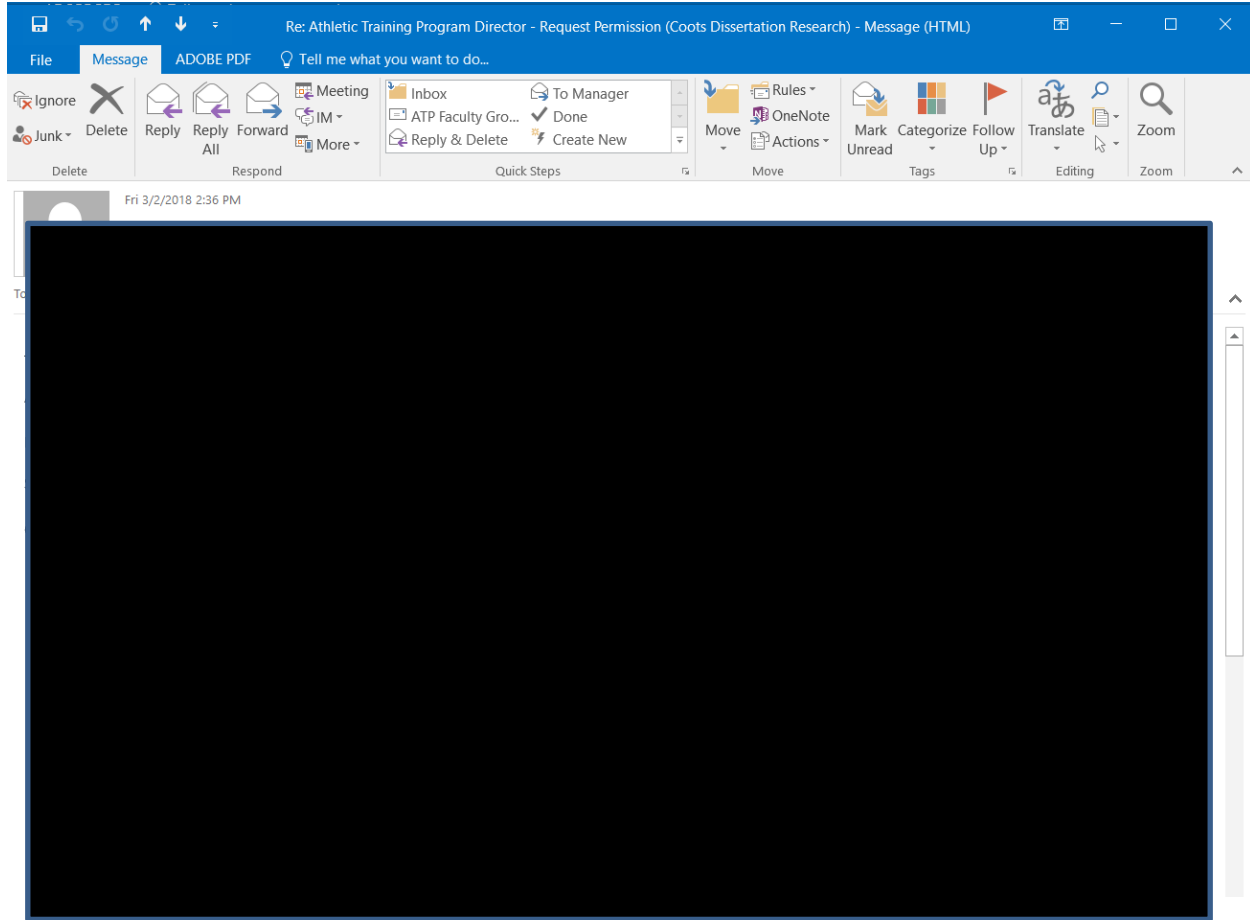
**Dr. C [REDACTED] H [REDACTED] College's Athletic Training Program Director's Reply**



**Dr. H [REDACTED] H [REDACTED] University's Athletic Training Program Director's Reply**

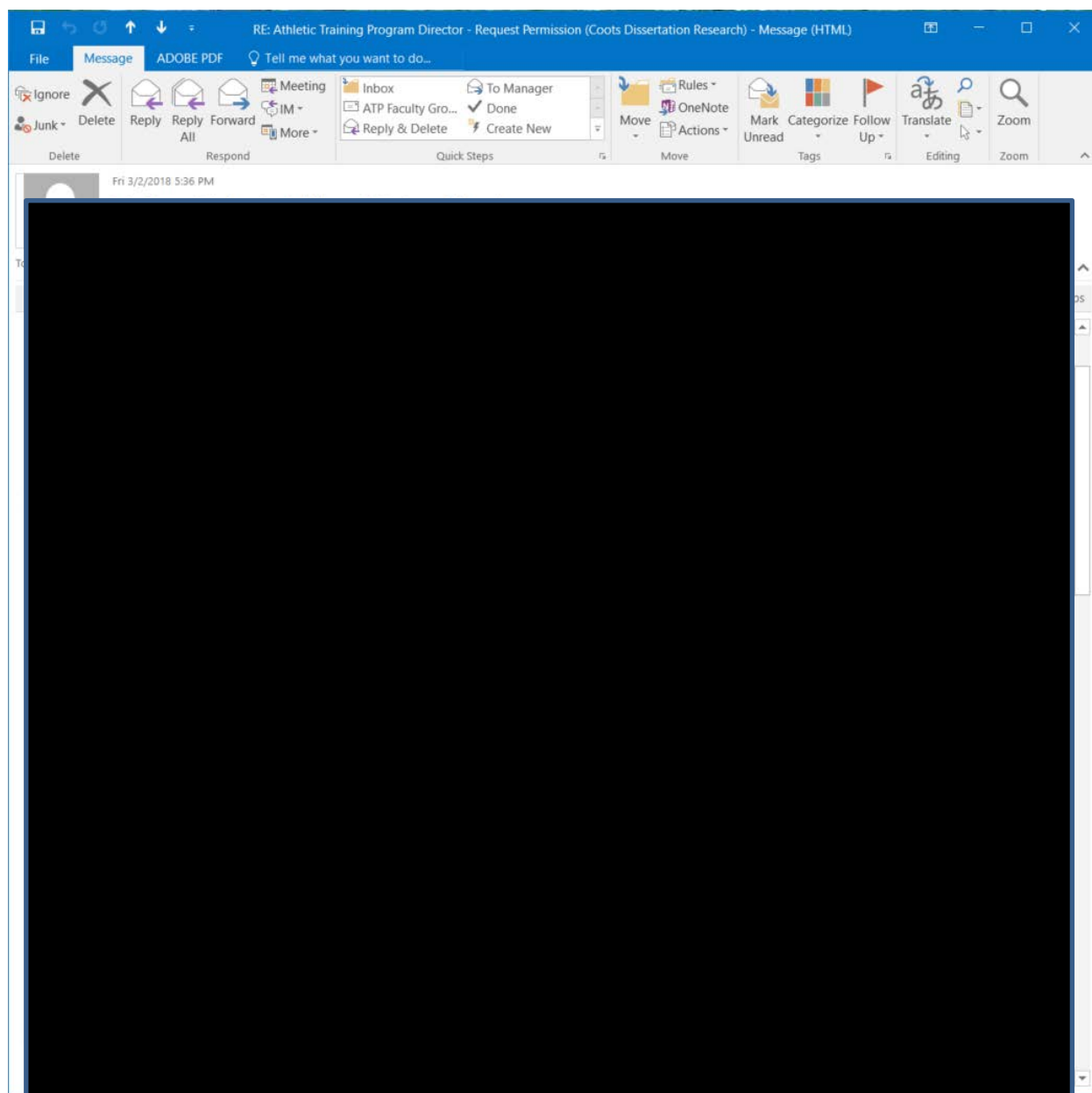
**Dr. J [REDACTED] H [REDACTED] University's Athletic Training Program Director's Reply**

**Dr. E [REDACTED] H [REDACTED] University's Athletic Training Program Director's Reply**

**Dr. M [REDACTED] L [REDACTED] University's Athletic Training Program Director's Reply**

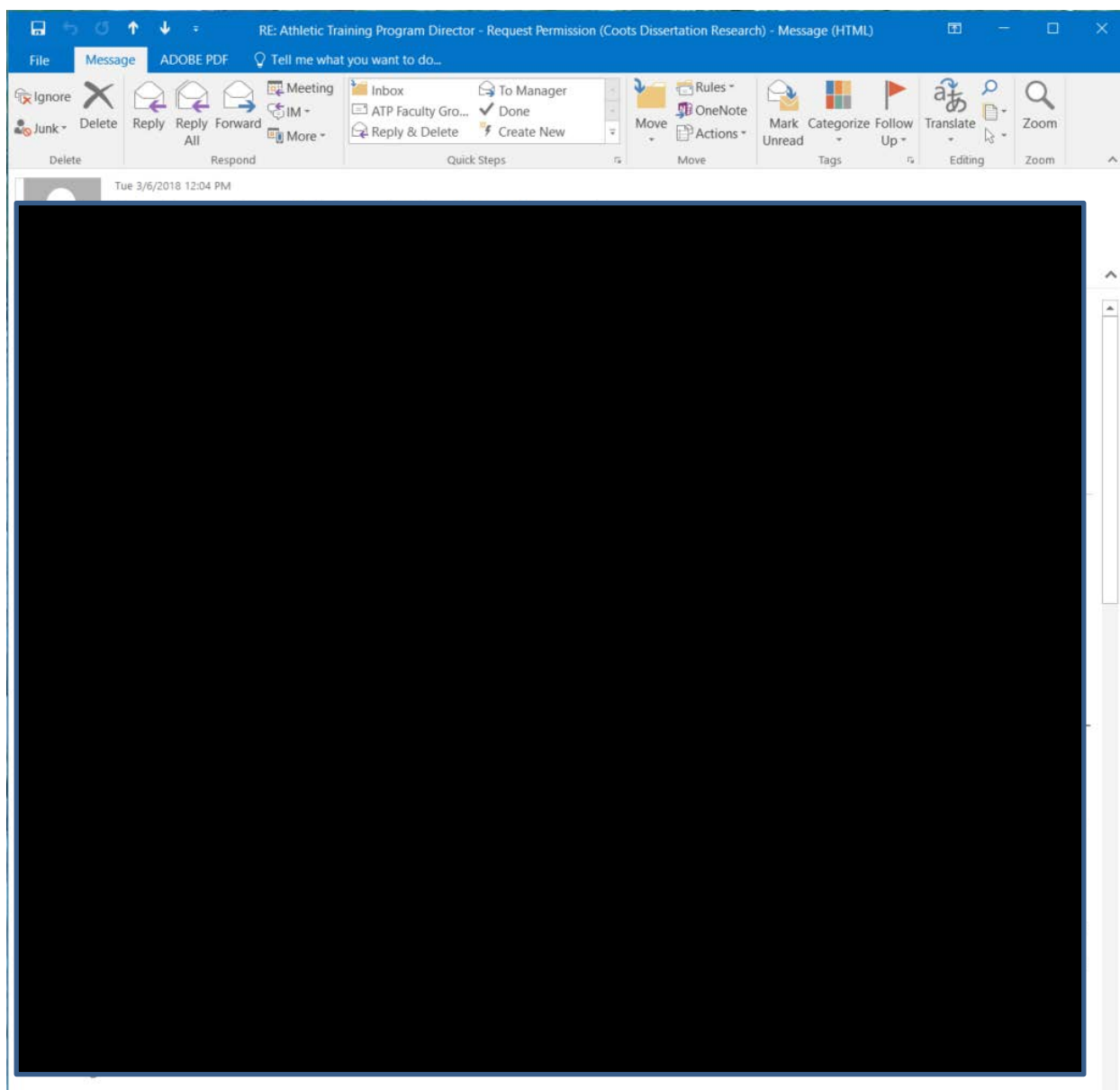


**Dr. M [REDACTED] M [REDACTED] University's Athletic Training Program Director's**  
**Reply**



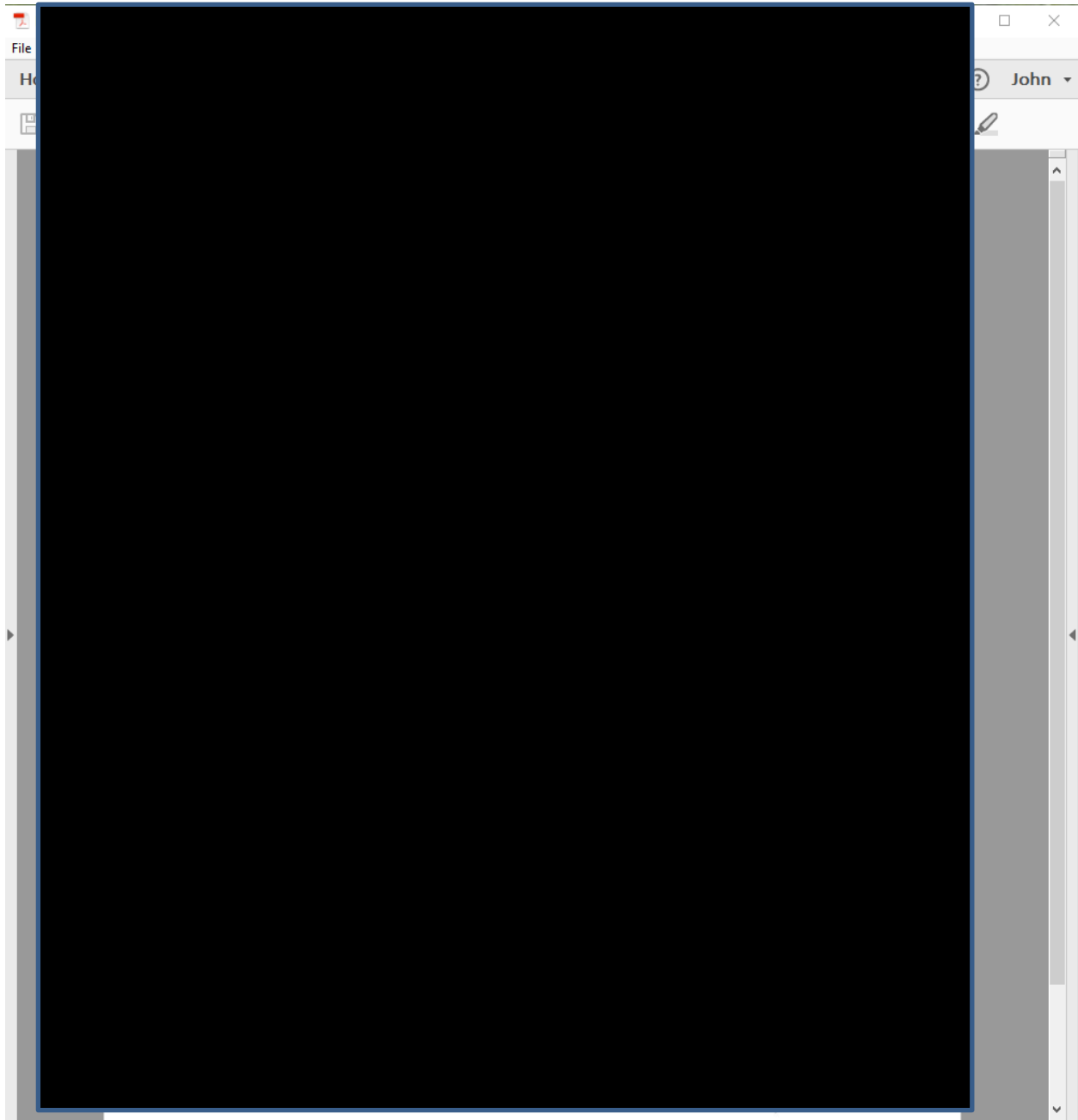
Dr. M [REDACTED] P [REDACTED] Athletic

### Training Program Director's Reply



Dr. W [REDACTED] P [REDACTED] Athletic Training

**Program Director's Reply**

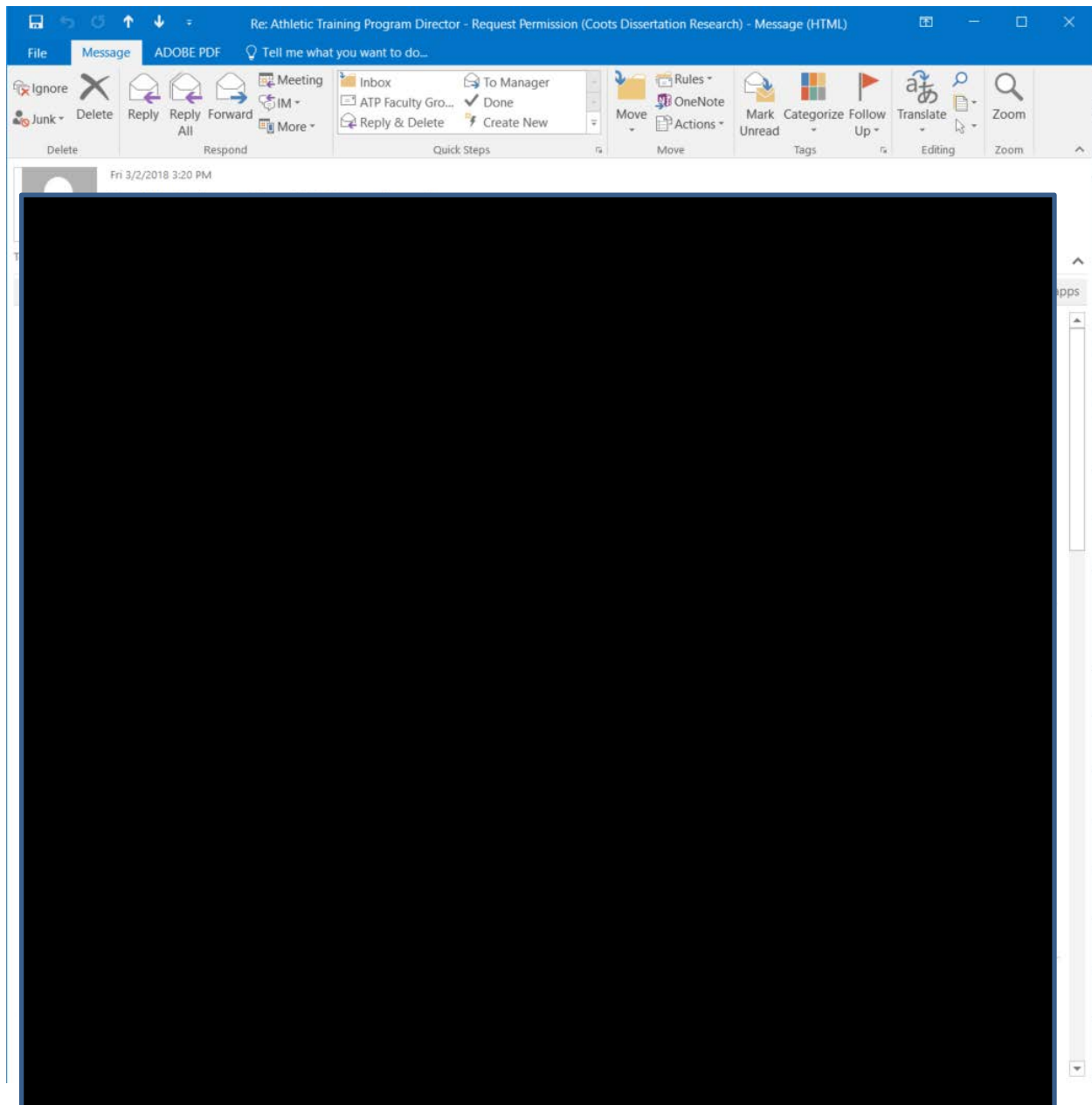


**Mr. J [REDACTED] R [REDACTED] University's Athletic Training Program Director's Reply**

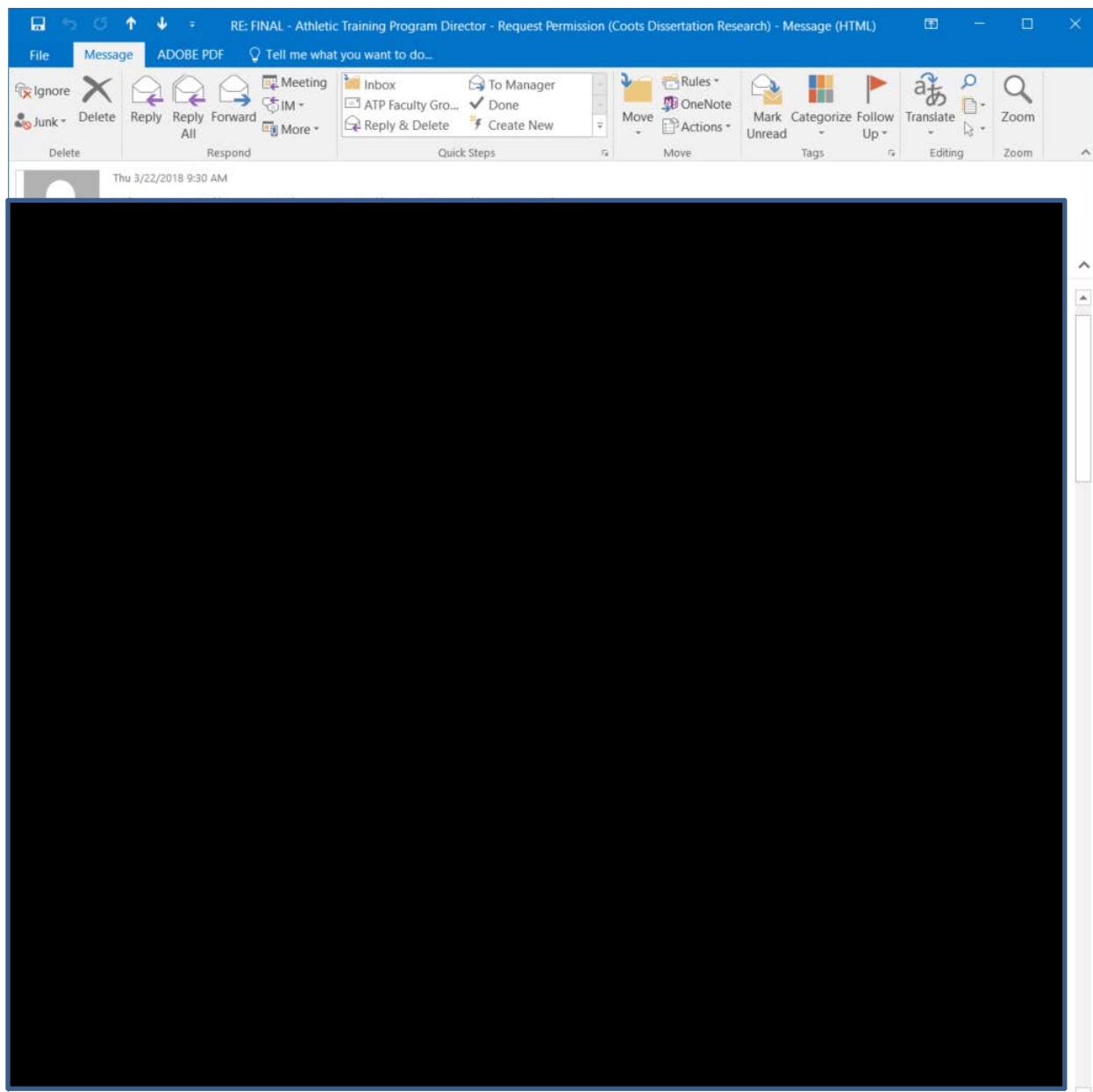


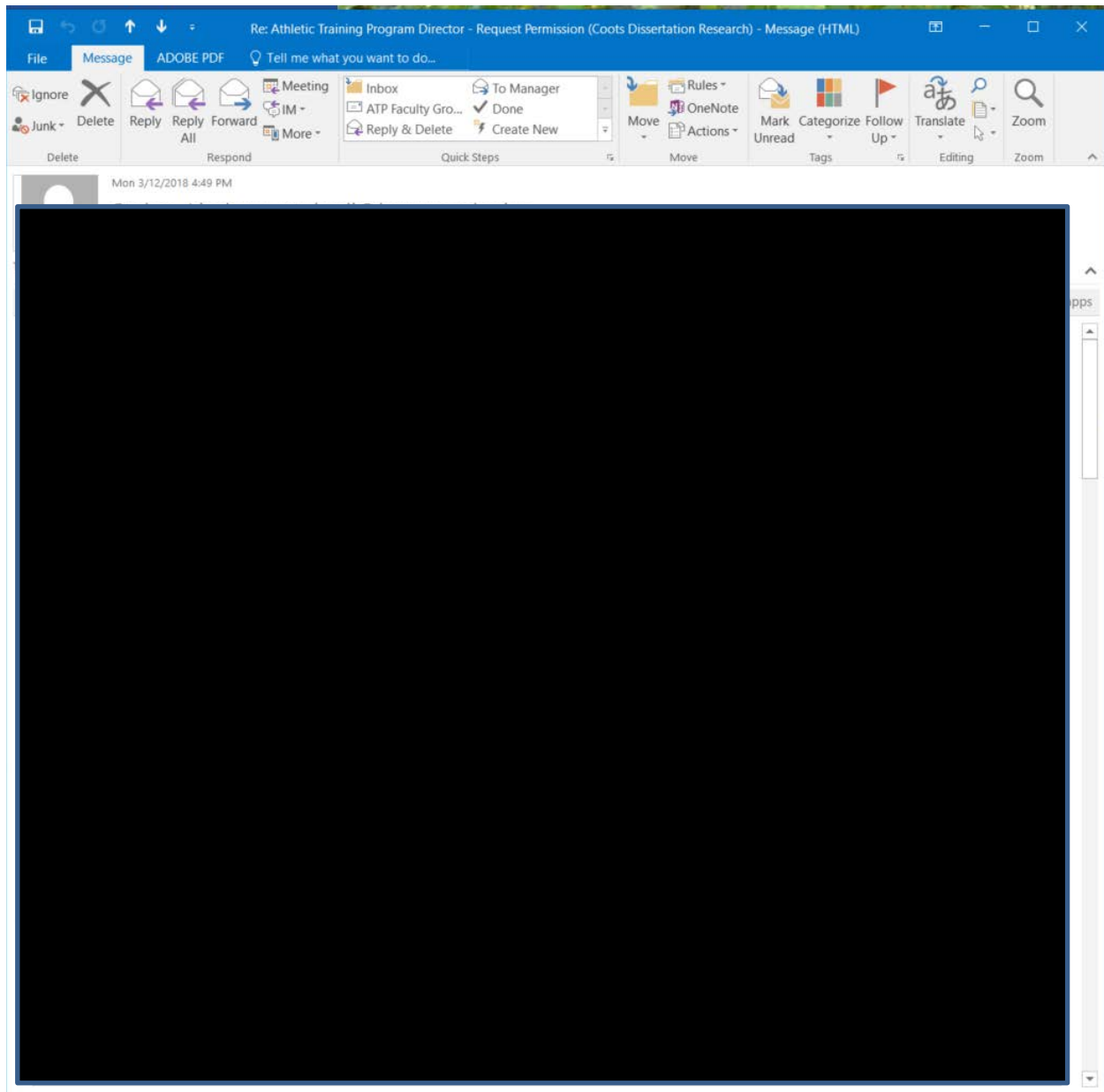
Dr. B [REDACTED] S [REDACTED] University's Athletic Training Program

### Director's Reply



**Dr. V [REDACTED] S [REDACTED] University's Athletic Training Program Director's**  
**Reply**



**Dr. L [REDACTED] S [REDACTED] University's Athletic Training Program Director's Reply**

Dr. T T Athletic Training

### Program Director's Reply

