THE EFFECT OF SEX CONGRUENCE IN ATHLETIC TRAINING STUDENTS' CLINICAL EDUCATION DYADS

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Abstract:

Preparing healthcare providers for the realities of entry-level professional practice is critical. To this end, the traditional medical education model for a variety of disciplines mandates a period of supervised student clinical experience with a practitioner, or preceptor. Often graduates are not fully prepared to begin independent professional practice and there are indications that insufficient clinical education is partially to blame. The interpersonal dynamics of a clinical dyad are a critical component of clinical experience and can be influenced by dyad sex composition. The purpose of this study was to examine the effect of biological sex, and dyad sex congruence, on athletic training students' actual experience with effective clinical educator behaviors, expectations of ideal preceptors, and differences between the two.

The *Survey of Effective Clinical Educator Behaviors* (SECEB©) and additional attitudinal questions were electronically distributed, via program directors, to athletic training students (ATS) in CAATE accredited athletic training professional programs. Responses from 279 ATS participants were analyzed based on ATS/preceptor clinical dyad (same/ opposite sex), and demographic factors for each of the electronic survey items. Findings did not reveal significant differences in ATS effective clinical educator ratings of their current clinical instructors based on dyad composition or on preceptor sex. Regardless of dyad, however, participant ratings of current preceptors fell into the desirable range for only 1 of 4 SECEB subcategories and only 7 of 20 individual items. When considering ATS expectations of ideal effective clinical educator ratings, females had significantly higher expectations for behaviors that *give information* and *ask questions*. Additionally, intradyad comparisons revealed that ATS experiences are rated significantly lower than ideal expectations in all four SECEB subcategories and 19 of 20 items. Furthermore, findings indicated that ATS value preceptor *physical presence in the clinical learning environment* less than other effective clinical educator behaviors.

Conclusions are discussed in the context of preceptor preparation, role theory, culture and mentoring relationships. Key policy implications regarding preceptor qualification and preparation, and terminology; practice implications related to programmatic assessment and preceptor behavior modification; and research implications for preceptor preparation, mentorship, graduate education, and preceptor attitudes are discussed and recommendations are provided.

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CHAPTER I

INTRODUCTION

A multifaceted impending crisis that impacts American higher education, as well as the national and global communities, concerns a pervasive shortage of healthcare professionals. Many agencies, associations, and policy organizations have reported strong statistical evidence of insufficient numbers of professionals to meet the healthcare needs of Americans (National Center for Health Workforce Information Analysis, Center for Health Policy at Columbia University [NCHWIA], 2000; United States Census Bureau, 2008). In 1980, in the United States, there were 220 healthcare providers per every 100,000 citizens, with a total of 500,000 providers (Association of Schools of Public Health [ASPH], 2008). By the year 2000, this ratio had decreased significantly to a level of 158 public health workers per every 100,000 U.S. citizens, with a total of 448,254 providers (ASPH, 2008). ASPH (2008) projected that, due to rising census population estimates, by the year 2020, 738,771 providers would be needed to reach an acceptable level of 220 providers per 100,000 citizens.

The healthcare provider shortage problem significantly impacts American colleges, and specifically, healthcare career preparation programs. The existence of the healthcare professional shortage and the potential for it to approach crisis levels centers on two components (Association of Academic Health Centers [AAHC], 2008; Institute of Medicine, National Academy of Sciences [Institute], 2003; Rahn & Wartman, 2007). The first component pertains to an

insufficient number of skilled health-care professionals available to the workforce (ASPH, 2008; NCHWIA, 2000). The insufficiency is compounded by a disproportionately larger number of healthcare professionals nearing retirement age than the relatively small number of replacements entering the workforce (ASPH, 2008; NCHWIA, 2000). The second component pertains directly to American educational processes and the opinion that American health professionals are insufficiently prepared for the realities of the workplace (ASPH, 2008; Gebbie & Turnock, 2006; Institute, 2003) and are therefore poorly equipped for some aspects of entry-level practice.

Historically academia provides an explicit role in societal development (Altbach, 2001), and therefore should address the societal, institutional, and educational issues related to the shortage of health care professionals. Furthermore, the American public, as well as elected officials, view the funding of public higher education as a necessary investment for the overall good of the public (Thelin, 2005), a viewpoint central in considering the relevance of the healthcare worker shortage to the academy. In sum, the existence of crisis level shortages in the American healthcare workforce (American Hospital Association [AHA], 2010; ASPH, 2008; NCHWIA, 2000) impacts American society. Universities play a crucial role in all aspects of health workforce development (AAHC, 2008) and therefore a role in cultivating future healthcare professionals. Through the societal service component of academia (Altbach, 2001; Thelin, 2005), higher education should actively participate in addressing the critical issues associated with healthcare provider shortages (AHA, 2010; ASPH, 2008).

The belief that many educational programs inadequately prepare healthcare graduates for the professional practice (Gebbie & Turnock, 2006) is well documented (Association of Academic Health Centers, AAHC, 2008; ASPH, 2008; Institute of Medicine, 2003). When considering that the Bureau of Labor Statistics (BLS, 2008) formally recognizes more than 100 career paths in public health, and the American Medical Association ([AMA], 2010) formally recognizes in excess of 80 health care careers involved in direct patient care, it becomes evident that the problem involves a multitude of professions and academic programs. Faculty and administrators in each discipline should examine

educational practices for effectiveness in order to address the perception that students are not adequately prepared (AAHC, 2008; ASPH, 2008; Gebbie & Turnock, 2006). Each discipline maintains program accreditation standards, including educational competencies and proficiencies, and most require that state and national examinations be successfully completed prior to professional credentialing and practice. This traditional pipeline model of preparation (AAHC, 2008; Gebbie & Turnock, 2006) entails the entrance of a candidate into the program and the continuation of the candidate along a sequenced curriculum toward graduation and practice.

Healthcare academic programs contain common discipline-specific components, such as the development of competence according to accreditation standards and the exposure to program faculty in traditional university settings. These academic programs frequently incorporate the traditional medical model of education (Ford, 1978; Gillespie & McLaren, 2010) as the preferred method for conducting problem-based and patient-based entry-level education. The traditional medical model of education includes both didactic instruction and clinical experience components where students participate in supervised practice during prearranged periods (Ford, 1978; Gillespie & McLaren, 2010). Clinical experiential components are designed to provide valuable real world experience and expose students to increased levels of professional mentorship, while providing opportunities for skill application and professional socialization (Ford, 1978). In short, the traditional medical model of education relies heavily on the provision and supervision of a clinical experiential component and necessitates the presence of a quality clinical instructor; or preceptor.

Athletic training is one of the medical professions recognized by the AMA (2010) as involved in direct patient care. Athletic training practice has been clearly outlined within 5 practice domains (BOC, 2011) by the Board of Certification, Inc. (BOC), which is the only recognized certification agency for athletic trainers (ATC) in the U.S.:

1. injury/illness prevention and wellness protection;
2. clinical evaluation and diagnosis
3. immediate and emergency care

4. treatment and rehabilitation; and
5. organizational and professional health and well-being.

As a sports medicine expert and member of the complete health care team, the AT practices under the direction of a licensed physician and in cooperation with other health care professionals and sports medicine team members. Students pursuing athletic training as a career must graduate from a Commission on Accreditation of Athletic Training Education (CAATE) accredited degree program, pass the BOC examination, and obtain proper credentials from the state in which they will practice.

Regardless of stringent accreditation requirements (CAATE, 2012) and the identification of the effective characteristics, behaviors, and attributes of preceptors (Carpenito & Duespohl, 1985; Hannam, 2000; Weidner & Henning, 2000), research indicated that athletic training graduates were not fully prepared for interpersonal aspects of professional practice (Gardner, et al., 2009; Massie, Strang, & Ward, 2009). Additional research indicated that athletic training students (ATS) did not receive suitable quality or quantity of clinical supervision (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003). Klossner (2008) found that, while clinical experience components of athletic training are important to professional socialization and interpersonal development, ATS did not automatically value the clinical component of education. The Klossner (2008) findings are in line with Knight (2008) and Sexton, et al. (2009), and suggest that a drastic increase in clinical supervision would have little to no effect on the development of interpersonal aspects of professional practice, without incorporation of effective clinical educator behaviors and mentoring relationships. Preceptors should incorporate strategies through instruction and mentorship to facilitate student professional growth while promoting effective interpersonal skills (Klossner, 2008; Knight, 2008, Sexton, et al., 2009).

BOC examination statistics indicate that ATS often lack the clinical decision making and skills application abilities necessary for successful examination completion and entry level practice (Johnson, 2010; Winterstein, 2009). The computerized BOC examination is composed of 175 multiple-choice, stand alone, and focused testlet questions (BOC, 2012). Multiple choice questions

are designed to assess didactic knowledge, but stand-alone questions include text based simulation, multi-select, drag and drop, and other multimedia methods (BOC, 2012). Focused testlet questions consist of scenarios followed by five related key or critical questions (BOC, 2012). Both the stand alone and focused testlet questions serve to assess clinical decision making and skill application abilities (Winterstein, 2009). BOC pass rates for 2008-2009 (Johnson, 2010) indicate that 38.2% of candidates successfully passed the exam. This pass rate statistic denotes that a majority of candidates were inadequately clinically prepared to enter athletic training practice. It appears that an educational disconnect exists between attempts to provide quality clinical experiences and the realities of preceptor to student clinical interactions.

Quality clinical education is comprised of many variables, but principal among them are: effective clinical instruction (Dondanville, 2005; Hannam, 2000; Weidner & Henning, 2002), mentoring relationships (Neibert, Huot, & Sexton, 2010; Pitney, Ehlers, & Walker, 2006; Platt, 2002), and student-instructor interaction (Campbell & Campbell, 1997; Cohen, 1995; Weidner & August, 1997). A variety of factors are at play in the clinical learning dyad, and the preceptor is responsible for more than supervision; the preceptor should facilitate a clinical learning environment, and culture, that promotes student development through clinical interactions (Hannam, 2000; Weidner & August, 1997). Clinical learning dyads are therefore, at the core, dependent upon the ability of the preceptor to fulfill role expectations by providing effective clinical instruction in an effective clinical mentoring relationship. Unfortunately, the social underpinning of the clinical learning dyad is potentially burdened with a variety of demographic variances which may unknowingly impact the clinical learning relationship, and therefore negatively affect the development of the necessary mentoring relationship. Sex is one of the most basic and obvious potential demographic differences within a clinical learning dyad.

National Athletic Trainers' Association membership statistics (NATA, 2014) provide evidence that 25% of athletic trainers practice in outpatient clinical settings, 26% practice in universities, and 23% practice in secondary schools. The remaining 26% of membership practices

athletic training in a variety of settings, including: amateur/recreational/youth sports; business/sales/marketing; health/fitness/sports/ performance enhancement clinics/clubs; hospitals; industrial/occupational/corporate; military/law enforcement/government; professional sports; or as independent contractors (NATA, 2014). While ATSs participate in clinical experiences in a variety of these practice settings, the university and secondary schools practice settings serve as the primary settings for athletic training clinical experiences (Knight, 2002).

A review of athletic training biological sex statistics provides an understanding that there is potential for mixed sex preceptor-to-student clinical dyad interaction to occur frequently. Board of Certification (BOC) statistics indicated that 52% of practicing athletic trainers self-identified as female, 45% as male, and 3% did not report sex (Leftwich, 2014). BOC examination candidate sex statistics, for 2013, indicated that 54% of exam candidates were female, 37% were male, and 9% did not report. National Athletic Trainers Association (NATA, 2014) membership statistics closely resembled those of the national certification agency, the BOC. Based on the sex composition of practicing AT and ATS, these statistics indicate that ATS are likely to participate in mixed sex clinical education dyads.

The university and secondary schools settings provide the primary settings for athletic training clinical experience (CAATE, 2008), so the biological sex composition for athletic trainers in these practicing settings was more closely examined. The NATA membership statistics (2014) provide evidence that across collegiate, secondary school, and outpatient clinical practice settings, approximately 50% of athletic trainers are male and 50% are female. The statistical sex breakdown of collegiate head athletic trainers, the primary mentors of ATS (Pitney, et al., 2006), is disproportionate when compared to other sex related athletic training statistics. Acosta and Carpenter (2006) found, in a survey of all National Collegiate Athletic Association (NCAA) member institutions, that while the athletic training profession was approximately 50% female/male, only 27% of NCAA Head Athletic Trainers were female. National Athletic Trainers' Association statistics (2010) revealed that, in the university setting, only 16.5% of NCAA Division I head athletic trainers were female, 26.4% of

NCAA Division IAA head athletic trainers were female, 31% of NCAA Division II head athletic trainers were female, 38.6% of NCAA Division III head athletic trainers were female, and 34.6% of National Association of Intercollegiate Athletics (NAIA) head athletic trainers were female. Based on these statistics, students likely participate in at least one clinical experience rotation with a preceptor of the opposite sex.

In summary, ATS are exposed to a variety of practice settings, but the college setting represents the foundation of their athletic training clinical experiences. Collegiate head athletic trainers are predominantly male (Acosta & Carpenter, 2006), but ATS population is predominantly female (BOC, 2010; NATA, 2014). The findings of Pitney, et al. (2006) that collegiate head athletic trainers were identified by students as their primary mentor more than any other preceptor brings forth potential biological sex role conflicts which should be further investigated. Because clinical ATS are directly involved in supervised athletic training practice, investigating sex issues that may exist in the clinical education dynamic may yield valuable data for further understanding factors that negatively impact ATS professional preparation.

Problem Statement

Clinical education in athletic training should provide experiences for students to integrate didactic knowledge with clinical skill acquisition while encouraging professional behavior development, through supervised clinical practice (CAATE, 2012). As stipulated in *The Standards for Accreditation of Entry – Level Athletic Training Education Programs,* ATS complete a minimum of two academic years of clinical experiences (CAATE, 2008). Under the supervision of a preceptor, clinical experiences "must provide students with authentic, real-time opportunities to practice and integrate athletic training knowledge, skills, and clinical abilities…in order to develop proficiency as an athletic trainer" (CAATE, 2012, p. 6). The development of professional behaviors requires that the preceptor assume the role of mentor (Neibert, Huot, & Sexton, 2010; Pitney, Ehlers, & Walker, 2006; Platt, 2002). Research clearly identifies the role expectations of effective preceptors (Dondanville, 2005), as well as other desirable preceptor characteristics (Laurent & Weidner, 2001; Levy, et al.,

2009; Mulholland & Martin, 2010). In addition to supervised practice and proficiency development, preceptors should provide experiences that allow students to cultivate professional athletic training behaviors (CAATE, 2012). The outcomes of required clinical experiences, which should prepare ATS for professional practice, are heavily dependent upon the quality of students' interactions with preceptors (Richardson Jr. et al., 1992; Weidner & August, 1997).

Regardless of stringent accreditation requirements and the identification of effective clinical educator behaviors, research indicates that ATS do not receive suitable quality or quantity of clinical supervision (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003). Additionally, a common belief exists among potential employers that many athletic training graduates are not prepared for certain aspects of professional practice such as interpersonal interaction (Gardner, et al., 2009; Massie, Strang, & Ward, 2009). Furthermore, athletic training board of certification (BOC) examination statistics indicate that ATS often lack the clinical decision making and skills application abilities necessary for entry level practice (Johnson, 2010; Winterstein, 2009). Athletic training graduates are not prepared for certain aspects of professional practice (Gardner, et al., 2009; Massie, Strang, & Ward, 2009), as verified by BOC examination statistics (Johnson, 2010; Winterstein, 2009), which suggests that clinical education is not achieving its intended purpose. Preceptors who fail to demonstrate effective clinical educator behaviors may compromise the quality of the mentor to mentee relationship (Hannam, 2000) necessary for the development of required professional behaviors (CAATE, 2012), as well as the opportunity for ATS to apply, practice, and integrate athletic training knowledge and skills (CAATE, 2008). Ultimately the professional preparation of ATS may suffer negative impacts from ineffective clinical education (Carpenito & Duespohl, 1985; Gardner, et al., 2009; Weidner & Pipkin, 2003). Potential reasons for ineffective clinical education in athletic training should be further examined.

Successful preceptor-student interactions demand the effective modeling of behaviors and traits based on the situation (Meyer, 2002). Prescribed clinical interactions between athletic training students (ATS) and athletic training preceptors frequently occur within mixed-sex dyads; and sex may

impact this critical aspect of athletic training education (Johnson-Bailey & Cervero, 1997; Klossner, 2008; Udry, 1994). Educational and clinical experience environments are not sterile, in the sense that participants are not completely shielded from societal hierarchies created by race, class, sexual orientation, sex, and/or disability (Tisdell, 1993). Sex difference between the preceptor and the clinical student may, as a result, impact students' perceptions of effective clinical educator behaviors (Lurie, et al., 1998), and therefore the outcome of clinical experiences (Dondanville, 2005).

Societal hierarchies are also present in the clinical mentorship and the organizational cultures of learning environments (Chaffee & Tierney, 1988; Pitney, Ehlers, & Walker, 2006; Rayle, 2006; Schein, 2001; Tisdell, 1993) and may impact the assumption of roles by the preceptor and/or ATS (Biddle, 1986; Johnson-Bailey & Cervero, 1997; Klossner, 2008). Both parties in the clinical educational interaction are influenced by a perception to reality interface, where the viewpoint of each party may, unintentionally, negatively affect both teaching and learning (Johnson-Bailey & Cervero, 1997). If ATS do not perceive preceptors as displaying effective clinical educator behaviors, then the development of a positive mentor to mentee relationship is unlikely, resulting in a clinical experience with neutral, or negative, outcomes (Kram, 1983; Pitney & Ehlers, 2004; Pitney, et al. 2006).

In summary, research in the health professions provides evidence that same-sex student/preceptor dyads are more conducive to quality learning experiences than opposite-sex student/preceptor dyads (Carney, et al., 2000). Knowledge gained from this investigation of sex-based athletic training clinical interactions may have implications for further research, educational policy, athletic training theory, and educational practice in the professional preparation of athletic training students. Furthermore, the findings may add to the existing knowledge about clinical educational interactions and may contribute to best practices for promoting clinical environments that foster the best possible experiential outcomes and therefore better prepare future practitioners.

Purpose Statement and Hypotheses

The purpose of this study was to examine athletic training students' (ATS) ratings of effective clinical educator behaviors by athletic training preceptors, and the impact of clinical learning dyad sex congruence on these ratings, in Commission on Accreditation of Athletic Training Education (CAATE) accredited professional athletic training programs in the United States. Specifically, this study utilized ATS ratings of effective clinical educator behaviors, as measured by the modified *Survey of Effective Clinical Educator Behaviors* (Dondanville, 2005), as the dependent variable to assess ATS mean response differences based on ATS clinical dyad placement. Clinical learning dyad biological sex congruence, defined as either same sex clinical learning dyads (male ATS/male preceptor, female ATS/female preceptor), or opposite sex learning dyads (male ATS/female preceptor, female ATS/male preceptor), was identified as the independent variable. This study was centered on five primary hypotheses:

H_1: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of current effective clinical educator behaviors.

H_2: Preceptor biological sex impacts ATS ratings of current effective clinical educator behaviors.

H_3: ATS biological sex impacts ratings of ideal effective clinical educator behaviors.

H_4: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors.

H_5: Significant differences in ATS ratings of effective clinical educator behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad.

Operationally, current effective clinical behaviors were defined as behaviors experienced by the ATS in the most recently completed clinical rotation. Ideal effective clinical behaviors were defined as behaviors expected from the perfect clinical instructor. The terms clinical instructor and

preceptor are used interchangeably and describe the practitioner to whom the ATS is assigned for a clinical rotation.

Data was collected via electronic survey from ATS enrolled in, or recently graduated from, professional athletic training programs (CAATE, 2012) who were participated in a clinical experience though a CAATE-accredited professional athletic training program. Approximately 11,000 ATS (Volberding, 2011) in 361 CAATE-accredited professional athletic training programs (www.caate.net) represented the population for the study. Following data collection, analysis was conducted utilizing participant demographics for interdyad differences in mean *SECEB* (Dondanville, 2005) responses for ATS actual experiences with current preceptors, ATS expectations for ideal preceptors, and for intradyad differences between ATS actual experiences and expectations.

Overview of the Dissertation

In addressing the necessity of investigating ATS perceptions of effective clinical educator behaviors based on sex in required clinical experiences, Chapter two considers athletic training educational program scope and accreditation, clinical education, and mentoring relationships. Furthermore, Chapter two incorporates role theory applied to the instructor-student dynamic in clinical education, and the practitioner-patient dynamic, in the medical professions while reporting related research findings relevant for consideration of the proposed study. Chapter 3 restates the purpose of the proposed study; addresses specific hypotheses; and describes participants, materials and procedures of data collection and analysis, as well as assumptions and limitations of the proposed study. Chapter 4 reports data and a summary of all relevant findings. Finally, chapter 5 provides a conclusive overview and complete discussion of study results as well as contributions to athletic training literature; implications for policy, practice, and research; recommendations for application and research; and the study limitations.

CHAPTER II

REVIEW OF RELATED LITERATURE

The American healthcare provider shortage (ASPH, 2008; NCHWIA, 2000; United States Census Bureau, 2008) has created an environment where it is critical that entry-level skilled healthcare providers are sufficiently prepared for the realities of professional practice (ASPH, 2008; Gebbie & Turnock, 2006; Institute of Medicine, 2003; Rahn & Wartman, 2007). American colleges and universities serve a clear purpose in addressing this crisis through preparing students, within a variety of disciplines, to enter professional practice with both the knowledge and clinical skills necessary to meet societal needs and expectations (AHA, 2010; Altbach, 2001; Thelin, 2005). Athletic training has long been considered an example of a healthcare profession that prepares students along a traditional medical model (Weidner & Henning, 2000) and served as the focus of this study.

Certified athletic trainers (ATC) are health care professionals (AMA, 2010) highly skilled and educated in addressing prevention, evaluation, immediate care, treatment and rehabilitation of injuries in physically active patients (BOC, 2011). Students pursuing athletic training as a career must successfully complete bachelor's or master's degree requirements at an athletic training professional program accredited by the Commission on Accreditation of Athletic Training Education (CAATE), pass the Board of Certification (BOC) examination, and obtain appropriate medical credentials in the state where they intend to practice (BOC, 2012).

The purpose of this chapter is to review of the scope of athletic training education and associated accreditation standards; the role clinical education and clinical instruction; and the components of effective clinical instruction. In relation to clinical instruction, the review also reports pertinent literature regarding mentoring relationships and role theory. Finally, this chapter with connects role theory with clinical educational environments and provide evidence, from the healthcare professions, of the impact of biological sex on clinical relationships and dynamics. In sum, this literature review should provide foundational information for better understanding the context of the proposed research.

Athletic Training Educational Program Scope and Accreditation

Athletic training education programs are accredited by CAATE based on compliance with the *Standards for the Accreditation of Professional Athletic Training Programs* (CAATE, 2012). These standards provide the minimum academic requirements by which athletic training education programs are developed, evaluated, analyzed, and maintained. Specific programmatic areas evaluated in the accreditation process pertain to: sponsorship; outcomes; personnel; program delivery; health and safety; financial resources; facilities and instructional resources; operational policies and fair practices; program description and requirements; student records; and distance learning sites (CAATE, 2012). While accreditation standards exist, CAATE allows for institutional autonomy in the methods and practices employed to meet the minimum standards.

Following the traditional medical model of education (Ford, 1978; Gillespie & McLaren, 2010), the professional preparation of athletic training students (ATS) must include a combination of didactic and clinical educational experiences (CAATE, 2012). Didactic educational experiences are defined as: “the teaching of required competencies and proficiencies with instructional emphasis in structured classroom and laboratory environments” (NATA, 2012). Clinical educational experiences are defined as: “those education experiences that involve patient care and the application of athletic training skills under the supervision of a qualified instructor”

(NATA, 2012). Didactic, laboratory, and clinical education experiences incorporate specific educational competencies as well as clinical proficiencies (CAATE, 2012).

Consistent with the *Role Delineation Study/Practice Analysis, Sixth Edition* (BOC, 2010), educational competencies and clinical proficiencies are distributed throughout 12 content areas or domains (CAATE, 2012; NATA, 2012) which include: risk management and injury prevention; pathology of injuries and illnesses; orthopedic clinical examination and diagnosis; acute care of injury and illness; pharmacology; therapeutic modalities; conditioning and rehabilitative exercise; medical conditions and disabilities; nutritional aspects of injury and illness; psychosocial intervention and referral, health care administration; and professional development and responsibility. Imbedded within each of these domains are foundational behaviors of professional practice, which should not only be presented and discussed in didactic courses but should also be modeled by classroom instructors and preceptors (NATA, 2012). The requisite discussion and modeling of foundational knowledge by instructors within not only the classroom, but also clinical settings, underscores the importance of clinical education in athletic training preparation.

Clinical Education

Standards 46-63 in the *Standards for the Accreditation of Professional Athletic Training Programs* (CAATE, 2012) describe the minimum standards for the provision of clinical experiences. CAATE stipulates that ATS must complete a minimum of two academic years of clinical experiences. Clinical experiences are defined as experiences that: "provide students with authentic, real-time opportunities to practice and integrate athletic training knowledge, skills, and clinical abilities" (CAATE, 2012, p. 6). Clinical experiences must also provide opportunities for the student to develop the decision making and professional behaviors necessary to demonstrate proficiency as an athletic trainer (CAATE, 2012). These clinical experiences provide ATS exposure to a variety of patient populations; including patients of the same and opposite sex, and occur in collegiate athletics, as well as in other athletic environments, general medical practices, and outpatient rehabilitation settings (CAATE, 2012).

Clinical Instruction

During the course of clinical education, ATS must participate in clinical experiences under the supervision of a preceptor (CAATE, 2012). CAATE defines preceptor as: "A certified/licensed professional who teaches and evaluates students in a clinical setting using an actual patient base" (CAATE, 2012, p. 14). Qualifications to serve as a preceptor include appropriate credentialing by the state as a healthcare professional for minimum of one year, and participation in planned and ongoing institutional preceptor training (CAATE, 2012). Preceptor responsibilities include: clinical education supervision; instruction and assessment of ATS knowledge, skills, and abilities ensuring opportunities for student development during actual patient care; and the facilitation of ATS clinical integration of skills, knowledge, and skills (CAATE, 2012).

CAATE stipulates only that the professional athletic training program must provide "planned and ongoing education…designed to promote a constructive learning environment" (2012, p. 50). While preceptors must partake in ongoing education, CAATE does not require athletic training programs to evaluate preceptor knowledge or retention of the topics introduced and discussed. As a result, it is possible that a clinical practitioner who is appropriately qualified by an institution to serve as a preceptor does not fully comprehend the importance of their role as an athletic training clinical educator (preceptor) or the potential ramifications of their clinical instruction on student learning and professional development.

In addition to institutional preceptor training, CAATE (2012) stipulates that preceptors are expected to have regular communication with the athletic training program, and to demonstrate understanding of and compliance with the policies and procedures of the athletic training program (CAATE, 2012). Additionally, CAATE stipulates that the majority of an ATSs clinical education should occur with a preceptor who holds an AT credential and is in good standing with the BOC the remainder of ATS clinical education can occur with a preceptor

holding only state credentialing in athletic training or another health care profession (CAATE, 2012).

In summary, ATS should, in the course of clinical experience, perform the supervised practice of athletic training with the goal of becoming proficient in skill application and clinical decision making (CAATE, 2012). Additionally, clinical experience should provide the primary avenue of professional socialization while fostering behaviors necessary for entry into a healthcare career (CAATE, 2012). If professional role cultivation is an important aspect of student clinical experience and if quality in clinical performance is compulsory (CAATE, 2012), then ATS should develop clinical aptitude at every opportunity and the establishment of an encouraging clinical education atmosphere through effective clinical instruction is critical to student success (Thiele, 2005).

Components of Effective Clinical Instruction

Clinical education is vital to the professional development of healthcare students, and the outcomes of required clinical experiences are heavily dependent upon the quality of students' interactions with preceptors (Richardson, et al., 1992; Weidner & August, 1997). Without quality instructor-student interaction, clinical experiences may not result in adequate opportunities to practice and integrate cognitive learning or to develop professional behavior (CAATE, 2012). In short, successful preceptor-student interactions may depend on the ability of the preceptor to successfully demonstrate behaviors and traits tailored to given clinical situations (Meyer, 2002).

Beyond CAATE accreditation requirements concerning clinical instruction, student clinical practice in various healthcare fields has been firmly established as a critical juncture in the traditional medical education model (Atack, Comacu, Kenny, LaBelle, & Miller, 2000; Ford, 1978; Weidner & August, 1997). The preceptor is the most stable variable in the clinical education environment (Carpenito & Duespohl, 1985). As the primary resource for clinical student education, the preceptor should serve as more than a supervisor. Preceptors should create and promote clinical learning environments that foster the development of professional behaviors

and relationships, therefore allowing the student maximum benefit from each clinical interaction (Hannam, 2000; Weidner & August, 1997). Preceptors who fail to demonstrate an appropriate level of desired daily interpersonal interaction with students may also fail to demonstrate appropriate clinical educator behaviors in clinical teaching situations (Hannam, 2000). This failure to demonstrate interpersonal interaction, and therefore appropriate clinical educator behaviors in clinical teaching situations, is not constructive in the professional preparation of the student (Hannam, 2000).

It is widely accepted that the clinical portion of the educational process should strive to provide uniform clinical experiences for all students (Carpenito & Duespohl, 1985; Knight, 2008; Weidner & August, 1997). Various authors have described the components of effective clinical education (Dondanville, 2005; Levy, et al., 2009; Weidner& Henning, 2002). Even if it were possible to provide consistent and identical clinical experiences for all students along the lines of those components outlined in the literature, identical outcomes of the experience would still not be guaranteed (Weidner & August, 1997), because the nature of traditional clinical education precludes preceptors from having advanced knowledge of which injuries or procedures students may be exposed to during clinical experiences. Findings of Berry, Miller, and Berry (2004) indicate that ATSs spend 40% of their clinical experience either unengaged or waiting for an activity and only 51% of their time engaged in active learning. Regardless of the inability to plan injury exposure, striving for formal and consistent clinical education is paramount in providing the most comprehensive and uniform clinical experiences possible (Carpenito & Duespohl, 1985) and these findings (Berry, Miller, & Berry, 2004) indicate that ATS clinical experiences are poorly planned. In order to attempt to provide the best possible clinical learning environment, it is critical that effective clinical educator practices are utilized.

Dondanville (2005) successfully identified four primary themes of perceived effective clinical educator behaviors. Dondanville (2005) evaluated, coded, and sorted 36 studies on effective clinical education. Observable effective clinical teaching behaviors were condensed into

28 items and occurred within four primary themes (Dondanville, 2005). Clinical teaching behaviors were described as specific actions which could be objectively observed in a clinical teaching setting (Dondanville, 2005).

The four predominant effective clinical educator behaviors that emerged from Dondanville (2005) were behaviors that:

1. provide information and present relevant subject matter;
2. provide feedback and student evaluation;
3. ask questions and promote critical thinking; and
4. maintain physical presence in the clinical learning environment (p. 121-122).

Beyond Dondanville (2005), these four themes are further validated by a review of contemporary literature in a variety of healthcare professions (Atack, et al., 2000; Levy, et al., 2009; Weidner & Henning, 2002). Existing literature not only focuses on behaviors which can be observed, but also frequently discusses the importance of interpersonal factors in the clinical dyad. Research findings support the necessity of embedding a mentoring component within a clinical dyad in order to fully develop desired clinical and professional student behaviors (Neibert, Huot, & Sexton, 2010; Pitney, Ehlers, & Walker, 2006; Platt, 2002).

Mentoring Relationships

CAATE standards (2012) require that athletic training students participate in a minimum of two academic years of clinical experiences which provide opportunities to integrate clinical skills and decision making as well as develop professional behaviors. Research reveals that professional behavior development occurs best through mentored practice (Pitney, Ehlers, & Walker, 2006; Weidner & August, 1997; Weidner & Henning, 2000). The literature also outlines behaviors attributed to effective preceptors (Dondanville, 2005; Levy, et al., 2009; Weidner& Henning). Experience as an effective clinical educator is prerequisite to providing mentorship (Benner, 1984); but even in the most seasoned preceptors, a mentoring relationship may not be present within the clinical learning dyad.

The *standards* (CAATE, 2012) mandate that students develop "professional behaviors," but fail to address the importance of mentoring relationships in the clinical environment. This oversight is evidenced by the use of the word "supervise" 8 times in the *standards* (CAATE, 2012) to describe preceptor responsibilities, but fails to use any variation of the word mentor. While it is clear that the intent of the clinical education component of athletic training education reaches far beyond the minimal *supervision* of clinical students, further review of mentoring literature may provide further insight regarding the relevance of mentoring relationships to the clinical education dynamic.

The difference between supervision and mentoring can be witnessed by a simple review of dictionary definitions. Supervision is defined, by Merriam-Webster (2012), as: "the action, process, or occupation of supervising; *especially* a critical watching and directing (as of activities or a course of action)". Mentoring, however, means to serve as: "a trusted counselor or guide, a tutor, or coach" (2012). In regards to clinical education, use of the word *supervision* is much less descriptive of effective preceptor behaviors than the word *mentoring*. This difference is great enough to lead some theorists (Sexton, et al, 2009) to recommend that the standards (CAATE, 2012) terms of *direct supervision* and *clinical supervision* be replaced with the terms direct mentoring and clinical mentoring (Sexton, et al., 2009).

Kerr (2009) provides a summary definition of mentoring as: "an interaction through which a mentor intentionally contributes to the collegiate experience of a mentee" (p. 22). This definition is appropriate for the consideration of mentorship in the athletic training preceptor to student relationship because the words *mentor*, *mentee*, and *collegiate* could be exchanged with the words *preceptor*, *ATS*, and *clinical* to create an model definition of a desirable athletic training clinical experience: a desirable athletic training clinical experience involves an interaction through which an preceptor intentionally contributes to the clinical experience of an ATS.

Mentoring Arrangements

Mentoring occurs as a result of either formal or informal arrangements with either the mentor or mentee seeking out the other party based on similar interests, goals, personalities, or experiences (Campbell & Campbell, 1997; Rayle, et al., 2006). Kerr (2009) postulates that formal mentoring programs are susceptible to a variety of challenges including mismatched dyads. Mismatched dyads can debilitate a mentoring program to the extent that a productive relationship never evolves (Kerr, 2009). Furthermore, formal mentoring arrangements that include mechanisms for mentor behavior accountability are counterproductive while actually decreasing mentor motivation to participate in the mentoring relationship (Kerr, 2009). Kerr's findings are particularly troubling with regard to AT clinical education where arrangements are formal and include various mechanisms of mentor accountability.

In both formal and informal mentoring arrangements, positive outcomes are only achieved if both the mentor and mentee intend to enter into the relationship, and are committed to mentorship development (Kerr, 2009). This concept is critical to the practice of athletic training clinical education assignment and evaluation. While it is necessary to assign athletic training students to specific preceptor in order to meet accreditation standards (CAATE, 2012), this practice prescribes the preceptor to student mentoring relationship without allowing it to develop organically (Eby & Lockwood, 2005). Furthermore, athletic training programs must evaluate preceptor performance regularly (CAATE, 2012). While the practice of preceptor evaluation is understandable, it constitutes a mechanism for mentor accountability which has been identified as counterproductive (Eby & Lockwood, 2005). The contemporary clinical assignment and evaluation practices in athletic training may hinder the development of pure mentoring relationships by assuming the intent and commitment of either party in clinical education to enter into the necessary mentoring relationship. Within this context, a preceptor may be less likely to participate as mentors; likewise, ATS perception of effective clinical instruction behaviors may be negatively impacted because of personal dissimilarities (Kerr, 2009).

Phases of Mentoring Relationships

Mentoring relationships create educational settings that support unique teaching and learning environments (Pitney, Ehlers, & Walker, 2006). Many educational interactions that students experience last only long enough to resolve immediate or short term difficulties, but mentoring relationships are committed and ongoing; they are not bound by a singular course or problem (Cohen, 1995; Kerr, 2009). These relationships are based on mutual consent and typically evolve through four phases: early, middle, later, and last (Cohen, 1995). Similarly, Kram (1983) describes these phases as initiation, cultivation, separation, and redefinition.

The early/initiation phase is focused on relationship and trust building, the middle/cultivation phase moves toward communication and feedback relative to mentee goals and objectives (Cohen, 1995; Kram, 1983). The later/separation phase of the mentoring relationship shifts from information sharing toward a relationship in which the mentor conscientiously challenges decisions made by the mentee (Cohen, 1995; Kram, 1983). As the later phase progresses, the mentee assumes the motivation to pursue their own goals and professional vision, marking the last/redefinition phase (Cohen, 1995; Kram, 1983).

The early/initiation phase of the mentoring relationship is critical to establishing the bond necessary to progress to the later phases, and eventually to mentee independence (Cohen, 1995; Kram, 1983). If the preceptor-ATS relationship does not appropriately develop through the initiation phase then ATS professional development is ultimately affected. Cohen outlines five empathetic behaviors that mentors should employ to successfully move through the initiation phase: responsive listening, open ended questioning, descriptive feedback, perception checks, and nonjudgmental responses. In addition to these active listening techniques, Cohen notes that non-verbal cues impact relationship and trust development as well. If the mentor preceptor is perceived by the mentee ATS to lack interest in the mentoring relationship then the later phases of the mentoring relationship, which are crucial to professional behavior development, may not be attained.

The second phase of the mentoring relationship, the cultivation phase (Kram, 1983), allows the relationship expectations developed through the initiation phase to be tested against reality. During the cultivation phase, the ATS and preceptor should each recognize the value of relating to one another for both clinical skill and professional behavior development. The professional and educational function of the mentor-mentee relationship peaks in the cultivation phase. It is important to note that if the mentoring relationship does not progress through the initiation phase, the mentee may not benefit from the meaningful interpersonal and professional interactions which should occur during the cultivation phase.

Theoretically, the third phase of the mentoring relationship, separation (Kram, 1983), allows the mentee to separate from the mentor both physically and psychologically while become an independent practitioner or professional. In athletic training, this phase occurs following graduation and entrance into professional practice. The fourth phase, redefinition (1983), involves the mentor-mentee relationship being redefined as a friendship. During redefinition, the mentor and mentee become peers, where the characteristics of the mentoring relationship are no longer wanted nor needed (Kram, 1983).

Benefits of Mentoring Relationships

Both parties in a properly developed mentoring relationship receive benefit (Campbell & Campbell, 1997; Cohen, 1995; Kerr, 2009). Some benefits for the mentee reported by the literature include increased self-confidence, increased career satisfaction, decreased stress levels, improved competence, enhanced effectiveness, and increased professional identity (Kram, 1983; Pitney, et al., 2006) Additionally, Kerr (2009) revealed that student mentees with productive mentoring relationships experienced increased knowledge and skill acquisition, more rapid progression of skill development, positive organizational and professional socialization, and stronger levels of academic and social integration.

Research indicates that mentors also reap the rewards of a positive mentoring relationship (Kerr, 2009). Ehrich, Hansford, and Tennet (2004) found that mentors report increased personal

and professional satisfaction. This satisfaction relates to increased professional networks, leadership skill development, and quality of life in peer relationships and work production. Additionally, Zalaquett and Lopez (2006) reported that mentors experience an enhanced sense of fulfilling their life and professional purpose.

Mentoring in Clinical Education

In a grounded theory study of the mentoring process in athletic training from students' perspectives, Pitney and Ehlers (2004) found that mentors should be accessible and approachable to clinical students. When potential mentors are perceived by athletic training students as intimidating or disrespectful, the students are unlikely to approach them to develop a mentoring relationship. The students' perceptions preclude, and may prevent, the development of trust necessary to enter into the mentoring relationship (Kram, 1983; Pitney & Ehlers, 2004; Pitney, et al. 2006). Pitney & Ehlers (2004) findings highlight the assertion that clinical instruction encompasses much more than physical presence and supervision; it includes interpersonal characteristics, such as approachability. These interpersonal characteristics are not behavioral attributes which can be clearly defined and observed, but are characteristics which develop as the mentored relationship progresses.

Because mentoring is a practice pertaining to a dynamic interpersonal relationship between two individuals, both parties own some degree of responsibility for initiating and preserving its existence (Cohen, 1995; Pitney & Ehlers, 2004; Pitney, et al. 2006). If a mentoring relationship is not trust-based and does not progress through the previously described phases (Cohen, 1995; Kram, 1983), then imbalances in the mentoring relationship may be created (Pitney & Ehlers, 2004). Examples of imbalances experienced by athletic training students, as identified by Pitney and Ehlers (2004), include relationships where a great deal of challenge, but little support exists. A mentored relationship with little support but significant challenges can be perceived by mentees as negative or harassing (Kerr, 2009) and may result in negative mentored experience. Ultimately, negative mentored relationships can result in the desertion of mentoring

processes (Pitney & Ehlers, 2004) and may have no educational benefit. The importance of trust, support, and interpersonal relationship development is further described in nursing literature.

Descriptive insight into phenomena associated with daily student to preceptor interactions in nursing undergraduates (Atack, Comacu, Kenny, LaBelle, & Miller, 2000) further highlight the importance of interpersonal relations and mentorship in the clinical education environment. Atack, et al. (2000) identified four common themes impacting clinical learning: student-staff relationship, characteristics of the preceptor, the preceptor's perception of their role in the relationship, and workplace culture. The findings demonstrate that the relationship between the preceptor and the student are critical to the practice of mentorship in clinical education, and that staff act both knowingly and inadvertently as professional examples to clinical students. This perception reinforces the importance of not only the preceptors' ability to demonstrate effective clinical educator behaviors, but also verifies the relevance of mentoring relationship development.

Mentoring in athletic training clinical education. As a healthcare profession, athletic training education as employs the traditional medical model of education; which includes both didactic and clinical components (CAATE, 2008; Gardner, et al., 2009; Knight, 2008). The educational foundations for athletic training detailed by CAATE (2008) prescribe the duration and content of clinical experiences, as well as the qualifications and responsibilities of preceptors and preceptors. Research describes effective clinical educator behaviors (Dondanville, 2005; Levy, et al., 2009; Mulholland & Martin, 2010), as well as corresponding attributes of mentored relationships (Kerr, 2009; Pitney & Ehlers, 2004; Pitney, et al. 2006). Despite structured and prescribed clinical experiences, observable effective clinical educator behaviors, and identifiable mentorship attributes, the success of the traditional medical model of education is ultimately a product of interpersonal interactions (Richardson Jr. et al., 1992; Weidner & August, 1997).

There is no doubt that quality clinical education should occur within the bounds of a mentored relationship to provide maximum achievement (Neibert, Huot, & Sexton, 2010;

Weidner & August, 1997; Weidner & Henning, 2000). Unfortunately, athletic training literature frequently interchanges the terms preceptor and *mentor*, (Gardner, et al., 2009; Neibert, Huot, & Sexton, 2010; Weidner & Henning, 2000) although these are not identical terms. Unfortunately, this substitution of terms reinforces a clinical education culture where *supervision* is the desired outcome of clinical instruction instead of the mentorship necessary to accomplish desired clinical learning outcomes (CAATE, 2012; Neibert, Huot, & Sexton, 2010; Weidner & August, 1997). The assumption that clinical instruction and mentoring are interchangeable further supports the importance of clinical relationship development. The existing research in athletic training focusing on mentoring (Pitney & Ehlers, 2004; Pitney, et al. 2006) indicates that in order for an authentic mentoring relationship to exist, interpersonal and educational foundations should coexist. In other words, in order to establish the mentored relationship necessary to accomplish desired educational outcomes from clinical experiences, the preceptor and ATS should first establish an interpersonal connection.

The outcomes of required clinical experiences, which should prepare athletic training students for professional practice, are heavily dependent upon the quality of students' interactions with preceptors (Richardson Jr. et al., 1992; Weidner & August, 1997). If athletic training graduates are not prepared for certain aspects of professional practice (Gardner, et al., 2009; Massie, Strang, & Ward, 2009), as verified by BOC examination statistics (Johnson, 2010; Winterstein, 2009), then clinical education is partially to blame. Preceptors who fail to demonstrate effective clinical educator behaviors compromise the quality of the mentor to mentee relationship (Hannam, 2000) necessary for the development of "professional behaviors" (CAATE, 2008, p. 10), as well as the opportunity for athletic training students to apply, practice, and integrate athletic training knowledge and skills.

The clinical interaction requirement between athletic training students and qualified preceptors represents the core of students' professional educational experience and assimilation into healthcare practice. Therefore it is crucial that athletic training students participate in clinical

experiences with preceptors/educators who possess both the intent and commitment to enter into instructional and mentoring relationships with clinical students (Gardner, et al., 2009; Sexton, et al., 2009). Unfortunately, practitioners generally serve as preceptors because of institutional convenience and geographic proximity to the athletic training program (Knight, 2008; Weidner & Henning, 2000), and not necessarily because of their interest in and commitment to athletic training clinical education. Although preceptors maintain appropriate credentials for professional practice, they may have little experience or training in clinical instructional strategy and methods, or mentorship (Knight, 2008; Weidner & Henning, 2000).

It is widely accepted that preceptors should attempt to provide a clinical environment of uniformity and strive to provide similar experiences for all students (Carpenito & Duespohl, 1985; Knight, 2008; Weidner & August, 1997). However, required clinical experiences often occur somewhat haphazardly, preventing duplicate experiences for different students at different settings or times (Weidner & August, 1997). Although it is clear that athletic training clinical students are to be supervised at all times (CAATE, 2012), findings indicate that they frequently perform unsupervised athletic training skills, and are therefore acting outside the bounds of clinical education (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003). The practice of unsupervised clinical experience is not only unsafe for students and patients, it does not promote an appropriate learning environment and contributes to chaotic clinical experiences with poor outcomes (Weidner, Noble, & Pipkin, 2006).

Professional behavior, role awareness, and cultivation do not occur through unsupervised clinical experiences or formal coursework, but only through mentoring (Carpenito & Duespohl, 1985; Hannam, 2000; Weidner & Henning, 2000). Without quality student to preceptor interaction, the development of a mentor to mentee relationship necessary for progression through identified mentoring relationship phases is unlikely (Cohen, 1995; Kram, 1983). In providing an encouraging clinical learning environment, preceptors should act conscientiously while attempting to interact fairly and impartially in all interactions with clinical students (Thiele,

2005). While educational foundations for a clinical experience are prescribed for both preceptor and student (CAATE, 2008), the interpersonal foundations of the relationship are potentially fraught with demographic differences which may disrupt the development of an effective mentored relationship (Kerr, 2009; Rayle, 2006; Tisdell, 1993). Sex is one of the most basic and obvious potential differences between a preceptor and ATS, or a mentor and a mentee (Atack, et al., 2000; Harris & Crocker, 2008; Ragins & McFarlin, 1990) and, given the demographic disparity previously discussed between ATS and preceptor, should be considered as a significant factor in the development of a clinical education dyad. Sex has received research attention in medical and nursing clinical education but significantly less attention in athletic training education research. In order to further contemplate the impact of sex on clinical relationships, a discussion of role theory follows.

Role Theory

The social process of dividing people and social practices along the lines of differing characteristics, including sex, also frequently involves creating hierarchies between the divisions it enacts (Biddle, 1986; Beasley, 2005; Tisdell, 1993). Gender theorists postulate that gender is too often marginalized in discussing the significance of power and influence in social roles and relations (Adams & Savran, 2002; Beasley, 2005; Glover & Kaplan, 2009). Both parties to the clinical learning dyad can be affected by a conflict between role expectations and realities which may not fulfill these expectations, as well as ATS perceptions which may not correspond to reality. Role theory (Biddle, 1979), is concerned with the study of behaviors that are "characteristic of persons within contexts and with various processes that presumably produce, explain, or are affected by those behaviors" (1979, p. 4). Role theory intends to clarify how individuals occupying particular social positions are expected to behave and how they expect others to behave (Hindin, 2007).

The central component of role theory, role, is defined as: "those behaviors characteristic of one or more persons in a context" (Biddle, 1979, p. 58). Role theory attempts to describe one

of the most essential attributes of social behavior- that humans behave in ways that are different and predictable depending on their respective social identities and the situation (Biddle, 1986). In attempting to describe human behavior, role theory is centered on three concepts:

- Patterned and characteristic social behaviors exist and occur.
- Parts or identities are assumed by social participants who are aware of the roles and perpetuate their existence through social conditioning of anticipated behaviors.
- Scripts or expectations for behavior are shared, understood by all, and adhered to by social participants.

(Biddle, 1986, p. 68).

Considering these propositions in the context of the ATS-preceptor clinical relationship establishes a realization that both participants in the interaction may assume roles based on a variety of factors with little or no awareness of this role assumption may exist.

Examples of assumed roles in the clinical instruction dyad may include: female collegiate athletic trainer and preceptor, male secondary schools athletic trainer and preceptor, female sophomore athletic training student, or male senior athletic training student. Each of these titles represents a role that is assumed by the individual and provides the basis for perceiving and interpreting behaviors expected from the individual occupying that role based on existing assumptions about it. If the interpersonal clinical interaction between ATS and preceptor does not allow the cultivation of the mentoring relationship through the initiation stage (Cohen, 1995; Kram, 1983), then role theory may provide a basis for explanation.

Impact of Biological Sex on Clinical Relationships

Because participants in educational environments bring with them, whether consciously or unconsciously, their positions in and views of the hierarchies of the outside world, the societal context is often duplicated in the educational environment (Johnson-Bailey & Cervero, 1997; Tisdell, 1993). Because the sex demographic found within athletic training preceptor and clinical

student populations allows the frequent formation mixed-sex preceptor/student dyads (BOC, 2010; National Athletic Trainers Association, 2010), an examination of the potential impact of sex on the clinical relationship follows.

Biological Sex in the Preceptor–Student Dynamic in Clinical Education

The question of how sex influences the vital preceptor to student relationship is examined by Carney, Dietrich, Eliassen, Pipas, and Donahue (2000) in a study of third-year medical students and preceptors. This research utilizes a unique method of exposure documentation and analysis that provides insight into the role of sex in the student-preceptor relationship. Medical students in the study provided feedback via computer database following each supervised clinical interaction, resulting in 5,017 patient encounters. Each encounter was categorized according to the clinical preceptor-student sex dyad, with four possibilities: female student with female preceptor (same sex), female student with male preceptor (mixed sex), male student with male preceptor (same sex), or male student with female preceptor (mixed sex).

Carney, et al. (2000) made three significant findings relative to clinical education in their database analysis comparing patient encounters between dyads. First, male preceptors relegated female students to the role of observer versus the role of participant or care giver twice as often as occurred in other dyads. The observational role does not provide an environment in which students may continue to develop competence, proficiency, and independence (Carpenito & Duespohl, 1985; Ford, 1978; Knight, 2008). Second, dyads of the same sex experienced environments that promoted more independent work than mixed sex dyads. Third, same sex dyads received more feedback with respect to clinical skill development. This finding demonstrates that “sex is an issue in any person-to-person discourse, and human discourse is the central feature of learning and practicing medicine” (Burge, 2000, p. 625).

Similar to Carney, et al. (2000), Levy and Merchant (2002) sought to investigate student and preceptor sex effect on clinical skill experiences. This study of third-year medical students in a family medicine preceptorship over three academic years utilized a survey method immediately

following the completion of the preceptorship. The study participants were asked to rate their experiences with their preceptor on 57 skills utilizing a five-point scale. The scale allowed students to state if:

> the problem/skill was not encountered (1); they observed/assisted the preceptor with the skill (2); they were supervised by their preceptor in the management of the skill one or two times (3); they were supervised by their preceptor in the management of the skill three to four times (4); or they were supervised by their preceptor in the management of the skill five or more times (5).
>
> (Levy & Merchant, 2002, p. 1242).

The study evaluated differences in the ratings based on reported: student sex, preceptor sex, and student-preceptor sex pairs.

In comparing student sex, Levy and Merchant (2002) found that: female students received more experience with 7 of 12 female specific patient skills and male students received more experience with 2 of 3 patient male specific skills. In comparing preceptor sex, finding reveal that students perceived female preceptors as providing significantly more experience than male preceptors in 7 of 12 female specific patient skills and in 2 sex neutral skills. Male preceptors were perceived to provide more experience with 6 specific procedures that did not entail a complete medical issue (2002). In summary, the Levy and Merchant (2002) findings indicate that for the vast majority of sex-specific skills, students reported the highest levels of experience and preceptor interaction when the experience occurred within student-preceptor pairs of the same sex, especially when the experience occurred with a patient of that same sex. These findings reemphasize the Carney, et al. (2000) findings and indicate that the sex of the student and of the preceptor affect the level of experience that a clinical student receives with a number of skills and procedures.

In clinical education, the preceptor maintains the power to "decide which information is acknowledged and considered important and (dictate) how decisions will be made" (Burge, 2000,

p. 625). Sex interactions of clinical students, preceptors, patients, staff, and colleagues provide a variety of experiences for participants, but sex role and power struggles are inherent to the interactive clinical education structure (Burge, 2000). Burge proposes that clinical skills should be taught in a manner sensitive to the existence and influence of sex and power in clinical relationships. Burge summarizes that the empowerment of clinical students and instructors to recognize oppression; offer empathy, respect, and caring; and build behavioral and communication skills requires "more than learning a simple technique" (2000, p. 627).

Specific to athletic training clinical education, Shingles (2001) and Wright (2009) make reference to sex-related clinical education findings. Shingles (2001) reported that study participants overwhelmingly felt a desire to have a positive impact on athletic training students and to serve in a mentoring capacity, particularly in the case of female preceptors with female students. Wright (2009) reported that a significant difference exists between male preceptors and female preceptors for 7 of 20 effective clinical teaching behaviors. The findings of Shingles and Wright, when considered in the context of research in other health professions (Atack, et al., 2000; Burge, 2000; Carney, et al., 2000) demonstrates that the impact of sex on the clinical learning dyad is a factor in athletic training clinical education that deserves further attention.

Two distinct but intertwined theoretical frameworks, Gender Theory and Role Theory, provide a framework for further considering the impact that sex may have on student perceptions of effective clinical educator behaviors in athletic training clinical education (Biddle, 1986; Statham, Richardson, and Cook, 1991). This approach assumes that participants in a social interaction occupy gender roles based on previous experiences and expectations, as well as demographic factors (Statham, Richardson, and Cook, 1991; Tisdell, 1993), and that these roles are continuously renegotiated and reaffirmed in the process of clinical interaction between instructor and student (Statham, Richardson, and Cook, 1991). In clinical instruction the sex roles of the preceptor and ATS interact and are influenced by what Biddle (1986) refers to as a *perception to reality interface*, which may negatively affect both teaching and learning.

Investigating the impact that sex has on the ATS perception of effective clinical educator behaviors may provide valuable data to Athletic Training Program administrators and aid in providing the best possible clinical learning environments for ATS. Sex differences between preceptor and ATS may impact the students' perceptions of effective clinical educator behaviors, the outcomes of clinical experience, and ultimately the preparation of athletic training graduates for entry level practice. The role of sex may also impact the practitioner-patient dynamic, compounding its effect on the clinical preparation of ATS.

Biological Sex in the Practitioner–Patient Dynamic

Researchers have identified significant differences in the self-reported comfort level and skill of practicing physicians and residents when treating patients of the opposite sex (Lurie, Margolis, McGovern, & Mink, 1998; Paluska & D'Amico, 2000). In a study of family practice and internal medicine physicians, Lurie, et al. (1998) found that practicing physicians rate both comfort levels and skill significantly lower with patients of the opposite sex. Similar to this finding, Paluska and D'Amico (2000) established that less than half of the family practice residents studied are comfortable with opposite sex specific examinations. Study participants reported significantly less comfort and lower skill levels when treating patients of the opposite sex. The results of Lurie, et al. (1998), and the awareness that physicians should be capable of overcoming "personal biases for the good of their patients" (p. 136) as well as the suggestion that "physicians may have difficulty overcoming…personal feelings" (p. 136), indicates the need for further investigation and the potential need for implementation of interventions in skill and comfort level in healthcare providers and students.

While decreased comfort level with opposite sex patients has been demonstrated in practicing physicians with varying levels of experience (Lurie, et al., 1998), Paluska and D'Amico (2000) examined two foundational aspects of sex-based clinical interactions during the residential phase of physician clinical experiences: the proportionate exposure of physicians to same and opposite sex patients and conditions; and the comfort level of family practice residents

in evaluating and treating opposite sex and same sex patients. This examination of clinical residents' perceptions of personal training experiences is unique in the literature.

Paluska and D'Amico (2000) found that residency physicians do not feel they have adequate experiences with opposite sex patients. Only 54% of male and 31% of female residents view their exposure to opposite sex patients as sufficient; and only 48% of male and 31% of female residents expressed comfort in opposite sex specific examination skills (Paluska & D'Amico, 2000). The findings also demonstrated that only 20% of male and 47% of female residents participating in the study felt that balancing sex exposure in their residential practice would satisfy their comfort concerns. Paluska and D'Amico conclude that while skill levels may increase with healthcare experience, perceived comfort on the part of the practitioner should be addressed on some other level such as professional socialization within the context of the clinical learning dyad.

Few studies have been published which focus on sex issues in the clinical practice of athletic training. Shingles (2001), in a phenomenological study of female certified athletic trainers, found that, while participants perceived their education as adequate preparation for evaluating and treating both male and female athletes, comfort levels in interactions with patients of the same sex was higher. Drummond, Velasquez, Cross, and Jones (2005) further explored Shingles' (2001) observations by utilizing the *Gender Comfort in Athletic Training Questionnaire* (Drummond, et al., 2005) to examine the self-reported comfort of athletic trainers with same and opposite sex patients as well as sex-specific and non-sex specific conditions. Researchers examined not only the comfort level of the practitioner in regards to sex related issues, but also considered self-reported reasons for practitioner discomfort.

Mirroring previous findings (Lurie, et al., 1998; Paluska & D'Amico, 2000), Drummond, et al. (2005) found that low levels of experience were the most commonly reported reason for discomfort by participants. The researchers suggested that athletic training student education be adjusted to include more frequent clinical interactions with opposite sex athlete populations.

If preceptors are uncomfortable while caring for the patients of the opposite sex (Drummond, et al., 2005; Lurie, et al., 1998; Paluska & D'Amico, 2000), then athletic training clinical students may be taught, through the professional role cultivation inherent to clinical instruction (Carpenito & Duespohl, 1985; Hannam, 2000; Weidner & Henning, 2000) that discomfort when treating the opposite sex is acceptable. While further investigation of sex impact on the patient-practitioner dynamic is beyond the scope of the proposed research, this review of it provides greater perspective for consideration of the relevance and importance of gender role investigation in the athletic training clinical learning dyad.

Summary

Contemporary research and policy identify a pervasive shortage of sufficiently prepared healthcare professionals as an impending societal crisis (AAHC, 2008; Institute of Medicine, 2003; Rahn & Wartman, 2007) that higher education should recognize and address (AAHC, 2007; AHA, 2010; Thelin, 2005). Explicitly, the supervised clinical practice, or clinical education, component of the traditional medical education model (Ford, 1978) often does not adequately prepare graduates for the realities of the workplace (Institute of Medicine, 2003; Rahn & Wartman, 2007). Supervised clinical practice is firmly established in the literature as a critical juncture in healthcare education and is heavily dependent on the quality of interaction between the clinical student and instructor (Atack, Comacu, Kenny, LaBelle, & Miller, 2000; (Carpenito & Duespohl, 1985; Weidner & August, 1997). Components that influence the quality of clinical interaction include observable effective clinical educator behaviors (Dondanville, 2005; Levy, et al., 2009; Mulholland & Martin, 2010) and mentored practice (Platt, 2002; Weidner & August, 1997; Weidner & Henning, 2000).

Research specific to athletic training verifies that frequently athletic training students are not fully prepared for the interpersonal aspects of professional practice (Gardner, et al., 2009; Massie, Strang, & Ward, 2009), do not receive appropriate clinical supervision (Weidner, et al., 2006; Weidner & Pipkin, 2003), and lack clinical decision making skills (Johnson, 2010;

Winterstien, 2009). Athletic training clinical environments allow frequent opportunities for interactions between instructors and students of differing sex (Acosta & Carpenter, 2006; NATA, 2014; Leftwich, 2014).The investigation of sex impact on clinical practice (Drummond, et al., 2005; Lurie, et al., 1998; Paluska & D'Amico, 2000) revealed that participants experience decreased comfort when treating the other sex. Research in clinical instruction interactions (Atack, et al., 2000; Levy & Merchant, 2002; Carney, et al., 2000) purport that the sex make-up of the clinical dyad correlates to the method of clinical supervision employed and may negatively affect students, particularly in the male preceptor and female clinical student dyad (Atack, et al, 2000.).

The themes that emerged advocate that the study of sex influence on student perception of effective clinical educator behaviors is worthy of significant and continued study. Sex should be much more than a theoretical footnote when considering the preceptor to student interaction. Research provides evidence that the clinical sex dyad plays a role in the critical processes of clinical relationship negotiation. The investigation of the role of sex in the clinical student to preceptor interaction for the discipline of athletic training has received very little attention in the research relative to other health professions. Research in this area may ensure that sex related issues impacting the clinical education of athletic training students are adequately exposed, and may assist in providing avenues for strengthening clinical instruction. Ultimately, findings may aid in the creation of clinical education environments and preceptor to student interactions that nurture the development of student comfort in the prevention diagnosis, care, and rehabilitation of a variety of injuries while preparing to enter professional practice. The results of this research have implications for: gender theory as related to athletic training clinical instruction; CAATE policy revision; institutional preceptor education program betterment; improvement of athletic training student professional preparedness; and ultimately, may provide information that may aid in producing healthcare workers capable of assisting in addressing the existing healthcare provider shortage.

CHAPTER III

METHODS

The purpose of this study was to examine athletic training students' (ATS) ratings of effective clinical education behaviors by athletic training preceptors, and the impact of clinical learning dyad sex congruence on these ratings, in Commission on Accreditation of Athletic Training Education (CAATE) accredited professional athletic training programs in the United States. Specifically, this study utilized ATS ratings of effective clinical educator behaviors, as measured by the modified *Survey of Effective Clinical Educator Behaviors* (Dondanville, 2005), as the dependent variable to assess ATS mean response differences based on ATS clinical dyad placement. Clinical learning dyad biological sex congruence, defined as either same sex clinical learning dyads (male ATS/male preceptor, female ATS/female preceptor), or opposite sex learning dyads (male ATS/female preceptor, female ATS/male preceptor), is identified as the independent variable. The primary hypotheses for consideration were:

H_1: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of current effective clinical educator behaviors.

H_2: Preceptor biological sex impacts ATS ratings of current effective clinical educator behaviors.

H_3: ATS biological sex impacts ratings of ideal effective clinical educator behaviors.

H_4: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors.

H_5: Significant differences in ATS ratings of effective clinical educator behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad.

Research Design

This study utilized quantitative, quasi-experimental, post-test only design to test the proposed hypotheses. Data was collected via electronic survey from ATS who recently participated in a clinical experience though a CAATE-accredited professional athletic training program. Approximately 11,000 ATS (Volberding, 2011) in 361 CAATE accredited professional athletic training programs (www.caate.net) represented the population for the study.

Participants

For the purpose of this study, ATS were defined as students currently pursuing a degree (bachelor's or master's) in athletic training through a CAATE-accredited professional athletic training program, who have completed a minimum of 24 credit hours of undergraduate coursework, and have completed at least one semester of clinical experience as defined by the *Standards for the Accreditation of Professional Athletic Training Programs* (CAATE, 2012) at the time of survey distribution.

Participant recruitment. A personalized email invitation was used to solicit program directors from all 361 CAATE accredited professional athletic training programs to assist in anonymous survey distribution to ATS at their institution. Program directors were asked to forward an email to ATS enrolled in his or her program which included a research description, a standard letter of consent, general instructions, a unique hyperlink providing direct access to the secure survey site, and researcher contact information (see Appendix A for participant recruitment scripts).

Participants who consented to participate in the survey followed a link to an internet based version of the *Survey of Effective Clinical Educator Behaviors* (*SECEB;* see Appendix B for proofs of instrument; Dondanville, 2005). Because the study sample of ATS was only

accessible through the CAATE-accredited program directors, automated personal reminders were sent via e-mail to program directors every week for a period of one month, at which time statistical analysis of results proceeded (Dillman, Smyth, & Christian, 2009).

Instrument and Procedures

Sampling. Following approval by the Oklahoma State University, Office of Research Compliance, Institutional Review Board, data collection proceeded in the following manner. The population for this study was comprised of ATS from all CAATE-accredited professional athletic training programs. In order to reach the intended sample, institutional athletic training program directors assisted in survey distribution. Institutional identification and email addresses for the program directors of each of the 361 currently accredited professional athletic training programs were obtained from the CAATE website (www.caate.net).

Sample size, power, and precision. Recent research indicated that CAATE-accredited professional athletic training programs average enrollment was 32 students (Volberding, 2011). Considering that there are 361 CAATE accredited programs, the total population of ATS is approximately 11,000. Based on this population, in order to achieve a 95% confidence level with a 10% confidence interval, the desired sample size was 95 ATS in each of the 2 clinical learning dyads: same sex ATS/preceptor and opposite sex ATS/preceptor (Dillman, Smyth, & Christian, 2009; Salant & Dillman, 1994). Recent research utilizing identical survey distribution methods to the proposed research (Volberding, 2011) suggested a potential response rate of 20%. With 361 programs and an average program enrollment of 32 (2011), given a 20% participation rate it was anticipated that approximately 72 program directors (20% of 361) would forward the survey to their students, and 20% of these ATS would respond, yielding a final participant pool of approximately 462 respondents. The respondent pool was then scrutinized for instrument completion and participant eligibility based on completion of at least one clinical experience semester. Incomplete and ineligible participants were removed from the response pool prior to analysis.

Instrumentation. Utilizing the effective clinical educator behaviors described by the literature and those evidenced through qualitative research, Dondanville (2005) developed the *Survey of Effective Clinical Educator Behaviors* to directly measure athletic training clinical educator use of effective teaching behaviors. The *SECEB* was reviewed by an expert panel for content validity (Dondanville, 2005; Wright, 2009). Internal consistency across all survey items ranged from .814 to .904, which meets or exceeds the consistency of similar tools (Dondanville, 2005). This instrument provided a valid, reliable, and objective means by which to assess ATS perception of effective clinical educator behaviors displayed by preceptor.

Through a series of 20 statement responses representing effective preceptor behaviors, the *SECEB* asked participants to rank both their *Current Clinical Instructor* and the *Ideal Clinical Instructor* on a Likert scale with responses ranging from 5 (very often) to 1 (never). The *SECEB* item statements were grouped according to four subcategories of effective clinical teaching behaviors: information, evaluation, critical thinking, and physical presence (Dondanville, 2005) which provided additional information for data analysis.

The *SECEB* was valid for the purpose of this study, had consistently demonstrated reliable results (Dondanville, 2005; Wright, 2009), and could be converted to electronic format without affecting content or construct validity. Written permission was obtained to utilize the Survey of Effective Clinical Educator Behaviors (Dondanville, 2005) for electronic data collection in the proposed research (see Appendix C for permission from author).

Demographic data was collected regarding ATS and preceptor sex to allow examination of the hypotheses. In order to better describe the research sample, additional demographic data was obtained regarding clinical practice setting (collegiate, high school, clinical, or other), ATS age, ATS experience level (number of semesters of clinical experience completed), ATS collegiate credit hours completed (sophomore, junior, senior), and the NATA District location of the clinical experience. Furthermore, participants were asked to identify the employment position of their current preceptor (graduate assistant, intern, part-time staff, or full time staff).

Measurement and Statistical Analysis

Qualtrics Incorporated web survey software (www.qualtrics.com) was utilized for data collection. An anonymous tracking feature within the Qualtrics software permitted the researcher to link program responses to initial email contact without compromising response confidentiality. This tracking feature allowed for personalized follow-up reminders and thank you responses to program directors. Access to the database was limited to the researcher. Confidentiality was maintained by ensuring that there were no identifying characteristics associated with survey participants' individual responses.

Statistical analysis. The statistical analysis of the *SECEB* data obtained from ATS allowed the researcher to address each of the research questions and provided the measurements necessary for primary and secondary study outcomes. Data obtained from the online survey was downloaded from Qualtrics and imported into the SPSS version 20.0 software package for statistical analysis. Data analysis included descriptive statistics of participant demographics as well as *SECEB* responses. The mean *SECEB* responses for each clinical learning dyad were compared in the four domains of effective clinical teaching behaviors described above. The clinical learning dyad means were also compared for each of the 20 *SECEB* item responses.

To analyze the impact of ATS/preceptor sex congruence in the clinical learning dyad on ATS ratings of experience with *current* effective clinical educator behaviors (see Table 3.1 and 3.2), a one-way ANOVA was conducted for comparison of *SECEB* means between the clinical learning dyads:

1. Male ATS with current male preceptor (m/m- same sex dyad).
2. Female ATS current female preceptor (f/f- same sex dyad).
3. Male ATS with current female preceptor (m/f- opposite sex dyad).
4. Female ATS current male preceptor (f/m- same sex dyad).

Table 3.1
ANOVA comparison between dyads for SECEB, current preceptor

Sex Dyad		Q1	Q2	Q3	Q4	Q5	…	Q18	Q19	Q 20
Same	M/M									
	F/F									
Opposite	M/M									
	F/F									

Table 3.2
ANOVA comparison between dyads for SECEB, current preceptor.

Dyad (student / educator)	**SECEB Mean Scores (20 items in 4 Domains)**	**Dyad (student / educator)**
M/M + F/F (same)	*SECEB* Scores for Current CE compared to	M/F + F/M (opposite)
M/M (same)	*SECEB* Scores for Current CE compared to	M/F (opposite)
F/F (same)	*SECEB* Scores for Current CE compared to	F/M (opposite)

This method of analysis allowed for an examination of differences between the mean Likert rankings of the clinical learning dyads in each of the four overarching domains for current clinical educator ratings. Additionally, ANOVA was utilized to compare the Likert scores of questions between the 4 clinical learning dyads for *current* clinical educator on each of the 20 questionnaire statements. Follow-up statistical tests of mean comparisons within and between each category were conducted where indicated by significant results.

For analysis of the impact of ATS/preceptor sex congruence in the clinical learning dyad on ATS preferences for *ideal* effective clinical educator behaviors (Dondanville, 2005), a one-way ANOVA was conducted for comparison of means between the clinical learning dyads (see Table 3.3). Similar to the analysis of differences in *current* preceptor (Dondanville, 2005) ratings between clinical dyads, an examination of differences between the mean Likert scores in the four overarching categories for the 4 clinical learning dyads in *ideal* clinical educator ratings provided an overview of similarities and differences between the dyads. Additionally, the mean Likert rankings for each of the 20 questionnaire statements for *ideal* clinical educator ratings of

questions were calculated and compared between the dyads. The mean *ideal* clinical educator rankings for each dyad were compared to *current clinical educator* rankings in order to provide a comparison of means and an examination of significant differences (see Table 3.4). Post-hoc analyses were conducted where indicated.

Table 3.3
ANOVA comparison between dyads for SECEB, Ideal Preceptor

Sex Dyad		Q1	Q2	Q3	Q4	Q5	…	Q18	Q19	Q 20
Same	M/M									
	F/F									
Opposite	M/M									
	F/F									

Table 3.4
Plan for ANOVA comparison between dyads for SECEB, ideal preceptor.

Dyad (student / educator)	**SECEB Mean Scores**	**Dyad (student / educator)**
M/M current (same)	*SECEB* Scores for CE compared to	M/M Ideal (same)
M/F current (opposite)	*SECEB* Scores for CE compared to	M/F Ideal (opposite)
F/M current(opposite)	*SECEB* Scores for CE compared to	F/M Ideal (opposite)
F/F current (same)	*SECEB* Scores for CE compared to	F/F Ideal (same)

Difference in ATS ratings of *current* preceptor behavior based on preceptor sex were analyzed utilizing one-way ANOVA by comparing each of the overall means and the mean *SECEB* responses for *current* behaviors and overarching domains, based on preceptor sex only (Table 3.5). Similarly, the research question of whether differences in ATS preferences for *ideal* effective clinical educator behaviors were analyzed utilizing one-way ANOVA by comparing the overall means and each of the mean *SECEB* responses for *ideal* behaviors and overarching domains, based on ATS sex only (Table 3.6).

Table 3.5
ANOVA comparison of ATS ratings of Current preceptor, based on preceptor sex

Preceptor Sex		Q1	Q2	Q3	Q4	Q5	…	Q18	Q19	Q 20
Male	M/M									
	F/M									
Female	F/F									
	M/F									

Table 3.6
ANOVA comparison of ATS ratings for Ideal preceptor, based on student sex

Student Sex		Q1	Q2	Q3	Q4	Q5	…	Q18	Q19	Q 20
Male	M/M									
	M/F									
Female	F/F									
	F/M									

Additionally, ATS SECEB ratings for experiences with current preceptors were compared to ATS ratings for preferences in ideal preceptors by utilizing paired samples t-test. The comparison within dyads between current preceptor and ideal preceptor ratings provided a better understanding of how well current preceptors stack-up to student expectations (Table 3.7).

Table 3.7
Paired samples t-test intradyad comparison of ATS ratings for Ideal preceptor.

SECEB Items	**Dyad- Sex**	**Mean**
Information	Current Same	
	Ideal Same	
	Current Opposite	
	Ideal Opposite	
Evaluation	Current Same	
	Ideal Same	
	Current Opposite	
	Ideal Opposite	
Thinking	Current Same	
	Ideal Same	
	Current Opposite	
	Ideal Opposite	
Presence	Current Same	
	Ideal Same	
	Current Opposite	
	Ideal Opposite	

Assumptions and Limitations

Assumptions of the described research study included: adequate representation of the population selected, instrument content and construct validity, instrument reliability, and truthful response by study participants. University public directories do not publish student academic major classifications, which made it impossible to identify potential participants without athletic training program director cooperation. Therefore, the population of athletic training students was only accessible to researchers by way of athletic training program directors. This limitation was addressed by utilizing the data collection methods previously described to encourage program directors to forward the survey information, and web hyperlink to the clinical athletic training students enrolled in their programs. Because of this limitation, the described method of data collection is relatively common within the athletic training academic community (Berry, Miller, & Berry, 2004; Mulholland & Martin, 2010; Volberding, 2011; Wright, 2009). The response rate for the current study was maximized by assuring complete anonymity and thorough description of the research purpose in initial electronic communications with program directors, follow-up electronic communication with program directors, and through electronic consent documentation with participants.

Instrument content and construct validity, as well as instrument reliability, have been established through thorough literature review (Dondanville, 2005; Groh, 2009; Wright, 2009). The adoption of the original instrument into a web-based format may introduce other implementation threats (Dillman, Smyth, & Christian, 2009). In order to minimize these threats, 16 recommended guidelines for web survey implementation were followed (Dillman, Smyth, & Christian, 2009). In summary, Dillman, Smyth, and Christian (2009) dictate that the web based instruments be presented in a simple, easy to operate format that does not involve excessive graphics or questions. These recommendations (2009) also reinforce the importance of password protection and participant anonymity and encourage the inclusion of a completion indicator so that participants know how much of the survey they have completed. Furthermore, in accord with

the Dillman, et al. (2009) strategy for minimizing implementation threats, the survey was pilot tested in different physical locations, on different computers, different operating systems, and different web browsers, ensuring uniform screen appearance and response function prior to its distribution. Because response to the study was voluntary and confidential, participants were assumed to have provided truthful response to each item.

Summary

This chapter provided a discussion of the methods based on a critical analysis of previous research. A review of the research purpose, and of the primary research questions, identified the dependent variable (ATS perceptions of effective clinical educator behaviors) and independent variable (clinical learning dyad) of the study. Then, the participant pool of ATS was defined and the unique recruitment method of utilizing program directors to distribute surveys was discussed (Mulholland & Martin, 2010; Volberding, 2011; Wright, 2009). Next, the desired sample size and confidence interval were provided. The materials and procedures section also provided an opportunity for the evaluation and description of the *SECEB* instrument (Dondanville, 2005) relative to the research questions.

In the measurement and statistical analysis section, the conversion of the *SECEB* to an electronic format and the utilization of Qualtrics web survey software (www.qualtrics.com) were first reviewed. The treatment of the *SECEB* data and utilization of SPSS software for mean *SECEB* comparisons between clinical learning dyads was presented. Lastly, assumptions and limitations of the study were discussed and accounted for, including: adequate representation, instrument content and construct validity, instrument reliability, participant accessibility, and potential web survey obstacles.

The research design presented provides a clear rationale for the rigorous examination of the research hypotheses in a manner that solicited a participant pool representative of the study population. While generally it is unusual for research to be conducted in a manner that utilizes contacts at other institutions to distribute the instrument to the intended population, in athletic

training it is a commonly utilized research technique (Mulholland & Martin, 2010; Volberding, 2011; Wright, 2009), and in this case it was the only manner of reaching the study sample. Through the utilization of the methods described, this study provided valuable data about the impact of sex on ATS perceptions of effective clinical educator behaviors by allowing for comparison between clinical learning dyads of same and opposite sex.

CHAPTER IV

FINDINGS

This study was designed to examine athletic training students' (ATS) ratings of effective clinical education behaviors by athletic training preceptors, and the impact of clinical learning dyad sex congruence on these ratings, in Commission on Accreditation of Athletic Training Education (CAATE) accredited professional athletic training programs in the United States. Specifically, this study utilized ATS ratings of effective clinical educator behaviors, as measured by the modified *Survey of Effective Clinical Educator Behaviors* (See Appendix B for instrument proofs; Dondanville, 2005), as the dependent variable to assess ATS mean response differences based on ATS clinical dyad placement. Clinical learning dyad biological sex congruence, defined as either same sex clinical learning dyads (male ATS/male preceptor, female ATS/female preceptor), or opposite sex learning dyads (male ATS/female preceptor, female ATS/male preceptor), was identified as the independent variable. The primary hypotheses for consideration were:

H_1: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of current effective clinical educator behaviors.

H_{01}: ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of current effective clinical educator behaviors.

H_2: preceptor biological sex impacts ATS ratings of actual clinical educator behaviors.

H_{02}: Preceptor biological sex does not impact ATS ratings of actual clinical educator behaviors.

H_3: ATS biological sex impacts ratings of ideal clinical educator behaviors.

H_{03}: ATS biological sex does not impact ratings of ideal clinical educator behaviors.

H_4: ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors.

H_{04}: ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of ideal effective clinical educator behaviors.

H_5: Significant differences in ATS ratings of effective clinical educator behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad.

H_{05}: No significant differences in ATS ratings of effective clinical educator behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad.

Prior to initiating participant recruitment and data collection, approval was obtained from the Oklahoma State University Institutional Review Board (see Appendix D) and a letter of authorization was obtained from The University of Tulsa Institutional Review Board (see Appendix E).

In order to reach the intended sample, athletic training students, the program directors of all 361 athletic training professional programs currently accredited by the Commission on Accreditation of Athletic Training Education were contacted via email and asked to forward a survey link to their students (See appendix A for participant recruitment e-mail scripts). Survey participation was voluntary and anonymous; therefore there was no way to determine the number of program directors who actually forwarded the survey link on to their students. Two program directors responded that Institutional Review Board Approval from their institutions was necessary for them to distribute the link to their ATS (see Appendices F & G for Institutional Review Board exemptions from Indiana University of Pennsylvania & The College of Mount St. Joseph).

There were 539 instruments initiated in Qualtrics; 163 people opened the instrument but did not answer any questions, which left 376 full and partial attempts. Of these 376 attempts, 53 participants did not fully complete the Survey of Effective Clinical Educator (SECEB) Behaviors portion of the instrument, did not indicate their sex, did not indicate their preceptor's sex, or indicated that they are not currently enrolled in (or did not recently graduate) from a CAATE accredited athletic training program, and were removed from the data set (See Appendix B for instrument proofs & Appendix C for permission from author). The 323 participants who completed the instrument included an additional 43 participants who did not meet stated study criteria specifically, completion of at least one semester of clinical experience, yielding a final total sample size of 279. The sample size required to be reliably representative of the population for comparison purposes at a 95% confidence interval with a 10% sampling error, estimated at n=95 for each dyad, was met.

Athletic Training Student (ATS) Participant Characteristics

Within the overall sample (n=279) 70% of respondents were female (n=196) and 30% were male (n=83), which is representative of the study population. Caucasians represented 87% of participants (n=242), also representative of the overall study population. Of the participants, 86% were currently pursuing (or had recently completed) a Bachelor's Degree (n=239) and 14% were currently pursuing (or had recently completed) a Master's Degree (n=40). The sample was represented by >1% freshman (n=1), 25% sophomores (n=25), 29% juniors (n=80), 37% seniors (n=102), 11% recent undergraduate graduates (n=31), 6% first year graduate students (n=16), 7% second year graduate students (n=20), and 1% recent post-baccalaureate graduates (n=4). The semesters of clinical experience completed by participants reflected that 20% had completed 1 semester (n=56), 23% had completed 2 semesters (n=65), 15% had completed 3 semesters (n=43), 20% had completed 4 semesters (n=56), 7% had completed 5 semesters (n=19), and 14% had completed more than 5 semesters (n=40). All ATS participant characteristics are presented in Table 4.1.

Table 4.1
Participant athletic training student (ATS) demographics (N=279).

		n	%
Sex	Male	83	29.7%
	Female	196	70.3%
Clinical Dyad	Same Sex	141	50.5%
	Male ATS/Male preceptor	*47*	
	Female ATS/Female preceptor	*94*	
	Opposite Sex	138	49.5%
	Male ATS/Female preceptor	*36*	
	Female ATS/Male preceptor	*102*	
Ethnicity	Caucasian	242	86.7%
	Pacific Islander	0	0%
	African American	5	1.8%
	Asian	7	2.5%
	American Indian	4	1.4%
	Hispanic / Latino	14	5%
	Other	5	1.8%
	Prefer not to give ethnicity	2	.8%
Age in years	19	24	8.6%
	20	59	21.1%
	21	75	26.9%
	22	59	21.1%
	23	26	9.3%
	24	10	3.6%
	25	7	2.5%
	26	4	1.4%
	27 or Older	15	5.4%
Academic Classification	Bachelor's Degree	239	85.7%
	Freshman	*1*	
	Sophomore	*25*	
	Junior	*80*	
	Senior	*102*	
	Recent Graduate	*31*	
	Master's Degree	40	14.3%
	First year	*16*	
	Second year	*20*	
	Recent Graduate	*4*	
Clinical Experience Semesters Completed	1	56	20.1%
	2	65	23.3%
	3	43	15.4%
	4	56	20.1%
	5	19	6.8%
	More than 5	40	14.3%

Athletic Training Preceptor Characteristics

Athletic training preceptor characteristics were reported by athletic training student study participants. Of the total sample (N=279), the athletic training preceptor sample was comprised of 53% males (n=149) and 47% females (n=130). The preceptors in the study held employment positions that were classified as 13% graduate assistant athletic trainer (n=35), 1% intern athletic trainer (n=4), 7% part-time staff athletic trainer (n=18), 33% full-time assistant athletic trainer (n= 91), 42% full-time head athletic trainer (n=116), and 5% other medical professional (n=15).

Credentials held by preceptors were predominantly Certified Athletic Trainers (ATC, n=260, 93%), followed by State Licensed Athletic Trainer (LAT, n=109, 39%), Physical Therapist (PT, n=11, 4%), Medical Doctor (MD, n=2, 1%), Doctor of Chiropractic medicine (DC, n=2, 1%), and other credentials (n=45, 16%). In 14% of cases, participants were unsure of credentials held by the preceptor (n=39). Athletic Training preceptors frequently maintain multiple credentials such as ATC/LAT or PT/ATC, and this multiplicity is represented by the responses found in Table 4. 2. Additionally, it is important to note that currently, 48 states regulate the practice of athletic training through licensure, certification or registration; and that the ATC credential is recognized for regulation in 47 of these states. Further analysis of the data revealed that 278 of 279 preceptors were either ATC or LAT in addition to other credentials (PT, MD, DC, other, unsure). Complete athletic training preceptor characteristics are found in Table 4.2.

Table 4.2
Athletic training preceptor characteristics (N=279).

Preceptor	Demographic	n	%
Biological Sex			
	Male	149	53.4%
	Female	130	46.6%
Employment Position			
	Graduate Assistant Athletic Trainer	35	12.5%
	Intern Athletic Trainer	4	1.4%
	Part-time, staff athletic trainer	18	6.5%
	Full-time, Assistant Athletic Trainer	91	32.6%
	Full-time, Head Athletic Trainer	116	41.6%
	Other Medical Professional (MD, DO, PT, etc)	15	5.4%
Credentials	ATC	260	93%
	LAT	109	39%
	PT	11	4%
	MD	2	1%
	DO	0	0%
	PA	0	0%
	DC	2	1%
	Other	45	16%
	Unsure	39	14%

Clinical Learning Dyad Composition

The sample the participants were categorized by clinical learning dyad composition: same sex clinical learning dyad (m/m, f/f) or opposite sex clinical learning dyad (m/f, f/m). Of the sample (n=279), 50.5% were same sex dyads (n=141) and 49.5% were opposite sex dyads (n=139). Additionally the breakdown with these dyads was 17% male/male dyad (n=47), 34% female/female dyad (n=94), 13% male/female dyad (n=36) and 37% female/male dyad (n=102). Clinical learning dyad composition is represented in Table 4.3.

Table 4.3
Clinical learning dyad composition (N=279).

	Dyad Composition	n	%
Same Sex	*Same Sex Dyad*	*141*	50.5%
	Male ATS/Male preceptor	*47*	*16.8%*
	Female ATS/Female preceptor	*94*	*33.7%*
Opposite Sex	Opposite Sex Dyad	138	49.5%
	Male ATS/ Female preceptor	*36*	*12.9%*
	Female ATS/ Male preceptor	*102*	*36.6%*

Athletic Training Clinical Site Characteristics

The practice settings in which the clinical experiences occurred included 39% collegiate NCAA division I (n=110), 17% collegiate NCAA division II (n=46), 12% collegiate NCAA division III (n=34), 4% collegiate NAIA (n=12), 2% collegiate junior/community college (n=5), 18% high school (n=51), 4% outpatient rehabilitation clinic (n=12), 1% hospital/physicians office (n=2), 1% professional athletics (n=4), and 1% other setting (n=3). Geographically, participants represented all 10 geographic districts of the National Athletic Trainers' Association with 6% from district 1 (n=17), 8% from district 2 (n=21), 8% from district 3 (n=22), 21% from district 4 (n=58), 26% from district 5 (n=73), 5% from district 6 (n=14), 5% from district 7 (n=14), 6% from district 8 (n=17), 14% from district 9 (n=38), and 2% from district 10 (n=5). Complete information regarding athletic training clinical site characteristics can be found in Table 4.4.

Table 4.4
Athletic training clinical site characteristics. (N=279)

	Practice Setting	**n**	**%**
	Collegiate (NCAA Division I)	110	39.4%
	Collegiate (NCAA Division II)	46	16.5%
	Collegiate (NCAA Division III)	34	12.2%
	Collegiate (NAIA)	12	4.3%
	Collegiate (Junior/Community College)	5	1.8%
	High School	51	18.3%
	Outpatient Rehabilitation Clinic	12	4.3%
	Hospital/ Physicians Office	2	.7%
	Professional Athletics	4	1.4%
	Other	3	1.1%
NATA District	**States**		
1	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	17	6.1%
2	Delaware, New Jersey, New York, Pennsylvania	21	7.5%
3	District of Colombia, Maryland, North Carolina, South Carolina, Virginia, West Virginia	22	7.9%
4	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin	58	20.8%
5	Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota	73	26.2%
6	Arkansas, Texas	14	5%
7	Arizona, Colorado, New Mexico, Utah, Wyoming	14	5%
8	California, Hawaii, Nevada	17	6.1%
9	Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, Tennessee	38	13.6%
10	Alaska, Idaho, Montana, Oregon, Washington	5	1.8%

Survey of Effective Clinical Educator Behavior (SECEB) Data

Study participants were asked to complete an online instrument that included the Survey of Effective Clinical Educator Behaviors (*SECEB*; Dondanville, 2005), as well as demographic and additional general attitudinal questions (See Appendix B for proofs of instrument). The SECEB is composed of 20 item statements that describe effective clinical educator/preceptor behaviors. Participants were asked to rank each item statement on a scale from "never" (1) to "very often" (5) for both their current preceptor and an ideal preceptor. In the study, *current preceptor* was identified to participants as *the clinical instructor from the most recently completed rotation*; ideal preceptor was identified to participants as *the perfect clinical instructor*. Following data collection, the SECEB items were grouped according to one of four subcategories of effective teaching behaviors (Dondanville, 2005). These 4 categories are behaviors that:

- *provide information and present relevant subject matter,*
- *provide feedback and student evaluation,*
- *ask questions and promote critical thinking, and*
- *maintain physical presence in the clinical learning environment*

(Dondanville, 2005).

The SECEB item classifications by subcategory, as well as accompanying behavior statements, follow in Table 4.5.

Mean responses were calculated utilizing SPSS version 20.0 software for same and opposite sex clinical learning dyads. Mean responses were also calculated for m/m, m/f, f/f, and f/m dyads. Resulting means for each of the four SECEB subcategories, as well as for each SECEB behavior statement, were compared between these dyads utilizing ANOVA for both current and ideal preceptors.

Table 4.5
Effective clinical educator/preceptor behaviors.

Subcategory	SECEB Item #	Behavior Statement- *My current (or ideal) preceptor-*
Information	2	*Refers me to educational aids (posters, books, journals, etc.) to encourage independent problem solving*
	15	*Answers questions honestly and intelligently when asked*
	16	*Provides a clear, concise explanation of the material*
	17	*Uses relevant verbal examples to clarify my understanding*
	18	*Demonstrates a variety of clinical skills for my benefit*
	19	*Bridges classroom knowledge to the clinical site and patient care*
Evaluation	4	*Offers praise for a job well done*
	5	*Gives immediate and specific feedback that helps me improve my skills*
	6	*Gives fair, non-judgmental performance evaluations*
	7	*Provides time to discuss performance evaluations and opportunities for improvement*
Thinking	1	*Encourages me to participate in clinical activities and patient care up to my ability level*
	8	*Asks simple questions that require only recall of memorized facts*
	9	*Asks complex or difficult questions that make me think critically (i.e., analyze, evaluate, or problem solve the situation)*
	11	*Participates in or leads discussions on thought-provoking, relevant topics*
	20	*Provides the time and materials for skill practice*
Presence	3	*Watches me practice my clinical skills and interact with patients*
	10	*Actively plans or structures the overall clinical experience*
	12	*Refrains from engaging in conversations that are unrelated to the clinical experience, my education, or patient care*
	13	*Actively supervises my clinical practice(i.e., has constant auditory and visual contact with me and my patients)*
	14	*Takes an active role in organizing slow time in the clinical setting to promote learning and prevent boredom*

SECEB data analysis for current preceptor. Participant responses from the SECEB for current preceptor were analyzed utilizing ANOVA according to subcategory (Table 4.6), and according to each of the 20 behavior statements (Tables 4.8-4.11). To test hypothesis H_2: preceptor biological sex impacts ATS ratings of actual clinical educator behaviors, ATS ratings were compared based on current preceptor sex. Analysis indicates that no significant difference in subcategory means exists based on preceptor sex (Table 4.6). Additionally, no significant difference was found based on current preceptor sex for any of the 20 individual SECEB item statements.

Table 4.6
Summary comparison between ATS ratings of current preceptor based on preceptor sex by subcategory. (N=279)

Subcategory	Preceptor	N	Mean	F	Sig.
Information	Male	149	4.0984	.036	.849
	Female	130	4.1141		
Evaluation	Male	149	3.9346	.077	.781
	Female	130	3.9615		
Thinking	Male	149	3.7544	.379	.538
	Female	130	3.7000		
Presence	Male	149	3.5503	.562	.454
	Female	130	3.4862		

Interdyad comparisons (same/opposite sex) did not reveal any significant differences between ATS ratings for the 4 sub-classification measures of current preceptor. Interdyad comparison findings for current preceptor by SECEB subcategory are found in Table 4.7.

Table 4.7
Summary interdyad comparison (same/opposite) for current preceptor by subcategory. (N=279)

Subcategory	Dyad	N	Mean	F	Sig.
Information	Same Sex	141	4.1005	.017	.897
	Opposite Sex	138	4.1111		
Evaluation	Same Sex	141	3.7961	.637	.426
	Opposite Sex	138	3.7246		
Thinking	Same Sex	141	3.7064	.270	.604
	Opposite Sex	138	3.7522		
Presence	Same Sex	141	3.4894	.540	.463
	Opposite Sex	138	3.5522		

Give information and present relevant subject matter. SECEB statements 2 and 15 through 19 reflect ATS experiences related to a current preceptor's approach to giving information and presenting relevant subject matter. Interdyad comparison for items in the *information* subcategory was conducted utilizing ANOVA. Mean comparisons for the six *information* SECEB items did not yield significant interdyad (same/opposite) differences. When all four dyads (m/m, m/f, f/f, f/m) were analyzed, no significant interdyad mean differences were found between ATS ratings of current preceptors in the way those preceptors disseminate information. Additionally, mean rating comparison based only on preceptor sex did not identify any significant differences between the ratings of male and female preceptors for *information*

statements. Mean comparisons, F values, and p values are found in Table 4.8. In summary, ATS mean responses in the *information* subcategory do not differ significantly based on dyad or preceptor sex.

Table 4.8
Interdyad comparison (same/opposite) for information subcategory, current preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
2	Same Sex	141	3.45	.996	1.594	.208
	Opposite Sex	138	3.61	1.143		
15	Same Sex	141	4.61	.663	1.257	.263
	Opposite Sex	138	4.51	.757		
16	Same Sex	141	4.18	.762	.113	.737
	Opposite Sex	138	4.15	.836		
17	Same Sex	141	4.12	.849	.134	.714
	Opposite Sex	138	4.16	.922		
18	Same Sex	141	4.18	.905	.450	.503
	Opposite Sex	138	4.10	.984		
19	Same Sex	141	4.06	.888	.357	.551
	Opposite Sex	138	4.13	.973		

Give feedback and student evaluation. SECEB statements 4 through 7 reflect ATS experiences related to a current preceptor's approach to student evaluation, particularly regarding providing feedback. For items within the *evaluation* subcategory, comparison between means of same and opposite sex dyad pairs was conducted utilizing ANOVA. Mean interdyad (same/opposite) comparisons for all four SECEB *evaluation* items (Table 4.5) yielded no significant differences. The mean interdyad difference for item 4, although not statistically significant, indicated that students in same sex dyads exhibit a trend toward perceiving preceptors to *offer praise for a job well done* (p=.052). Interdyad comparison between all dyads (m/m, m/f, f/f, f/m) also failed to identify any significant mean differences for the evaluation subcategory. Additionally, no significant difference was found between ATS ratings of male and female preceptors. In summary, ATS mean responses in the *evaluation* subcategory do not differ significantly based on dyad or preceptor sex. Mean comparisons, F values, and p values are found in Table 4.9.

Table 4.9
Interdyad comparison (same/opposite) for evaluation subcategory, current preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
4	Same Sex	141	3.95	1.002	3.823	.052
	Opposite Sex	138	3.70	1.110		
5	Same Sex	141	3.94	.927	.226	.635
	Opposite Sex	138	3.99	1.057		
6	Same Sex	141	4.22	.785	1.139	.287
	Opposite Sex	138	4.11	.949		
7	Same Sex	141	3.82	.930	.072	.789
	Opposite Sex	138	3.85	1.073		

Ask questions and promote critical thinking. SECEB statements 1, 8, 9, 11, and 20 reflect ATS experiences related to a current preceptor's approach asking questions and promoting critical thinking. Interdyad (same/opposite) comparison for items within the *thinking* subcategory was conducted utilizing ANOVA. Mean comparisons of the five SECEB *thinking* statements yielded no significant difference between same and opposite sex dyads. When mean responses for all four dyads (m/m, m/f, f/f, f/m) were analyzed, no significant interdyad mean differences were found in the *thinking* subcategory. Additionally, no significant difference was found between ATS mean ratings of male and female preceptors. In summary, ATS mean responses in the *thinking* subcategory do not differ significantly based on dyad or preceptor sex. Mean comparisons, F values, and p values are found in Table 4.10.

Table 4.10
Interdyad comparison (same/opposite) for thinking subcategory, current preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
1	Same Sex	141	4.34	.818	.185	.668
	Opposite Sex	138	4.30	.866		
8	Same Sex	141	3.20	.950	.107	.744
	Opposite Sex	138	3.24	1.118		
9	Same Sex	141	3.74	.952	.101	.751
	Opposite Sex	138	3.78	1.045		
11	Same Sex	141	3.99	1.068	.364	.547
	Opposite Sex	138	3.47	1.173		
20	Same Sex	141	3.86	.923	.928	.336
	Opposite Sex	138	3.97	1.032		

Maintain physical presence in the clinical learning environment. SECEB statements 3, 10, and 12-14 reflect ATS experiences related to the physical presence of the current preceptor in the clinical learning environment. For items within the *presence* subcategory, interdyad (same/opposite) comparison was conducted utilizing ANOVA. Mean interdyad comparisons for these five SECEB items yielded no significant difference between same and opposite sex dyads. When all four dyads (m/m, m/f, f/f, f/m) were analyzed, no significant mean differences were found between groups for current preceptor in the evaluation subcategory. Additionally, no significant difference was found between ATS ratings of male and female preceptors. In summary, ATS mean responses in the *presence* subcategory do not differ significantly based on dyad or preceptor sex. Mean comparisons, F values, and p values are found in Table 4.11.

Table 4.11
Interdyad comparison (same/opposite) for presence subcategory, current preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
3	Same Sex	141	4.03	.902	.035	.851
	Opposite Sex	138	4.01	.978		
10	Same Sex	141	3.48	1.060	.280	.597
	Opposite Sex	138	3.55	1.101		
12	Same Sex	141	2.91	.922	1.901	.169
	Opposite Sex	138	3.07	.986		
13	Same Sex	141	3.77	.929	.074	.786
	Opposite Sex	138	3.80	.995		
14	Same Sex	141	3.25	1.103	.330	.566
	Opposite Sex	138	3.33	1.160		

Summary of SECEB data analysis for current preceptor. The preceding section utilized data, collected via the SECEB (Dondanville, 2005), pertaining to ATS experience ratings of current preceptor. Hypotheses H_1 and H_2 were tested through analysis of current preceptor data. Because no significant difference was found between clinical dyads for the four SECEB subcategories, or the twenty SECEB item statements, the present study failed to reject null hypothesis H_{01}: *ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of current effective clinical educator behaviors.* Because no significant difference was found between ATS ratings of current preceptor, based on preceptor

biological sex, for the 4 SECEB subcategories, or the 20 SECEB item statements, the present study failed to reject null hypothesis H_{02}: *preceptor biological sex does not impact ATS ratings of current clinical educator behaviors*. These findings provide evidence that ATS ratings of effective current preceptor behaviors, as measured by the SECEB, do not significantly differ based on dyad sex composition. Although not significant enough to reject the null hypothesis H_{01}, a trend was identified in the present research indicating that same sex dyad participants rate preceptors higher for offering praise than opposite sex dyad participants.

In addition to hypothesis testing, ATS ratings for current preceptor were compared based on geographic location, practice setting, ethnicity, and semesters of clinical experience completed. Geographically, ATS in NATA district 1, Northeastern U.S., (m=4.65) rated preceptors significantly higher (p=.016) on statement 19, *bridges classroom knowledge to the clinical site and patient care,* than ATS in NATA district 10, Northwestern U.S. (m=3.40). Significant differences were also found with respect to number of clinical experience semesters completed. For SECEB statement 8, *asks simple questions that require only recall of memorized facts,* ATS with 2 semesters of clinical experience (m=3.49) rated current preceptors significantly higher (p=.047) than ATS with >5 semesters of clinical experience. Additionally, ATS with both 1 (m=3.75) and 2 (m=3.77) semesters of clinical experience rated current preceptors significantly higher (p=.028 and .016) than ATS with >5 semesters of clinical experience (m=3.08) for statement 10, *actively plans or structures the overall clinical experience*. Significant differences were also identified based on participant ethnicity for statements 3, *watches me practice my clinical skills and interact with patients* (p=.006) and 13, *actively supervises my clinical practice* (p=.037). Post hoc analysis of these findings could not be conducted due to low participant numbers in two groups, but mean responses reveal that African American participants rated current preceptors higher than other participants for both statements 3 and 13. Conversely, American Indian participants rated current preceptors lower than other participants for both statements 3 and 13.

SECEB data analysis for ideal preceptor. To test hypothesis H_3: *ATS biological sex impacts ratings of ideal clinical educator behaviors*, ideal preceptor rating means were compared based on ATS sex. In this comparison, female ATS were found to rate ideal preceptor behaviors significantly higher for both the *information* (p=.023) and *thinking* subcategories (p=.038), suggesting that female ATS have higher expectations for preceptors to exhibit behaviors that *give information and present relevant subject matter*, and that *ask questions and promote critical thinking*. These findings are represented in table 4.12. When analyzing individual SECEB statements, female ATS had significantly higher expectations than male ATS for ideal preceptor for statement 1: *encourages me to participate in clinical activities and patient care up to my ability level* (p=.009); statement 13: *actively supervises my clinical practice* (p=.042); and statement 19, *bridges classroom knowledge to the clinical site and patient care* (p=.000).

Table 4.12
Summary comparison between ATS ratings of ideal preceptor based on student sex by subcategory. (N=279)

Subcategory	Preceptor	N	Mean	F	Sig.
Information	Male	83	4.6727	.036	.023
	Female	196	4.7619		
Evaluation	Male	83	4.6235	.077	.081
	Female	196	4.7143		
Thinking	Male	83	4.3253	.379	.038
	Female	196	4.4388		
Presence	Male	83	4.0940	.562	.101
	Female	196	4.2071		

To test hypothesis H_4: *ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors*, interdyad (same/opposite, and m/m, m/f, f/m, f/f) comparison of participant responses from the SECEB for ideal preceptor were analyzed according to subcategory (Table 4.13), and according to each of the 20 behavior statements (Tables 4.14-4.17). Analysis indicates that no significant difference exists between dyad pairs (same/opposite sex) for the 4 sub-classification measures for ideal preceptor. Findings for same and opposite sex dyad comparison for ideal preceptor by SECEB subcategory are found in Table 4.13.

Table 4.13
Summary interdyad comparison (same/opposite) for ideal preceptor by subcategory.

Subcategory	Dyad	N	Mean	F	Sig.
Information	Same Sex	141	4.7530	.981	.323
	Opposite Sex	138	4.7174		
Evaluation	Same Sex	141	4.3883	.577	.448
	Opposite Sex	138	4.4312		
Thinking	Same Sex	141	4.3816	.897	.344
	Opposite Sex	138	4.4290		
Presence	Same Sex	141	4.1546	.364	.547
	Opposite Sex	138	4.1928		

Give information and present relevant subject matter. SECEB statements 2 and 15 through 19 reflect ATS preferences related to an ideal preceptor's approach to giving information and presenting relevant subject matter. Comparison between dyad pairs for items within the *information* subcategory for ideal preceptor was conducted utilizing ANOVA. Mean comparisons for these six SECEB items yielded no significant interdyad (same/opposite) differences. Mean comparisons, F values, and p values are found in Table 4.14.

Table 4.14
Interdyad comparison (same/opposite) for information subcategory, ideal preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
2	Same Sex	141	4.29	.761	.096	.757
	Opposite Sex	138	4.32	.754		
15	Same Sex	141	4.94	.232	3.3337	.069
	Opposite Sex	138	4.86	.471		
16	Same Sex	141	4.84	.390	.455	.501
	Opposite Sex	138	4.80	.416		
17	Same Sex	141	4.84	.383	1.951	.164
	Opposite Sex	138	4.78	.436		
18	Same Sex	141	4.82	.419	1.044	.308
	Opposite Sex	138	4.77	.472		
19	Same Sex	141	4.78	.464	.007	.932
	Opposite Sex	138	4.78	.468		

When interdyad comparison was made for all four dyads (m/m, m/f, f/f, f/m), a significant mean difference (p=.001) was found on behavior statement 19, *the ideal clinical instructor bridges classroom knowledge to the clinical site and patient care*. Upon post hoc analysis utilizing Tukey's honest significant differences test (HSD), significant differences were found for statement responses between male ATS/male preceptor (M=4.60) and female

ATS/male preceptor (M=4.82, p=.025), as well as between male ATS/male preceptor (M=4.60) and female ATS/female preceptor (M=4.87, p=.004). These differences indicate that ATS in both the f/m and f/f dyads had higher expectations for preceptors to bridge classroom knowledge to the clinical experience than ATS in the m/m dyad.

Give feedback and student evaluation. SECEB statements 4 through 7 reflect ATS preferences related to an ideal preceptor's approach to student evaluation, particularly regarding providing feedback. For items within the *evaluation* subcategory, interdyad (same/opposite) comparison of ATS mean ratings for ideal preceptor was conducted utilizing ANOVA. Mean comparisons for the four *evaluation* SECEB items yielded no significant difference between same and opposite sex dyads. When all four dyads (m/m, m/f, f/f, f/m) were analyzed, no significant interdyad mean differences were found for ratings of ideal preceptor in the evaluation subcategory. Mean comparisons, F values, and p values are found in Table 4.15.

Table 4.15
Interdyad comparison (same/opposite) for evaluation subcategory, ideal preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
4	Same Sex	141	4.49	.672	.888	.347
	Opposite Sex	138	4.57	.672		
5	Same Sex	141	4.79	.439	.122	.727
	Opposite Sex	138	4.78	.468		
6	Same Sex	141	4.77	.473	.045	.832
	Opposite Sex	138	4.75	.495		
7	Same Sex	141	4.66	.532	.311	.578
	Opposite Sex	138	4.70	.549		

Ask questions and promote critical thinking. SECEB statements 1, 8, 9, 11, and 20 reflect ATS preferences related to an ideal preceptor's approach toward questioning and critical thinking promotion. Interdyad comparison for items within the *thinking* subcategory for ideal preceptor was conducted utilizing ANOVA. Mean interdyad (same/opposite) comparisons for the five *thinking* SECEB items yielded no significant difference between dyads. When all four dyads (m/m, m/f, f/f, f/m) were analyzed, a significant mean interdyad difference (p=.049) was found on behavior statement 1, *the ideal clinical instructor encourages me to participate in clinical*

activities and patient care up to my ability level. Upon post hoc analysis utilizing Tukey's HSD, no significant difference was found between any 2 groups: m/m (M=4.68), m/f (M=4.78), f/m (M=4.86), and f/f (M=4.86). Mean comparisons, F values, and p values are found in Table 4.16.

Table 4.16
Interdyad comparison (same/opposite) for thinking subcategory, ideal preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
1	Same Sex	141	4.80	.435	.631	.428
	Opposite Sex	138	4.84	.387		
8	Same Sex	141	3.64	1.091	.301	.584
	Opposite Sex	138	3.71	1.095		
9	Same Sex	141	4.45	.626	.169	.682
	Opposite Sex	138	4.48	.653		
11	Same Sex	141	4.31	.667	1.798	.181
	Opposite Sex	138	4.42	.681		
20	Same Sex	141	4.71	.604	.039	.843
	Opposite Sex	138	4.70	.535		

Maintain physical presence in the clinical learning environment. SECEB statements 3, 10, and 12-14 reflect ATS preferences related to the physical presence of the ideal preceptor in the clinical learning environment. For items within the *presence* subcategory for ideal preceptor, comparison between means of same and opposite sex dyad pairs was conducted utilizing ANOVA. Mean comparisons for the five *presence* SECEB items yielded no significant interdyad (same/opposite) difference. When all four dyads (m/m, m/f, f/f, f/m) were analyzed, no significant mean differences were found between groups for ideal preceptor mean ratings in the evaluation subcategory. Mean comparisons, F values, and p values are found in Table 4.17.

Table 4.17
Interdyad comparison (same/opposite) for presence subcategory, ideal preceptor.

SECEB Item #	Dyad	N	Mean	SD	F	Sig.
3	Same Sex	141	4.52	.703	.016	.901
	Opposite Sex	138	4.51	.675		
10	Same Sex	141	4.32	.778	3.371	.067
	Opposite Sex	138	4.48	.664		
12	Same Sex	141	3.30	.954	.275	.600
	Opposite Sex	138	3.36	1.094		
13	Same Sex	141	4.23	.750	.003	.958
	Opposite Sex	138	4.23	.804		
14	Same Sex	141	4.40	.665	.102	.749
	Opposite Sex	138	4.38	.766		

Summary of SECEB data analysis for ideal preceptor. The preceding section utilized data, collected via the SECEB (Dondanville, 2005), pertaining to ATS perception ratings for ideal preceptor. Hypotheses H_3: *ATS biological sex impacts ratings of ideal clinical educator behaviors*, and H_4: *ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors*, were tested within ideal preceptor data analysis. Female ATS were found to rate ideal preceptor behaviors significantly higher for both the *information* (p=.023) and *thinking* subcategories (p=.038), suggesting that female ATS have higher expectations for preceptors to exhibit behaviors that *give information and present relevant subject matter*, and that *ask questions and promote critical thinking*. Female ATS also had significantly higher expectations than male ATS for ideal preceptor for statement 1: *encourages me to participate in clinical activities and patient care up to my ability level*; statement 13: *actively supervises my clinical practice*; and statement 19, *bridges classroom knowledge to the clinical site and patient care*. Because of these findings, null hypothesis H_{03}: *ATS biological sex does not impact ratings of ideal clinical educator behaviors* was rejected.

For hypothesis H_4, while no significant interdyad (same/opposite, and m/m, m/f, f/m, f/f) difference was found between the clinical learning dyads for the 4 SECEB subcategories, a significant difference was found between dyads for statement 19 *the ideal clinical instructor bridges classroom knowledge to the clinical site and patient care*, indicating that ATS in both the f/m and f/f dyads had higher expectations for preceptors to bridge classroom knowledge to the clinical experience than ATS in the m/m dyad. Because of this finding, null hypothesis H_{04}: *ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of ideal effective clinical educator behaviors* was rejected.

SECEB data comparison for current to ideal preceptor. To test H_5: *significant differences in athletic training students' ratings of effective preceptor behaviors exist between current and ideal preceptor regardless of current clinical learning dyad*, mean participant responses from the SECEB between current preceptor and ideal preceptor were compared

utilizing a paired samples T-test. These mean intradyad comparisons were made for each SECEB subcategory. Analysis indicates that significant differences (p=.000) exist between ATS responses for current preceptor and ideal preceptor in each of the four subcategories (*information, evaluation, thinking, presence*) for both (same/opposite) clinical learning dyads. In each mean comparison, ATS responses for an ideal preceptor are significantly higher than those for current preceptor. These findings indicate that, regardless of sex congruence in the clinical learning dyad, current preceptors are rated lower by ATS than an ideal preceptor. Results of current to ideal preceptor mean comparisons in each of the four subcategories are found in Table 4.18.

Table 4.18
Intradyad comparison between current and ideal preceptor behaviors by subcategory. (N=279, Same Sex n=141, Opposite Sex n=138)

Subcategory	Dyad- Sex	Mean	Sig.
Information	Current Same	4.1005	.000
	Ideal Same	4.7530	
	Current Opposite	4.1111	.000
	Ideal Opposite	4.7174	
Evaluation	Current Same	3.7961	.000
	Ideal Same	4.3883	
	Current Opposite	3.7246	.000
	Ideal Opposite	4.4312	
Thinking	Current Same	3.7064	.000
	Ideal Same	4.3816	
	Current Opposite	3.7522	.000
	Ideal Opposite	4.4290	
Presence	Current Same	3.4894	.000
	Ideal Same	4.1546	
	Current Opposite	3.5522	.000
	Ideal Opposite	4.1928	

Intradyad (current/ideal) comparison ratings for each of the 20 SECEB responses for all four dyads (m/m, m/f, f/f, f/m) were conducted. The results of these intradyad comparisons reveal significant mean differences (p<.05) between ATS ratings of current preceptor and ideal preceptor for 16 statements in the m/m group, 8 statements in the m/f group, and 19 statements in the f/f and f/m groups. In all cases, ATS responses for an ideal preceptor are significantly higher than those for current preceptor. Only statement 15, *Answers questions honestly and intelligently when asked,* was not significantly different between current and ideal preceptor ratings across all

dyads. Based on these intradyad comparisons between ATS ratings of current preceptor and ATS ratings of ideal preceptor, the m/f group has the fewest significant responses, while the f/f and f/m groups have the most significant responses.

Give information and present relevant subject matter. Statements 2 and 15 through 19 reflect ATS experiences/preferences for preceptor behaviors that give information and present relevant subject matter. These *information* statements include:

2. *Refers me to educational aids (posters, books, journals, etc.) to encourage independent problem solving*
15. *Answers questions honestly and intelligently when asked*
16. *Provides a clear, concise explanation of the material*
17. *Uses relevant verbal examples to clarify my understanding*
18. *Demonstrates a variety of clinical skills for my benefit*
19. *Bridges classroom knowledge to the clinical site and patient care*

Intradyad (current/ideal) comparison for items within the *information* subcategory was conducted utilizing paired samples T-test. Mean comparisons for SECEB all *information* subcategory items yielded significant ($p<.05$) intradyad (current/ideal) mean differences in both same and opposite sex dyads, with the exception of item 15: *answers questions honestly and intelligently when asked.* Mean comparisons, F values, and p values are found in Table 4.19. For all statements (except 15) the mean ratings of current preceptor were lower than the mean ratings of an ideal preceptor.

When intradyad (current/ideal) comparisons were made for each of the four dyads (m/m, m/f, f/f, f/m), significant intradyad (current/ideal) mean differences ($p<.05$) between ATS ratings for several questions within the *information* subcategory were found. For the m/m, f/f, and f/m dyads, the mean ATS ratings for all items except for 15 were significantly higher for ideal preceptor than for current preceptor. In the m/f dyads, only items 2 and 19 were rated significantly higher by ATS for ideal preceptor compared to current preceptor.

Table 4.19
Intradyad comparison (current/ideal preceptor), information subcategory.
(N=279, Same Sex n=141, Opposite Sex n=138)

SECEB Item #	Dyad- Sex	Mean	Sig.
2	Current Same	3.45	.000
	Ideal Same	4.29	
	Current Opposite	3.61	.000
	Ideal Opposite	4.32	
15	Current Same	4.61	.114
	Ideal Same	4.94	
	Current Opposite	4.51	.105
	Ideal Opposite	4.86	
16	Current Same	4.18	.000
	Ideal Same	4.84	
	Current Opposite	4.15	.003
	Ideal Opposite	4.80	
17	Current Same	4.12	.000
	Ideal Same	4.84	
	Current Opposite	4.16	.000
	Ideal Opposite	4.78	
18	Current Same	4.18	.000
	Ideal Same	4.82	
	Current Opposite	4.10	.000
	Ideal Opposite	4.77	
19	Current Same	4.06	.000
	Ideal Same	4.78	
	Current Opposite	4.13	.000
	Ideal Opposite	4.78	

In summary the m/m, f/f, and f/m dyads rate current preceptor significantly lower on 5 of 6 *information* measures, whereas the m/f dyad rates current preceptor significantly lower on 2 of 6 *information* measures. The only intradyad (current/ideal) measure that did not differ significantly across all dyads (m/m, m/f, f/m, f/f) was item 15, *answers questions honestly and intelligently when asked.*

Give feedback and student evaluation. Statements 4 through 7 reflect ATS experiences/preferences related to preceptor approach to student evaluation, particularly regarding providing feedback. These statements include:

4. *Offers praise for a job well done.*
5. *Gives immediate and specific feedback that helps me improve my skills.*

6. *Gives fair, non-judgmental performance evaluations.*

7. *Provides time to discuss performance evaluations and opportunities for improvement.*

For items within the *evaluation* subcategory, mean intradyad comparison was conducted utilizing paired samples T-test. Mean intradyad comparisons (current/ideal) for student responses to all four *evaluation* statements yielded significant difference ($p<.05$) between ATS mean responses for both same and opposite sex dyads. For all statements the mean ratings of current preceptor were lower than the mean ratings of an ideal preceptor. Mean comparisons, F values, and p values are found in Table 4.20.

Table 4.20
Intradyad comparison (current/ideal preceptor), evaluation subcategory.

SECEB Item #	Dyad- Sex	Mean	Sig.
4	Current Same	3.95	.000
	Ideal Same	4.49	
	Current Opposite	3.70	.000
	Ideal Opposite	4.57	
5	Current Same	3.94	.003
	Ideal Same	4.79	
	Current Opposite	3.99	.000
	Ideal Opposite	4.78	
6	Current Same	4.22	.000
	Ideal Same	4.77	
	Current Opposite	4.11	.000
	Ideal Opposite	4.75	
7	Current Same	3.82	.000
	Ideal Same	4.66	
	Current Opposite	3.85	.000
	Ideal Opposite	4.70	

When intradyad mean ratings for all four dyads (m/m, m/f, f/f, f/m) were analyzed, significant mean differences ($p<.05$) between ATS ratings of current preceptor and ideal preceptor for several questions within the evaluation subcategory were found. For the m/m dyad, items 4, *offers praise for a job well done*, and 6, *gives fair, non-judgmental performance evaluations,* were ranked significantly higher for ideal preceptor than current preceptor. In the m/f dyad, only statement 4 was significantly higher for an ideal preceptor than current preceptor. In both the f/m and f/f dyads, all four *evaluation* statements were found to be significantly lower for

current preceptor, as compared to ideal clinical preceptor. In short, the m/m dyad rated ideal preceptor significantly higher than current preceptor for 2 of 4 measures, the m/f dyad rated ideal preceptor significantly higher than current preceptor for only 1 of 4 measures, and both the f/m and f/f dyads rated ideal preceptor significantly higher than current preceptor all 4 measures.

Ask questions and promote critical thinking. Statements 1, 8, 9, 11, and 20 reflect ATS experiences/preferences related to preceptor approach asking questions and promoting critical thinking. These statements include:

1. *Encourages me to participate in clinical activities and patient care up to my ability level.*

8. *Asks simple questions that require only recall of memorized facts.*

9. *Asks complex or difficult questions that make me think critically (i.e., analyze, evaluate, or problem solve the situation).*

11. *Participates in or leads discussions on thought-provoking, relevant topics.*

20. *Provides the time and materials for skill practice.*

Intradyad comparison (current/ideal) for items within the *thinking* subcategory was conducted utilizing paired samples T-test. Mean intradyad comparisons (current/ideal) for SECEB *thinking* statements yielded significant differences ($p<.05$) between ATS mean responses between current preceptor and ideal preceptor for both dyads (same/opposite sex) in all five *thinking* statements. In all statements, intradyad mean comparison revealed that ideal preceptor is rated significantly higher than current preceptor. Mean comparisons, F values, and p values are found in Table 4.21.

When all four dyads (m/m, m/f, f/f, f/m) were analyzed, significant intradyad mean differences ($p<.05$) between ATS ratings of current preceptor and ideal preceptor for several questions within the *thinking* subcategory were found. In the m/m, f/m, and f/f dyads, ATS rated all five *thinking* items significantly higher for ideal preceptor than current preceptor. In the m/f dyad, ATS ratings for items 8, *asks simple questions that require only recall of memorized facts*

and 11, *participates in or leads discussions on thought-provoking, relevant topics*, were significantly higher for ideal preceptor versus current preceptor.

Table 4.21
Intradyad comparison (current/ideal preceptor), thinking subcategory.
(N=279, Same Sex n=141, Opposite Sex n=138)

SECEB Item #	Dyad- Sex	Mean	Sig.
1	Current Same	4.34	.000
	Ideal Same	4.80	
	Current Opposite	4.30	.003
	Ideal Opposite	4.84	
8	Current Same	3.20	.000
	Ideal Same	3.64	
	Current Opposite	3.24	.000
	Ideal Opposite	3.71	
9	Current Same	3.74	.000
	Ideal Same	4.45	
	Current Opposite	3.78	.000
	Ideal Opposite	4.48	
11	Current Same	3.39	.000
	Ideal Same	4.31	
	Current Opposite	3.47	.000
	Ideal Opposite	4.42	
20	Current Same	3.86	.000
	Ideal Same	4.71	
	Current Opposite	3.97	.000
	Ideal Opposite	4.70	

Maintain physical presence in the clinical learning environment. Statements 3, 10, and 12-14 reflect ATS experiences/preferences related to the physical presence of the preceptor in the clinical learning environment. These statements include:

3. *Watches me practice my clinical skills and interact with patients.*

10. *Actively plans or structures the overall clinical experience.*

12. *Refrains from engaging in conversations that are unrelated to the clinical experience, my education, or patient care.*

13. *Actively supervises my clinical practice (i.e., has constant auditory and visual contact with me and my patients).*

14. *Takes an active role in organizing slow time in the clinical setting to promote learning and prevent boredom.*

For items within the *presence* subcategory, intradyad comparison (current/ideal) was conducted utilizing paired samples T-test. Intradyad comparisons for ATS responses to all five *presence* statements yielded significant differences ($p<.05$) between current preceptor and ideal preceptor in both dyads (same/opposite). Mean comparisons, F values, and p values are found in Table 4.22.

Table 4.22
Intradyad comparison (current/ideal preceptor), presence subcategory. (N=279, Same Sex n=141, Opposite Sex n=138)

SECEB Item #	Dyad- Sex	Mean	Sig.
3	Current Same	4.03	.000
	Ideal Same	4.52	
	Current Opposite	4.01	.000
	Ideal Opposite	4.51	
10	Current Same	3.48	.000
	Ideal Same	4.32	
	Current Opposite	3.55	.000
	Ideal Opposite	4.48	
12	Current Same	2.91	.000
	Ideal Same	3.30	
	Current Opposite	3.07	.000
	Ideal Opposite	3.36	
13	Current Same	3.77	.000
	Ideal Same	4.23	
	Current Opposite	3.80	.000
	Ideal Opposite	4.23	
14	Current Same	3.25	.001
	Ideal Same	4.40	
	Current Opposite	3.33	.000
	Ideal Opposite	4.38	

When intradyad means for all four dyads (m/m, m/f, f/f, f/m) were analyzed, significant mean differences ($p<.05$) between ATS ratings of current preceptor and ideal preceptor for several questions within the *presence* subcategory were found. In the m/f dyad, ATS ratings for 3 of 5 items (3, 12, and 13) were significantly higher for ideal preceptor than current preceptor. In the m/m dyad ATS ratings for 4 of 5 items (3, 10, 12, and 13) reveal significantly higher ratings for ideal preceptor than current preceptor. For the f/f, and f/m dyads, ATS ratings for all 5 items were significantly higher ratings for ideal preceptor than current preceptor.

Summary of SECEB data comparison for current to ideal preceptor. The preceding section utilized data, collected via the SECEB (Dondanville, 2005), pertaining to ATS experience ratings of current preceptor versus the perception of ideal preceptor behaviors. Hypotheses H_5: *significant differences in athletic training students' ratings of effective preceptor behaviors exist between current and ideal preceptor regardless of current clinical learning dyad* was tested utilizing intradyad SECEB mean data comparison of current to ideal preceptor. Because significant differences were found between ATS ratings of current preceptor and ATS ratings for ideal preceptor in same/opposite dyads, and in m/m, m/f, f/f, and f/m dyads, in all four SECEB subcategories, and in 19 of 20 SECEB statements, null hypothesis H_{05} was rejected.

Athletic Training Student Participant Attitudes

In addition to SECEB completion and demographic information, participants were asked to complete 5 survey items regarding general clinical instruction and experience attitudes. These items asked participants:

1. *To "generally rank" their current preceptor.*
2. *To rank their overall experience in their most recently completed clinical experience rotation, relative to an ideal experience.*
3. *If they had a preference whether their preceptor was male or female.*
4. *If they preferred a preceptor of the same or opposite sex.*
5. *To rank the 4 SECEB subcategories (information, evaluation, thinking, presence) from most important (1) to least important (4).*

General rank of current preceptor. In order to "generally rank" their current preceptor, participants were asked to utilize a slide bar that ranged from a minimum of 0 (*this preceptor should not be assigned students*) to 5 (*this preceptor met my needs, but could've been better*) to a maximum of 10 (*I can't imagine a preceptor better than this one*). When comparing based on dyad composition (same/opposite sex) utilizing ANOVA, mean responses for same sex dyads were slightly higher, but were not significantly different than opposite sex dyads ($p=.380$). When further comparing based on dyad composition, scores ranged from a mean of 7.65 for f/m dyads

to a mean of 8.02 for the m/m dyad, but no significant difference was found between m/m, m/f, f/m, f/f dyads (p=.742). Mean interdyad comparisons can be found in Table 4.23.

Table 4.23
General rank of current preceptor based on dyad composition.
0=this preceptor should not be assigned students
10= I can't imagine a better preceptor than this one.

Dyad		**n**	**mean**
Same Sex		141	7.89
	Male ATS/Male preceptor	*47*	*8.02*
	Female ATS/Female preceptor	*94*	*7.83*
Opposite Sex		138	7.69
	Male ATS/ Female preceptor	*36*	*7.81*
	Female ATS/ Male preceptor	*102*	*7.65*

In further examining data for significant differences between groups based on the general rank of the current preceptor, mean comparisons were made utilizing ANOVA based on participant age, participant ethnicity, participant academic classification, the number of clinical experience semesters completed, the practice setting, the employment position of the preceptor, and the geographic region in which the clinical experience occurred. A significant difference (p=.003) between ATS mean responses for general rank of current preceptor was identified with regards to the employment position of the preceptor. These findings can be found in Table 4.24.

Table 4.24
General rank of current preceptor based on preceptor employment position.
0=this preceptor should not be assigned students
10= I can't imagine a better preceptor than this one.

Employment Position	**n**	**mean**	**p=.003**
Graduate Assistant AT	35	7.51	
Intern AT	4	*4.50*	
Part-time, staff AT	18	6.94	
Full-time, Assistant AT	91	7.86	
Full-time, Head AT	116	8.02	
Other Medical Professional (MD, DO, PT, etc)	15	8.20	

Upon post hoc comparison utilizing Tukey HSD, the intern athletic trainer category of employment was found to have a significantly lower rating for *general rank of current preceptor* than every category, other than part-time staff athletic trainer. Results of post hoc analysis can be found in Table 4.25.

Table 4.25
Tukey HSD post hoc analysis of current preceptor rank based on employment position.

Position	Employment Position	Mean difference	p=
Intern AT	Graduate Assistant AT	*-3.01*	.034
	Part-time, staff AT	-2.44	.187
	Full-time, Assistant AT	-3.36	.008
	Full-time, Head AT	-3.52	.004
	Other Medical Professional (MD, DO,PT, etc)	-3.70	.008

Current clinical experience relative to ideal clinical experience. Participants were asked to rank their overall experience in their most recently completed clinical experience, relative to an ideal experience, by utilizing a slide bar technique. Possible slide bar responses ranged from a minimum of 0 (*this experience was as far from ideal as possible*) to 5 (*this clinical experience was an average clinical experience*) to a maximum of 10 (*This clinical experience was the ideal clinical experience*). For this item, when conducting an interdyad comparison (same/opposite) utilizing ANOVA, mean responses for same sex dyads were slightly higher but were not significantly different (p=.469). When further comparing based on dyad composition, ATS mean scores ranged from a mean of 7.41 for the f/m dyad to a mean of 7.81 for m/m dyad, but no significant difference was found (p=.717). Interdyad mean comparisons can be found in Table 4.26.

Table 4.26
Overall current clinical experience, relative to an ideal experience.
0=this experience was as far from ideal as possible, 10=this clinical experience was ideal.

Dyad		n	mean
Same Sex		141	7.59
	Male ATS/Male preceptor	*47*	*7.81*
	Female ATS/Female preceptor	*94*	*7.48*
Opposite Sex		138	7.41
	Male ATS/ Female preceptor	*36*	*7.42*
	Female ATS/ Male preceptor	*102*	*7.41*

In further examining data for significant differences between groups based on the current clinical experience relative to an ideal clinical experience, mean comparisons were made utilizing ANOVA based on participant age, participant ethnicity, participant academic classification, the number of clinical experience semesters completed, the practice setting, the employment position

of the preceptor, and the geographic region in which the clinical experience occurred. With the exception of the employment position of the preceptor, no significant differences in mean responses for *overall current clinical experience* were found between groups. The comparison of current clinical experience, relative to an ideal clinical experience, means based on preceptor employment position revealed a significant difference (p=.034). These findings can be found in Table 4.27.

Table 4.27
Overall current clinical experience relative to an ideal clinical experience based on preceptor employment position.
0=this experience was as far from ideal as possible, 10=this clinical experience was ideal.

Employment Position	**n**	**mean**	**p=.034**
Graduate Assistant AT	35	*7.37*	
Intern AT	4	4.50	
Part-time, staff AT	18	6.94	
Full-time, Assistant AT	91	7.47	
Full-time, Head AT	116	7.72	
Other Medical Professional (MD, DO, PT, etc)	15	7.80	

Upon post hoc comparison utilizing Tukey HSD, the intern athletic trainer category of employment was found to have a significantly lower rating for *overall current clinical experience* than every category, other than graduate assistant athletic trainer and part-time staff athletic trainer. Results of post hoc analysis can be found in Table 4.28.

Table 4.28
Tukey HSD post hoc analysis of overall current clinical experience relative to an ideal clinical based on employment position.

Position	**Employment Position**	**Mean difference**	**P=**
Intern AT	Graduate Assistant AT	*-2.87*	.074
	Part-time, staff AT	-2.44	.235
	Full-time, Assistant AT	-2.97	.044
	Full-time, Head AT	-3.22	.021
	Other Medical Professional (MD, DO, PT, etc)	-3.30	.042

A mean comparison conducted to determine the significance of differences between ATS mean general ranking of current preceptor and ATS mean ranking of overall current clinical experience. Regardless of dyad (same/opposite), participant rankings of current preceptor were significantly higher than rankings of overall clinical experience (same, p=.008; opposite, p=.009).

When each dyad was examined, m/m and m/f rankings of current preceptor were higher than the ranking of overall clinical experience, but not significant. Both f/m (p=.039) and f/f (p=.025) ranked the preceptor higher than the overall clinical experience.

Biologic sex and dyad preference. Participants were asked to indicate if they had a preference whether their preceptor was of the same or opposite sex of them. Responses indicated that 96% (n=269) of participants did not have a preference whether their preceptor was of the same or opposite sex. Participants who responded that they did have a preference in preceptor sex were asked a follow up question regarding their preference. Of the 10 participants (4%) that indicated they did have preference in preceptor sex, 8 indicated preference of a preceptor of the same sex and 2 indicated a preference for a preceptor of the opposite sex.

SECEB subcategory rank. Utilizing a drag and drop technique, participants were asked to re-order a series of statements to indicate their ranking of the 4 SECEB subcategories based on importance from 1 (most important) to 4 (least important). These 4 subcategories are behaviors that: give *information* and present relevant subject matter; give feedback and student *evaluation*; ask questions and promote critical *thinking*; and maintain physical *presence* in the clinical learning environment. *Evaluation* was ranked as most important effective preceptor behavior most frequently (35.5%), followed by *thinking* (32.3%), *information* (19.3%), and of least importance to ATS was the *presence* subcategory (12.9%), ranked as the least important subcategory in 61.6% of all responses. The SECEB subcategory frequency rankings can be found in Table 4.29.

Table 4.29
SECEB subcategory ranking frequencies, all participants.

Rank	Information	Evaluation	Thinking	Presence	Total
1	19.3%	35.5%	32.3%	12.9%	100%
2	28.3%	32.6%	29.7%	9.4%	100%
3	33.0%	24.4%	26.5%	16.1%	100%
4	19.4%	7.5%	11.5%	61.6%	100%
	100%	100%	100%	100%	

Further analysis of SECEB subcategory rankings (see Table 4.30) demonstrates that both male and female ATS rankings match the overall subcategory frequency rankings.

Table 4.30
SECEB subcategory rank: information, evaluation, thinking, presence.
1= most important, 4=least important

	Information mean (Rank)	**Evaluation mean (Rank)**	**Thinking mean (Rank)**	**Presence mean (Rank)**
ATS Sex	*p=.277*	*p=.920*	*p=.520*	*p=.145*
Male	2.42 (3)	2.05 (1)	2.12 (2)	3.41 (4)
Female	2.57 (3)	2.04 (1)	2.19 (2)	3.20 (4)
Age in years	*p=.143*	*p=.819*	*p=.682*	*p=.373*
19	2.21 (1)	2.21 (1)	2.42 (3)	3.17 (4)
20	2.76 (3)	1.92 (1)	2.20 (2)	3.19 (4)
21	2.59 (3)	2.09 (1)	2.13 (2)	3.19 (4)
22	2.42 (3)	2.00 (1)	2.05 (2)	3.53 (4)
23	2.39 (2)	2.04 (1)	2.39 (2)	3.19 (4)
24	3.00 (4)	1.80 (1)	2.3 (2)	2.90 (3)
25	2.00 (1)	2.29 (3)	2.00 (1)	3.71 (4)
26	2.47 (2)	1.75 (1)	2.50 (3)	3.75 (4)
27 or Older	2.52 (2)	2.7 (3)	1.87 (1)	3.40 (4)
Classification	*p=.044*	*p=.521*	*p=.487*	*p=.071*
Bachelor's	2.57 (3)	2.05 (1)	2.16 (2)	3.22 (4)
	p=.396	*p=.952*	*p=.282*	*p=.082*
Sophomore	*2.40 (3)*	*2.12 (1)*	*2.20 (2)*	*3.28 (4)*
Junior	*2.66 (3)*	*2.00 (1)*	*2.30 (2)*	*3.04 (4)*
Senior	*2.50 (3)*	*2.10 (1)*	*2.11 (2)*	*3.29 (4)*
Graduate	*2.68 (3)*	*2.00 (2)*	*1.87 (1)*	*3.45 (4)*
Master's	2.23 (2)	1.95 (1)	2.28 (3)	3.55 (4)
	p=.181	*p=.205*	*p=.186*	*p=.219*
First year	*1.94 (2)*	*1.63 (1)*	*2.62 (3)*	*3.81 (4)*
Second year	*2.35(3)*	*2.20 (2)*	*2.00 (1)*	*3.45 (4)*
Graduate	*2.75 (3)*	*2.00 (1)*	*2.25 (2)*	*3.00 (4)*
Clinical Experience	*p=.418*	*p=.382*	*p= .078*	*p=.429*
Semesters 1	2.71 (3)	1.84 (1)	2.45 (2)	3.00 (4)
2	2.35 (3)	2.11 (1)	2.19 (2)	3.35 (4)
3	2.61 (3)	1.98 (1)	2.19 (2)	3.23 (4)
4	2.41 (3)	2.02 (1)	2.18 (2)	3.39 (4)
5	2.53 (3)	2.16 (2)	2.05(1)	3.26 (4)
More than 5	2.60 (3)	2.25 (2)	1.80 (1)	3.35 (4)

Regardless of sex, ATS ranked preceptor *feedback and evaluation ranked as most important* (m=2.05); followed closely by preceptor behaviors that *ask questions and promote critical thinking* (m=2.12); then preceptor behaviors that *give information and present relevant subject*

matter (m=2.42); and ranked by both male and female ATS as least important were preceptor behaviors that *maintain physical presence in the clinical learning environment* (m=3.41).

Upon comparison utilizing ANOVA, no significant difference between the mean scores of male and female ATS groups for each category were found. In an intra-category comparison between age groups, no significant differences were found. When considering academic classification, Master's degree ATS (m=2.23) ranked preceptor *information* behaviors significantly (p=.044) more important than Bachelor's degree ATS (m=2.57).

Summary

The primary hypotheses for consideration in this study were tested utilizing participant data from 279 athletic training students (ATS). Students submitted responses to the 20 item Survey of Effective Clinical Educator Behaviors (Dondanville, 2005), as well as responses to demographic and 5 attitudinal questions. Upon analysis of responses, conclusions were reached regarding the original five hypotheses; a summary of tested hypotheses is found in Table 4.31.

Table 4.31
Summary of tested hypotheses

Null Hypothesis		Reject/ Fail to Reject
H_{01}	*ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of current effective clinical educator behaviors.*	Fail to Reject
H_{02}	*Preceptor biological sex does not impact ATS ratings of clinical educator behaviors.*	Fail to Reject
H_{03}	*ATS biological sex does not impact ratings of ideal clinical educator behaviors.*	Reject
H_{04}	*ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of ideal effective clinical educator behaviors.*	Reject
H_{05}	*No significant differences in ATS ratings of effective preceptor behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad.*	Reject

The current study has several strengths, including addressing the original assumptions. These assumptions included adequate representation of the population selected, instrument content and construct validity, instrument reliability, and truthful response by study participants. In addressing adequate representation of the population selected priori power analysis indicated

that for the estimated population, 95 participants were needed from each dyad for a 95% confidence level, ±10% sampling error (Salant & Dillman, 1994), the current study was successful in achieving this participant recruitment goal with 141 same sex dyad participants and 138 opposite sex dyad participants. Additionally, the study sample was closely representative of the population (NATA, 2014) with respect to sex and ethnicity (Table 4.1), as well as geographic region (Table 4.4). Instrument content and construct validity was established through literature review, and an SPSS analysis of instrument reliability revealed a Cronbach's Alpha of .934 indicating excellent internal consistency.

To test H_1: *ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of current effective clinical educator behaviors*, mean interdyad (same/opposite; and m/m, m/f, f/f, f/m) comparisons of ATS responses from the four SECEB subcategories of effective preceptor behaviors were conducted. These subcategories include preceptor behaviors that: *give information and present relevant subject matter; give feedback and student evaluation; ask questions and promote critical thinking; or maintain physical presence in the clinical learning environment*. No significant interdyad ATS rating difference was found between same/opposite dyads for the 4 SECEB subcategories, or the 20 SECEB item statements. Furthermore, no significant ATS rating interdyad difference was found between the m/m, m/f, f/f, and f/m dyads for the 4 SECEB subcategories, or the 20 SECEB item statements. Therefore, the current study failed to reject null hypothesis H_{01}: *ATS/preceptor biological sex congruence in the clinical learning dyad does not significantly impact ATS ratings of current effective clinical educator behaviors.*

To test H_2: preceptor biological sex impacts ATS ratings of actual clinical educator behaviors, mean ATS responses for current preceptor in the 4 SECEB subcategories, and the 20 SECEB item statements were compared based on preceptor biological sex. Analysis indicates that no significant difference in subcategory means exist based on preceptor sex. Additionally, no significant difference was found based on current preceptor sex for any of the 20 individual

SECEB item statements. Therefore, the current research failed to reject null hypothesis H_{02}: *Preceptor biological sex does not impact ATS ratings of clinical educator behaviors.*

To test H_3: *ATS biological sex impacts ratings of ideal clinical educator behaviors*, mean ATS responses for ideal preceptor in the 4 SECEB subcategories, and the 20 SECEB item statements were compared based on ATS biological sex. Female ATS were found to rate ideal preceptor behaviors significantly higher for both the *information* (p=.023) and *thinking* subcategories (p=.038) than male ATS, suggesting that female ATS have higher expectations for preceptors to exhibit behaviors that *give information and present relevant subject matter*, and that *ask questions and promote critical thinking* than male ATS. When comparing male ATS to female ATS mean ideal preceptor responses for all SECEB 20 items, female ATS demonstrated significantly higher expectations than male ATS for ideal preceptor on three specific SECEB measures. These statements included statement 1: *encourages me to participate in clinical activities and patient care up to my ability level* (p=.009); statement 13: *actively supervises my clinical practice* (p=.042); and statement 19, *bridges classroom knowledge to the clinical site and patient care* (p=.000). Therefore, null hypothesis H_{03}: *ATS biological sex does not impact ratings of ideal clinical educator behaviors* was rejected.

To test hypothesis H_4: *ATS/preceptor biological sex congruence in the clinical learning dyad impacts ATS ratings of ideal effective clinical educator behaviors*, interdyad (same/opposite, and m/m, m/f, f/m, f/f) comparison of participant responses from the SECEB for ideal preceptor were analyzed according to subcategory, and according to each of the 20 behavior statements. While no significant interdyad (same/opposite, and m/m, m/f, f/m, f/f) difference was found between the clinical learning dyads for the 4 SECEB subcategories, a significant interdyad mean (m/m, m/f, f/m, f/f) difference was found for statement 19 *the ideal clinical instructor bridges classroom knowledge to the clinical site and patient care*, indicating that ATS in both the f/m and f/f dyads had higher expectations for preceptors to bridge classroom knowledge to the clinical experience than ATS in the m/m dyad. Because of this finding, null hypothesis H_{04}: *ATS/preceptor biological*

sex congruence in the clinical learning dyad does not significantly impact ATS ratings of ideal effective clinical educator behaviors was rejected.

To test H_5: *significant differences in athletic training students' ratings of effective preceptor behaviors exist between current and ideal preceptor regardless of current clinical learning dyad,* intradyad SECEB mean data comparison of current to ideal preceptor was conducted utilizing a paired samples T-test. Analysis indicates that significant differences (p=.000) exist between mean ATS responses for current preceptor and ideal preceptor in each of the four subcategories (*information, evaluation, thinking, presence*) for both (same/opposite) clinical learning dyads. When comparing intradyad current preceptor ratings to ideal preceptor ratings for each of the 20 SECEB responses, in all four dyads (m/m, m/f, f/f, f/m), significant mean differences ($p<.05$) between ATS ratings of current preceptor were found in 16 statements for the m/m group, 8 statements for the m/f group, 19 statements for the f/f group, and 19 statements for the f/m group. In all cases, ATS responses for an ideal preceptor are significantly higher than those for current preceptor. Only statement 15, *answers questions honestly and intelligently when asked,* was not significantly different between current and ideal preceptor ratings across all groups. These findings indicate that, regardless of sex congruence in the clinical learning dyad, current preceptor is rated lower by ATS than ideal preceptor. Therefore, null hypothesis H_{05}: *no significant differences in ATS ratings of effective preceptor behaviors exist between current and ideal preceptor regardless of sex congruence in the current clinical learning dyad,* was rejected.

Attitudinal instrument questions provided important information for consideration in understanding ATS general ratings of preceptor and clinical site, as well as any underlying preferences for preceptor sex. Additionally, the attitudinal questions gathered data regarding ATS rankings of the 4 SECEB subcategories. Findings from attitudinal data collection indicated a significant difference (p=.003) between ATS mean responses for the *general rank of current preceptor* with regard to the employment position of the preceptor. Findings also indicated a significant difference (p=.034) in ATS mean ratings of *overall current clinical experience*

relative to an ideal clinical experience, again with regard to preceptor employment position. Attitudinal questions also revealed that 96% (n=269) of participants had no preference in preceptor sex. A mean comparison was conducted to determine the significance of differences between ATS mean general ranking of current preceptor and ATS mean ranking of overall current clinical experience revealed that ATS in same and opposite sex dyads ranked the current preceptor significantly higher than the overall clinical experience (same, p=.008; opposite, p=.009). Additionally, both f/m (p=.039) and f/f (p=.025) ranked the preceptor higher than the overall clinical experience.

When asked to rank the 4 SECEB subcategories (*evaluation, thinking, information, presence*) from most important to least important effective preceptor behavior, ATS ranked *evaluation* as the most important most frequently (35.5%), followed by *thinking* (32.3%), *information* (19.3%), and of least importance to ATS was the *presence* subcategory (12.9%), ranked as the least important subcategory in 61.6% of all responses. When considering academic classification, Master's degree ATS (m=2.23) ranked preceptor *information* behaviors significantly (p=.044) more important than Bachelor's degree ATS (m=2.57).

CHAPTER V

CONCLUSION

Supervised clinical practice is firmly established in the literature as a critical juncture in healthcare education (Atack, Comacu, Kenny, LaBelle, & Miller, 2000; Carpenito & Duespohl, 1985; Weidner & August, 1997). The critical supervised clinical practice component of healthcare education commands students to assimilate acquired knowledge with skill in the course of providing healthcare for real people in real time (Ford, 1978, Kaufman, 1985). Assimilation at this critical juncture is much more than matching knowledge with skill; it requires that decisions be made and professional behaviors be demonstrated. Decisions made during clinical education determine patient outcomes, and student behaviors during this experience underscore the competence and preparation of the student. Successful supervised clinical practice is heavily dependent on the quality of interaction between the clinical student and preceptor. Effective preceptor behaviors that directly influence clinical experience and preparation for professional practice have been well defined, (Atack, et al., 2000; Dondanville, 2005; Levy, et al., 2009; Weidner & Henning, 2002). Research specific to the healthcare field of athletic training indicates that frequently athletic training students (ATS) may not be fully prepared for the interpersonal aspects of professional practice (Gardner, et al., 2009; Massie, Strang, & Ward, 2009); may not receive appropriate clinical supervision (Weidner, et al., 2006; Weidner & Pipkin, 2003); and may lack clinical decision making skills (Johnson, 2010; Winterstein, 2009).

The prescribed clinical interactions between ATSs and preceptors occur in matched dyads (CAATE, 2012). These matched dyads are composed of either same-sex ATS/preceptor or opposite-sex ATS/preceptor. Studies in related healthcare fields have shown that non-/congruence of biological sex in the clinical learning dyad may impact students' perceptions of effective clinical educator behaviors, and therefore the outcome of clinical experiences (Carney, et al., 2000; Levy & Merchant, 2002). Specifically, sex non-congruence between the student and preceptor in the clinical learning dyad may affect student experiences negatively, particularly in a female student/male preceptor dyad (Carney, et al., 2000; Levy & Merchant, 2002). Recognizing that athletic training clinical experiences frequently prescribe clinical education in mixed sex dyads (Acosta & Carpenter, 2006; NATA, 2014; Leftwich, 2014), the present study sought to assess ATS experiences with and expectations for effective clinical educator behaviors and to investigate the potential impact of sex congruence in ATS/preceptor interactions.

Summary of the Study

The current research had, at its core, the primary question of whether sex congruence in the clinical learning dyad impacts athletic training student (ATS) ratings of effective clinical educator behaviors. The hypotheses tested in the study centered on ATS ratings of actual experience with their current preceptor, and ATS ratings of expectations for an ideal preceptor, utilizing the Survey of Effective Clinical Educator Behaviors (SECEB; Dondanville, 2005), as well as demographic and general attitudinal measures.

Purpose

The purpose of this study was to examine athletic training students' (ATS) perceptions of effective clinical education behaviors by athletic training preceptors, and the impact of clinical learning dyad sex congruence on these perceptions in Commission on Accreditation of Athletic Training Education (CAATE) accredited professional athletic training programs in the United States. One segment of the current study targeted ATS ratings of experiences with their current preceptor. The second segment of the current study targeted ATS ratings of expectations for an

ideal preceptor. The final segment of the study explored differences between ratings of current preceptor and ideal preceptor.

Data collection

The primary hypotheses for consideration in this study were tested utilizing participant data from 279 athletic training students (ATS). Participants anonymously completed a web-based instrument, which included the Survey of Effective Clinical Educator Behaviors (SECEB) (Dondanville, 2005), demographic questions, and five additional attitudinal questions.

Data analysis

Data was analyzed utilizing SPSS 20.0. Demographic information was analyzed using descriptive statistics; participants were classified according to biological sex and according to clinical learning sex dyad congruence. For the purposes of comparison, primary ATS/preceptor dyads were identified as same sex (m/m + f/f) or opposite sex (m/f + f/m). Interdyad comparisons of SECEB data were conducted utilizing ANOVA; intradyad comparisons were conducted via paired samples t-test. Mean comparisons were conducted according to four SECEB subcategories, as well as by individual statement responses (Table 4.5). The four SECEB subcategories contained groupings of similarly themed questions focused on preceptor behaviors intended to:

- *give information and present relevant subject matter,*
- *give feedback and student evaluation,*
- *ask questions and promote critical thinking,* and
- *maintain physical presence in the clinical learning environment.*

Within the additional attitudinal questions, participants were asked to rank these 4 behavior subcategories based on importance for effective clinical education; responses were analyzed based on frequency ratings.

Discussion and Conclusions

Athletic training programs must sufficiently prepare students to enter professional practice; sufficient professional preparation demands effective clinical instruction. This study set out to address the original research proposition that non-/congruence of biological sex in ATS/clinical educator dyads affects athletic training student assessment of effective clinical instruction. To that end, conclusions regarding the original proposition were drawn regarding three aspects of the findings: ATS experiences with actual clinical preceptorship; ATS expectations for ideal effective clinical preceptorship; and the disparities between ATS experiences with actual and expectations for ideal preceptorship.

Actual Clinical Preceptorship

Dyad sex congruence did not contribute to participants' assessment of experiences with effective clinical preceptorship; neither did preceptor biological sex. This conclusion is contradictory to existing research in the medical professions (Carney, et al., 2000; Levy & Merchant, 2002). Ultimately, supervised independent student-patient experiences are the goal of clinical education (CAATE, 2012); however, prior studies in medical education found that same-sex dyads were more likely to promote supervised independent student-patient experiences than opposite-sex dyads (Carney, et al., 2000); Similarly, Levy and Merchant (2002) reported the highest levels of experience and preceptor interaction when the experience occurred within student-preceptor pairs of the same sex. Taken together, these studies suggest that the sex congruence in the clinical dyad affects the student-reported quality of medical clinical experiences. The existing research also indicated that a difference existed in effective clinical education behaviors for clinical education dyads based on preceptor sex (Carney, et al., 2000; Levy & Merchant, 2002; Wright, 2009). The same does not seem to be true for athletic training education, based on the findings of this study. In order to accurately describe the actual clinical educator behaviors of a preceptor, and whether they differ depending on the sex of the student, some measure other than ATS ratings may provide more insight. Differences between the

findings of the current research and existing research may be related to three factors: the design of the various studies, the preparation of preceptors, and the professional and organizational culture of the clinical experience setting.

Methodological differences. The target participant pool for this study was athletic training students, rather than athletic training preceptors (Wright, 2009); or medical students (Carney, et al., 2000; Levy & Merchant, 2002). Additionally, data collection in this study was dependent on ATS self-reporting overall perception of the encounter with a particular preceptor as measured by the SECEB, not a collective data review of student-reported preceptor interaction from many distinct patient experiences (Carney, et al., 2000) or reported experience levels with specific clinical skills (Levy & Merchant; 2002). Because the current study asked participants to rate their clinical instructor overall, and not in regard to specific clinical interactions, they may have been hesitant to rate current preceptor behaviors below average, even with the condition of anonymity.

Preceptor preparation. Another potential explanation for differences between the conclusions of this study and existing research regarding ATS experiences with effective clinical preceptorship may be related to preceptor preparation. Pre-clinical rotation preceptor training programs attempt to provide some uniformity in clinical experiences for students by teaching preceptors how to effectively instruct and evaluate clinical proficiencies (Weidner & Henning, 2002). Historically, CAATE standards have required training for athletic training preceptor designation since 2001 (Weidner & Henning, 2002). It was not clear whether participants in the Carney, et al. (2000) or Levy and Merchant (2002) studies had undergone any required preceptor training; therefore, it is difficult to situate the current study findings in relation to extant research from other health professions.

Previous CAATE (2008) accreditation standards stipulated that preceptors participate in an institutional preceptor training course with a specific curriculum for the development of effective clinical education. Furthermore, CAATE stipulated that preceptors had to complete this

course every three years. Current CAATE standards, in effect since 2012, are less prescriptive regarding specific curricula for preceptor preparation and allow for institutional freedom in content selection. Data for the current study was collected in August, 2013; therefore there was an assumption in the research design that a majority of preceptors rated by ATSs in this study had completed the CAATE prescribed clinical education curriculum one, or more, times.

Athletic training preceptor exposure to CAATE-required training may have contributed to the difference between the conclusions of the current study and those from previous studies. A finding of the current study was that ATS ratings of current preceptor effective clinical educator behaviors were largely consistent across dyads and other demographic categories. This indicates some degree of uniformity in clinical education, regardless of preceptor sex, clinical learning dyad, geographic location, or institutional athletic affiliation. Although the uniformity found in the current study did not indicate differences in ATS experiences with effective preceptorship based on dyad sex congruence or preceptor biological sex, it did expose problematic preceptor behaviors. Ultimately, ATS ratings of current preceptor effective clinical educator behaviors were routinely in the undesirable range. Although preceptor preparation may have contributed to consistency in ATS ratings of actual effective clinical educator behaviors, it is important to recognize that preceptor behaviors are not isolated; they are embedded within larger organizational cultures.

Organizational culture. Organizational culture offers one approach for considering the conclusions of the current study alongside those from previous research in other healthcare professions. Culture is the most basic construct of an organization, or society; it is grounded in historically shared assumptions of individuals participating in an organization, and is manifested in their decisions, actions, and communications (Chaffee & Tierney, 1988; Schein, 2001). Therefore, the activities of clinical education occur against the backdrop of a larger culture and are influenced by a variety of cultural norms and values. In a general sense, the cultural dynamics of medical clinical education differ from those of athletic training clinical education at the most

basic levels because of differing organizational and professional characteristics. These cultural differences may play a part in the impact of dyad sex congruence in the clinical learning environment.

Medical education predominantly occurs within hospital and office settings, and is traditionally male dominated (Ward, 2009). Participants in the current study reported overwhelmingly (93%) that their most recent clinical rotation had occurred in the collegiate or high-school setting, that ATS were predominantly female (70%), and that 47% of preceptors were female. Because athletic training clinical education is predominantly occurring in collegiate and high school settings, the provisions of Title IX of the Education Amendments of 1972 should be taken into account as a historical aspect of the culture of athletic training preparation programs. Title IX has a broad scope that applies to any education program or activity receiving federal financial assistance, including elementary and secondary schools, universities, and all professional schools in the health fields receiving federal funding of any sort (Yasser, McCurdy, Goplerud, & Weston, 2006). However, the effects of Title IX legislation have been particularly impactful on athletics programs at the high school and collegiate levels, which are the primary setting for athletic training clinical education experiences.

Because the legislation requires that participants have equivalent benefits, opportunities, and treatment regardless of sex, and because it has received considerable legal and media attention over three decades, Title IX has impacted every aspect of the culture within athletics by emphasizing equality of opportunity between male and female sports (Yasser, et al., 2006). Specific to athletic training, the incorporation of Title IX requires that the provision of medical and training facilities and services must be equivalent regardless of student-athlete sex. (Yasser, et al., 2006). As a result, athletic training preceptors from the high school and collegiate settings operate within organizational cultures where sex equity is emphasized as a core value (NCAA, 2014; NFHS, 2014). Therefore, differences in the conclusions of this study compared to previous

studies with regard to dyad sex congruence may be partially explained within the context of these cultures.

It is also important to note that preceptors are not bound by a singular organizational culture; they must navigate and successfully operate within multiple cultures simultaneously. These cultures include not only the culture of their employer or school, but also the culture of their department or team, the culture of their profession, and the culture of the athletic training program for which they are a preceptor, which inherently includes the culture of CAATE as the accrediting body for the field. Specifically the culture of the athletic training profession revolves around providing care to patients, and the culture of clinical education centers on providing the best possible clinical experience for the student; these two cultural aspects do not automatically coexist. One of the purposes of preceptor preparation previously discussed in this chapter is to assist preceptors in merging these two cultures. Unsuccessful amalgamation of these cultures may be partially to blame for the less than desirable clinical educator behaviors experienced by participants in this study.

While no differences were found based on dyad congruence or ATS sex, potential reasons for disparity in findings between this and prior research included methodology, preceptor preparation, and organizational culture. Of importance is a conclusion that regardless of sex or dyad composition, ATS may not be routinely exposed to effective clinical educator behaviors, regardless of preceptors preparation, a conclusion that mirrors previous studies (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003). Participant ratings of preceptors in this study fell into the desirable range ("often" or "very often") for only 1 of 4 SECEB subcategories and only 7 of 20 individual statements. These conclusions provide a glimpse of the current state of preceptor effective clinical educator behaviors as expressed by ATS. In order to appreciate these conclusions fully, an understanding of ATS expectations for ideal effective clinical educator behaviors was sought for comparison.

Ideal Preceptor Behaviors

Expectations for ideal preceptor behaviors vary according to the biological sex of the participant and sex congruence in the current clinical dyad. In both instances, female students demonstrated higher expectations than did male students for broad preceptor behaviors that emphasized *giving information and presenting relevant subject matter*, and that *ask questions and promote critical thinking* (Dondanville, 2005). Additionally, female ATS had higher expectations for preceptors to *encourage me to participate in clinical activities and patient care up to my ability level*; *actively supervise my clinical practice*; and *bridge classroom knowledge to the clinical site and patient care* (Dondanville, 2005).

Asking students about their expectations for effective preceptor behaviors is paramount to asking them what pedagogical style and interpersonal traits they prefer. Differences in cognitive styles and interpersonal trait preferences between the sexes are well documented (Costa, Terracciano, & McCrae, 2001); effective clinical educator behaviors involve a combination of the two (Carpenito & Duespohl, 1985; Gardner, et al. 2009; Laurent & Weidner, 2001). There are two primary theoretical frameworks that have attempted to explain these trait preferences: biological and social psychological (Costa, et al., 2001). Although not mutually exclusive, biological frameworks center on evolution through natural selection and on the effect of hormonal differences; social psychological frameworks center on the adoption and internalization of roles that define attributes and behavior (Costa, et al., 2001). In addition to explaining differences between ATS preceptor expectations based on sex of the student, the social psychological framework of role theory provides insight on describing ATS expectations for preceptors.

Role theory. The social psychological concept of role theory (Biddle, 1979, 1986; Hindin, 2007) provides a perspective from which to consider differences in ATS expectations for ideal preceptor clinical education behaviors. Role theory originated with the work of Mead (1934), and intends to clarify how individuals occupying social positions are expected to behave

and how they expect others to behave, given a particular social situation (Hindin, 2007). An individual social position, according to the role theorists, is associated with a compilation of rights and duties; accordingly, people behave somewhat predictably within a given context (Hindin, 2007). This association of expected rights and duties to a given social position does not happen automatically; it occurs though the development of first comprehending, adopting, and anticipating the role of the self, and then that of others, based on the consensus values, norms, and beliefs of a group or society (Biddle, 1979; Hindin, 2007; Mead, 1934). The preceptor role definition in athletic training evolved first through athletic training internships with little oversight, and more recently through formal accreditation (CAATE, 2012; Dondanville, 2005, Weidner & Henning, 2002). When an individual assumes the position, or role, of preceptor, s/he assumes the consensus norms and expectations associated with that role. The current study offers new insight into ATS expectations for the behaviors associated with the preceptor role.

The qualifications and responsibilities of the preceptor role have been defined in the CAATE (2012) accreditation standards, but the preceptor title represents an assumed role that does not have a uniform set of behaviors tied to it. In athletic training, preceptors were historically referred to as clinical instructors (CAATE, 2008; Weidner & Henning, 2002); in 2012 CAATE required athletic training programs to adopt the preceptor title. The titles of clinical instructor and preceptor are used interchangeably in this dissertation, and frequently in athletic training practice. Regardless of title, Henning and Weidner (2008) concluded that athletic training preceptors do not feel adequately prepared for this role, a conclusion that has potentially negative consequences for the clinical dyad. The current study conclusion that ATS experience less than desirable effective clinical educator behaviors appears to support the role uncertainty expressed by Henning and Weidner. Additionally, preceptor ambiguity about their role in student education was found to lead to inter-role conflict between the role of athletic trainer and of effective preceptor, eventually leading to role strain and decreased job satisfaction (Henning & Weidner, 2008). Abstruseness of the preceptor role should be clarified in an effort to better define this title.

The title of preceptor potentially represents different assumptions for different entities: student, preceptor, program, and CAATE. Role assumptions are based on previous experiences and expectations, as well as demographic factors such as sex, age, and ethnicity (Statham, Richardson, & Cook, 1991; Tisdell, 1993). These assumptions provide the basis for perceiving and interpreting behaviors expected from the individual occupying that role (Biddle, 1986). Mismatches between preceptors' and ATS assumptions of role-taking introduce role conflict that should be resolved in order to allow prosperous clinical education (Biddle, 1986; Henning & Weidner, 2008).

Role expectations for effective preceptor behaviors. In clinical education, the clinical instructor maintains the ultimate power to control the clinical experience (Burge, 2000); preceptors must be aware of the existence of role expectations in order to aid the student in successfully navigating the clinical experience. In other words, clinical skills should be taught in a manner sensitive to the existence and influence of the preceptor role and the power dynamics within clinical relationships. This study provides insight for defining ATS expectations for the preceptor role.

Defining preceptor role expectations. Current study participants were asked to rank the four themes of effective clinical educator behaviors based on importance; these responses define ATS role expectations of preceptors. The four themes included behaviors that: *give information and present relevant subject matter; give feedback and student evaluation;* a*sk questions and promote critical thinking;* and *maintain physical presence in the clinical learning environment.* Previous research demonstrated that ATSs place less value in preceptor *physical presence in the clinical learning environment* than in other effective behaviors (Dondanville, 2005; Wright, 2009). Similarly, regardless of biological sex, participants in this study valued behaviors for the preceptor role that focus on preceptor to student *feedback* and *evaluation*, and on preceptor behaviors that *ask questions and promote critical thinking,* over those preceptor behaviors that simply g*ive information and present relevant subject matter* or provide a *physical presence in the*

clinical learning environment. The findings do offer one new insight on this point: participant academic classification and/or years of experience seems to make some difference in how ATS evaluate preceptor behaviors, both in actual and in ideal relationships. Graduate student participants in this study placed more value in preceptor behaviors that *give information* than baccalaureate ATS, who strongly desired interpersonal interaction focused on mentoring and evaluation. Additionally, the findings of this study exposed differences in the importance of some preceptor role expectations based on student sex.

Preceptor role expectations based on student sex. Regardless of the commonality in preceptor behavior priorities amongst all students, this study concludes that differences exist based on ATS sex with regard to the desired emphasis of some specific preceptor behaviors. Female ATS had higher expectations for behaviors that *give information and present relevant subject matter,* and that *ask questions and promote critical thinking* than male ATS. Specifically, female ATS placed more value in preceptor role behaviors that encourage participation in clinical activities and patient care, that actively supervise clinical practice, and that bridge classroom knowledge to the clinical site and patient care. Knowledge that ATS sex is a factor in preferred effective preceptor behaviors underscores the need for preceptors to recognize differences in role expectations from ATS and the need to tailor clinical education behaviors based on the role expectations of the student.

Preceptor role in providing physical presence in the learning environment. The preceptor role for providing *physical presence in the clinical learning environment* was found to be consistently less important than other clinical educator behaviors across all participants in the current, and previous (Dondanville, 2005; Wright, 2009), studies. Additionally, prior studies found that preceptors placed less value *physical presence* as an effective clinical educator behavior in relation to other behaviors (Dondanville, 2005; Wright, 2009). Cumulatively these conclusions are somewhat puzzling, especially given that supervision is a primary focus of the preceptor role, according to accreditation policy (CAATE, 2008, 2012). The fact that ATS in this,

and previous, studies perceive the actual presence of the preceptor as having less value than other clinical behaviors is troubling and has implications for effective teaching, learning, and mentoring behaviors.

Although ATS do not identify the *physical presence* role of preceptors' as a high priority, in reality it should facilitate all other effective clinical educator behaviors. It is not possible to *give information* and *feedback*, or *promote critical thinking* if not present in the clinical learning environment. Actual *physical presence in the clinical learning environment* involves more than just observing students and should certainly include *asking questions and promoting critical thinking* in the clinical learning dyad (Campbell & Campbell, 1997; Cohen, 1995; Hannam, 2000; Weidner & August, 1997). Students may not value physical presence as highly as other behaviors because previous studies have affirmed that ATS do not receive suitable quality or quantity of clinical supervision (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003). Given these conclusions (Weidner, Noble, & Pipkin, 2006; Weidner & Pipkin, 2003), it is possible ATS simply do not associate *physical presence in the clinical learning environment* as suitable definition of the preceptor role.

Utilizing current study conclusions to define the preceptor role expectations revealed that, although the importance of some expected behaviors vary based on ATS sex, as a whole ATS uniformly prioritize the order of preference for the four primary effective clinical educator themes. The repetitive identification of *physical presence in the learning environment* as a low priority may be essential for strategically addressing clinical education deficiencies, as it is requisite to achieving all effective clinical educator behaviors. When contrasting the ideal preceptor role expectations against actual ATS experiences with current preceptors, disparities became evident. Current preceptors did not meet ATS expectations of the preceptor role, regardless of sex congruence in the clinical learning dyad. A reason for this clinical experience gap between actual experience with current preceptors and the expectations for ideal preceptors may lie in the absence of a mentoring relationship.

Mentoring relationships. Previous research demonstrates that professional behavior development occurs best through mentored practice (Pitney, Ehlers, & Walker, 2006; Weidner & August, 1997; Weidner & Henning, 2000). Although the SECEB was not specifically intended to evaluate mentorship, effective clinical educator behaviors closely resemble many of the desired mentoring behaviors identified by research (Pitney, Ehlers, & Walker, 2006; Weidner & August, 1997; Weidner & Henning, 2000). Previously described mentoring behaviors include those that provide: effective communication, encouragement, performance feedback, support, tests knowledge, problem solving assistance, information, and advice (Pitney, Ehlers, & Walker, 2006; Weidner & August, 1997; Weidner & Henning, 2000). The stated disconnects between ATS expectations of the preceptor role and experiences with an actual preceptor in the current research indicate a potential failure of mentored practice, a suggestion that is in part supported by the current research findings related to the preceptors employed as *intern athletic trainer*. Although there were a relatively small number of actual preceptors in this study identified as *intern athletic trainer*, they were rated significantly lower on overall ratings than other athletic trainers. This finding supports a Stemmans and Gangstead (2002) conclusion that novice preceptors lack the knowledge, skills, and abilities to facilitate effective clinical education, and therefore mentoring relationships.

Potential problems with nurturing desired mentoring relationships are not isolated to novice preceptors; they are inherent in customary athletic training program preceptor assignment practices. The assignment of ATS to preceptors by the program, which is required by accreditation standards (CAATE, 2012), constitutes a formal mentoring program and is fraught with potential mismatch concerns (Campbell & Campbell, 1997). Whereas informal mentoring relationships develop as the mentor or mentee seek each other our based on similar interests, goals, personalities, or experiences (Rayle, et al., 2006), the formal assignment of ATS to preceptor does not allow this process to occur naturally (Eby & Lockwood, 2005). If formal assignment results in mismatched dyads, a productive mentoring relationship may never evolve

(Eby & Lockwood, 2005). Furthermore, mechanisms for mentor behavior accountability can be counterproductive and may decrease mentor motivation to actively participate in the relationship (Eby & Lockwood, 2005). Although a CAATE (2012) requirement that athletic training programs evaluate preceptor performance regularly is understandable, it constitutes an accountability mechanism that is potentially harmful to the incubation of a mentoring relationship. Within this context, a preceptor may be more likely to passively supervise an ATS and less likely to actively participate as a mentor; likewise, ATS perception of effective clinical instruction behaviors may be negatively impacted because of personal dissimilarities.

Research suggests that mentored relationships evolve through four phases: early, middle, later, and last (Cohen, 1995; Kram, 1983), with the later and last phases of mentored relationships evolving following graduation. Accreditation standards (CAATE, 2012) emphasize variety in clinical experiences rather than ATS/preceptor relationship consistency; therefore clinical dyads may not progress into the middle phase. The middle phase of a mentored relationship, cultivation, is the peak for the educational function of the mentor-mentee relationship (Cohen, 1995; Kram, 1983), and education is the essential function of clinical experience.

Unfortunately, athletic training literature and policy frequently interchange the terms *preceptor*, *clinical instructor* and *mentor* (Gardner, et al., 2009; Neibert, Huot, & Sexton, 2010; Weidner & Henning, 2000) and reinforce a clinical education culture in which *supervision* is the desired approach to clinical education (CAATE, 2012) instead of the mentorship necessary to accomplish desired clinical learning outcomes (Neibert, Huot, & Sexton, 2010; Weidner & August, 1997). Previous research findings suggest that a drastic increase in clinical supervision, i.e., the physical presence of the preceptor, would have little to no effect on the development of interpersonal aspects of professional practice without incorporation of effective clinical educator behaviors and mentoring relationships (Klossner, 2008; Knight, 2008; Sexton, et al., 2009). The conclusion of the current research appears to support these findings. Despite structured and prescribed clinical experiences, identified effective clinical educator behaviors, and recognized

mentorship attributes, the success of the clinical education model in athletic training is ultimately a function of clinical educational foundations plus effective mentoring relationships that hinge on interpersonal interactions (Pitney & Ehlers, 2004; Pitney, et al. 2006; Richardson Jr. et al., 1992; Weidner & August, 1997).

Effective preceptors serve an irreplaceable role in nurturing the development of ATS into professional practitioners. Nurturing professional development demands the demonstration of effective clinical educator and mentorship behaviors. The current study provides evidence of identifiable failings in athletic training preceptorship in a variety of contexts. These shortcomings include a general lack of ATS exposure to effective clinical educator behaviors, and a chasm between ATS expectations for and experiences with effective preceptor behaviors. This study also identified that students have clear and consistent priorities for preceptor behaviors, some of which are more keenly defined based on ATS biological sex. Demonstration of effective clinical educator behaviors is the critical component of clinical education that can influence all other aspects of student professional preparation. In order to accomplish the overall goal of better preparing athletic trainers to assist in addressing the existing healthcare workforce shortage, further efforts must be made by athletic training accreditors, administrators, and preceptors to address deficiencies athletic training clinical education.

Problematizing *Ideals* in Athletic Training Clinical Education

In the first chapter, *ideal* effective clinical behaviors were defined as behaviors expected from the perfect clinical instructor, and throughout the current study *ideal* behaviors are a central component. Within the discussion of the current research these ideal behaviors have been employed, through role theory, to provide an ATS definition of preceptor role expectations. Inherent to role expectations are descriptive norms, or expectations about role occupants' actual behavior, and injunctive norms, or expectations about role occupants' ideal behavior (Cialdini & Trost, 1998). While descriptive norms are synonymous with the stereotypes of group members, injunctive norms add a dogmatic facet to the definition of a role (Cialdini & Trost, 1998).

Preceptor role definition should refer to a compilation of both descriptive and injunctive expectations associated with preceptors. Within the discussion of conclusions pertaining to preceptor role definitions only the injunctive norms taken from the ATS perspective were considered, which may be problematic because role definitions also include descriptive norms.

Considering preceptor role expectations for athletic training clinical education with only the injunctive norms provided by ATS mean ratings may be problematic because this approach fails to consider the realities of organizational and professional cultures and of the individual students themselves. Although the SECEB was utilized in the current study to objectively assess the ATS definitions of ideal effective clinical educator behaviors, respondents were constrained to a quantitative response ill-suited for addressing the subjective nature of any discussion of ideals. ATS responses on the SECEB for an ideal clinical instructor are only a snapshot of students' opinions; ATS ratings of ideal preceptor behaviors are egocentric in that they are relative to their lived experiences. Each student potentially differs in their comprehensive definition of the ideal preceptor, and this definition will likely change as the student gains experience, matures, and becomes professionally ingrained. In short, students may lack the ability to truly evaluate the effective clinical preceptor behaviors that they need or want; self-reported ideals are not objective assessment. Therefore, an ideal is a metaphorical moving target, it may never be achievable.

Often through the course of the current research, ideal expectations were not directly identified within the narrative but were implied. Most conspicuously, idealism was implied with respect to discussions of mentors and mentoring behaviors. It has been the unwritten stance throughout this research, and previous research (Gardner, et al. 2009; Pitney & Ehlers, 2004; Pitney, et al. 2006; Rayle, et al., 2006), that if mentorship does not result in positive outcomes for a mentee then it does not qualify as mentoring. This is an idealistic view of mentoring, and it is important to note that mentoring is a process, regardless of the desirability of the outcome. The ideal is for the outcome of the mentoring experience, and the experience itself, to be positive, but

research from the vocational and human resources perspectives indicates that mentoring may be experienced negatively, and may even be classified as dysfunctional (Eby, Butts, Lockwood, & Simon, 2004). The most frequent explanations for negative mentoring experiences included dyad mismatches, distancing behaviors, manipulative behaviors, lack of mentor expertise, or general dysfunctionality (Eby, et al., 2004). These negative mentoring behaviors were more prevalently observed in formal mentoring assignments when individuals were forced into the role of mentor (Eby, et al., 2004). Because athletic training clinical education involves the formal assignment of an ATS to a preceptor, the structure of this relationship is considered mentoring; regardless of the effectiveness of clinical teaching or learning behaviors.

Therefore, problematizing *ideals* in athletic training education includes not only concepts related to the inclusion of descriptive norms and investigating injunctive norms quantitatively, but also the idealistic perspective of mentorship in athletic training education. In reality, ATS articulation of *ideal* clinical educator behaviors through the method utilized within this research may not have provided the broad view of the preceptor role necessary for true definition and may have reflected an impractical expectation of perfection in preceptor and mentoring behaviors. Within the context of the theoretical considerations associated with idealism, the conclusions of the current research guided implications and recommendations for policy, practice, research, and theory.

Implications and Recommendations

Several implications and recommendations can be inferred from the conclusions of this study. First, there are implications for policy pertaining to specific CAATE standards. Second, there are implications for practice in programmatic assessment and preceptor behavior modification. Third, there are implications for research into effective clinical educator behaviors and mentorship, as well as the impact of modified accreditation standards. Last are implications for theory. Recommendations are also provided for addressing the implications of this study.

Implications for Policy

Institutional policy guides the clinical experience practices of athletic training professional programs and must be compatible with CAATE accreditation guidelines. Conclusions of this research have implications for CAATE and institutional policy recommendations that will affect the practice of clinical education.

CAATE. Athletic training program policy must adhere to the Commission on Accreditation of Athletic Training Education *Standards for the Accreditation of Professional Athletic Training Programs*, which provides the minimum academic requirements for program accreditation (CAATE, 2012); these standards serve as a primary resource for policy in all accredited athletic training programs. Conclusions of the current research have potential policy implications for the CAATE standards and for athletic training program administrators, the secondary policy maker, to assist them in developing "sound innovative educational approaches that substantially exceed these standards" (CAATE, 2012, p. 1).

CAATE standard 39. The first implication for policy relates to standard 39, preceptor qualification, and states that "a preceptor must be credentialed by the state in a health care profession" (CAATE, 2012, p. 5). This standard does not require that a preceptor have any actual professional practice experience, only that the preceptor holds a credential. Conclusions from the current study indicated that ATS students may not be routinely exposed to effective clinical educator behaviors, particularly in the case of intern athletic trainers who served as preceptors. Intern athletic trainer preceptors were rated poorly by ATS compared to other employment categories, a finding that reinforced previous studies (Stemmans & Gangstead, 2002). Many intern athletic trainers are recent graduates with only months of experience and, while they are credentialed by the state, have not established themselves as independent practicing professionals. This is not to say that all athletic training programs, or CAATE, should adopt policies preventing intern athletic trainers from serving as preceptors, but all too often interns may be forced into serving as a preceptor by their employer because of institutional convenience and geographic

proximity to the athletic training program (Knight, 2008; Weidner & Henning, 2000). Athletic training policy that forces institutional clinical staff into preceptorship serves as a disservice to the ATS and to the profession. Athletic training programs must carefully evaluate all preceptors in order to ensure that they value effective clinical education behaviors and the professional preparation of students, especially short-term interns and first year graduates.

CAATE standard 41. The second implication for policy relates to CAATE standard 41, preceptor qualification, from the *Standards for the Accreditation of Professional Athletic Training Programs* (CAATE, 2012), and states that a "preceptor must receive planned and ongoing education from the program designed to promote a constructive learning environment" (2012, p. 5). This 2012 standard replaced a previous standard that was much more specific and required programs to document preceptor training content that included detailed discussion of:

> Learning styles and instructional skills; a review of Athletic Training Educational Competencies; evaluation of student performance and feedback; instructional skills of supervision, mentoring, and administration; program/institution-specific policies, procedures, and clinical education requirements; legal and ethical behaviors; communication skills; appropriate interpersonal relationships; and clinical skills and knowledge (CAATE, 2008, P. 8).

The conclusions of the current study that ATS students, regardless of sex or dyad, may not be routinely exposed to effective clinical educator behaviors, and that ATS experiences with current preceptor behaviors did not meet ATS expectations for effective clinical educator behaviors, indicate that CAATE should reconsider the recent revision to the standards with respect to standard 41, preceptor qualification. The previous standard (CAATE, 2008) provides much greater detail for athletic training programs to base institutional preceptor training policy from while offering content that comes much closer to addressing effective clinical educator behaviors.

The most palpable policy recommendation is that CAATE, in conjunction with athletic training administrators, further clarify and develop the clinical teaching role of the athletic trainer

as a professional expectation. Other medical professions integrate curricular requirements of students that begin to expose them to strategies for successful preceptorship and assuming the future role of preceptor. Athletic training programs should integrate preceptor instructional strategies, similar to other medical professions, into upper level coursework and should develop competency expectations related to preceptorship for professional students. A *grow our own* preceptor philosophy initiated during the professional program will promote the development of effective clinical educator behaviors from the bottom up and provide a strong foundation for addressing clinical education deficiencies over a long term. Without implementing this recommendation, addressing the issues made evident in the conclusions of this study will continue to be a hit or miss proposition complicated by a repetitive cycle of ill-prepared preceptors.

A related recommendation relates to the conspicuous absence of the words mentor, mentorship, or mentored relationship in reference to clinical education or preceptor within the *Standards for the Accreditation of Professional Athletic Training Programs* (CAATE, 2012). The word mentor is used only twice in the *standards*, both times in reference to athletic training faculty (CAATE 2012). Although the current research conclusions do not relate specifically to mentored relationships in the clinical environment, the research reviewed indicates that mentorship is an essential component for the development of competent practicing professionals (Pitney & Ehlers, 2004; Pitney, et al. 2006; Richardson Jr. et al., 1992; Weidner & August, 1997), but CAATE (2012) fails to address it in relation to preceptor responsibilities. If CAATE were to address mentorship instead of *supervision*, it may lead to ATS placing greater value on preceptor physical presence in the clinical learning environment. Additionally, athletic training administrators should reconsider utilizing preceptors who are unwilling to engage ATS in mentoring relationships.

Implications for Practice

The practice implications provide a mechanism for implementing clinical education modification through recommendations. These implications are provided within the framework of existing CATTE standards (2012). Conclusions of this research have practice implications in institutional programmatic assessment and for preceptor behavior modification.

Programmatic assessment. CAATE standards (2012) dictate that programs must have a comprehensive assessment plan to evaluate preceptors, and that the results of data analysis must be utilized for continual program improvement. Conclusions that ATS experiences with current preceptors did not meet ATS expectations for effective clinical educator behaviors indicate that research findings have a clear implication for programmatic assessment and improvement. As evidenced by ATS expectations for ideal preceptors, perfection is not expected; what is expected is exposure to effective clinical educator behaviors frequently. However, considerable disparity exists between this reasonable expectation of exposure to effective clinical educator behaviors and ATS actual experiences with preceptors, which were in the undesirable range for 3 of 4 SECEB subcategories and 13 of 20 individual SECEB statements. This disparity indicates that athletic training administrators should take a more comprehensive approach toward benchmarking effective preceptor clinical educator behaviors for programmatic assessment and improvement.

There is a clear indication that changes are needed across the board to improve clinical education by athletic training preceptors in order to achieve the desirable ratings of “often” or “very often” consistently from ATS. Ineffective clinical educator behaviors negatively impact the overall clinical experience, a finding that was evident for all preceptors, but more clearly revealed for those classified as intern athletic trainers. Athletic training administrators should strongly consider using the SECEB as a valid, reliable, and uniform method to conduct preceptor evaluations that highlight areas for improvement in preceptor clinical education behaviors.

Preceptor behavior modification. The second implication for practice concerns the conclusion that differences in expectations for ideal preceptor clinical education behaviors exist based on ATS biological sex. This conclusion has practice implications with regard to preceptor evaluation of effective behaviors. Preceptors should use the knowledge of differing student expectations to evaluate, modify, and focus their demonstration of effective clinical education behaviors toward individual clinically assigned ATSs. It may be beneficial for the preceptor to have the ATS complete the SECEB for ideal preceptor prior to the initiation of the clinical rotation and to review expectations one-on-one with the ATS. Administrators should make the SECEB available to preceptors and should include a thorough discussion of effective clinical educator behaviors in planned and ongoing preceptor training (CAATE, 2012). Additionally, implementing preceptor self-rating on the SECEB may be a successful strategy to reinforce desired effective clinical educator behaviors and the need to modify behaviors based on individual student expectations.

Implications for Research

In addition to implications and recommendations for athletic training policy and practice, study conclusions provide valuable information for future research, yet raise additional questions for consideration. Based on study conclusions, research implications and recommendations for the areas of preceptor preparation, mentorship, graduate programs, and preceptor attitudes toward effective clinical education behaviors were evident.

Preceptor preparation. Conclusions of the current research revealed that ATS clinical experiences do not regularly involve effective clinical educator behaviors. It is possible that preceptor failure in this aspect is related to poor preceptor preparation. Following a drastic revision with respect to preceptor training and teaching effective clinical educator behaviors, CAATE accreditation standards transitioned away from a previously somewhat rigid nationally imposed preceptor training schedule and curriculum (CAATE, 2008), toward a much less prescribed and institutionally-developed preceptor training approach (CAATE, 2012).

Recognizing that this revision allows institutional latitude, it may be of value to conduct a study similar to the current study in 5 to 10 years. Future study could utilize the current research as a baseline for comparison in order to determine if effective clinical educator behavior ratings of athletic training preceptors significantly improve or worsen. Additionally, future study should also include focus on the potential impact of specific preceptor preparation curricula on ATS clinical experiences. A focus on studying preceptor effective clinical behavior improvements following preceptor training curricular adaptations and implementation may provide useful data for developing and modifying preceptor training curricula.

Athletic training is not unique in its potential failure to prepare preceptors adequately for the challenges of mentoring students through practical knowledge utilization, skill acquisition, and the integration of the two. One has to look no farther than undergraduate faculty, who are often ill-prepared during the early portion of their careers to effectively teach (Boice, 1992). Additionally, there is little evidence that faculty experts, who integrate their research into their coursework, enhance student learning or skill development (Prince, Felder, & Brent, 2007). Athletic training preceptors are analogous to undergraduate faculty; they are the content experts who agree to serve in an educational capacity as clinical preceptors. Their preceptor preparation, however, was centered on becoming a healthcare professional; they have little preparation as experiential learning specialists, or as mentors. Overcoming the preceptor preparation hurdle is critical to producing qualified healthcare professionals and solutions may lie within related future research recommendations.

Mentorship. The purpose of the current study was not to investigate any potential relationship between ATS expectations of the preceptor role, or actual experiences with effective preceptors, and mentoring behaviors. Prior research provided evidence of a link between professional development and mentorship (Pitney, Ehlers, & Walker, 2006; Weidner & August, 1997; Weidner & Henning, 2000). The current study concluded that current preceptors did not meet ATS expectations of the ideal preceptor role and that a lack of positive mentored

relationships may be partially to blame. Future studies should build on the conclusions of the current research that ATS, regardless of sex, or dyad, may not be routinely exposed to effective clinical educator behaviors. An investigation of the potential relationship between effective clinical education behaviors and positive mentored relationships in the clinical learning dyad may shed more light on achieving desired outcomes from clinical education. The SECEB provides data related only to ATS ratings of current and ideal clinical educator behaviors, but could be paired with the *Athletic Training Students Perceptions of Mentoring Effectiveness* (Pitney, Ehlers, & Walker, 2006) or some other measure of mentored relationship development. The inclusion of a mentored relationship inventory would allow for further analysis of differences in effective clinical educator behaviors.

Future research focused on ATS experience with the same preceptors over time may provide valuable information about the development of ATS/preceptor relationships in clinical placements beyond one-semester, which are a typical clinical rotation length. Differences in experiences with effective clinical educator behaviors between ATS with fewer longer-term, or multiple, rotations with the same preceptor and ATS with several shorter-term rotations with differing preceptors may shed light on the development (or lack thereof) of a mentored relationship and its relation to effective clinical education behavior demonstration. In retrospect, an item about the number of semesters of experience with the current clinical instructor in the current study may have been helpful in examining the potential link between extended preceptor clinical interactions and effective clinical educator behaviors.

Graduate programs. Professional athletic training programs, although similar in content and requirements, are offered at both the baccalaureate and masters levels. The participant pool for this study consisted of CAATE accredited professional athletic training programs, both undergraduate and graduate. The findings of the current research revealed that graduate students tended to value behaviors that *give information and present relevant subject matter* significantly more than undergraduate students. This preference was far different than in

undergraduate students who preferred preceptors that provided feedback and asked questions. Identifying differences between undergraduate and graduate clinical educator preferences is timely considering that a recently position paper (NATA, 2013) recommends that athletic training education should occur at the graduate level. If this recommendation is adopted the current study findings will be useful to program administrators for guiding preceptor adaptations, but additional research on graduate ATS clinical expectations are warranted. In preparation for this potential shift to graduate level only athletic training professional education, future study targeting only graduate level professional athletic training programs would provide more useful data as the current study included only 40 participants representing this demographic.

Preceptor attitudes toward effective clinical education behaviors. Conclusions of this study repeatedly indicated the existence of disconnects between actual preceptor behaviors and effective preceptor behaviors. These disconnects included: undesirable actual preceptor ratings; massive disparity between ATS preceptor expectations and actual experiences; and the devaluation of requisite preceptor physical presence in the clinical learning environment. These conclusions were based only on athletic training student responses to the SECEB. Prior research utilizing the same instrument with athletic training preceptors indicated that preceptors often prioritized effective clinical educator behaviors significantly differently than ATS (Dondanville, 2005; Wright, 2009). Conclusions of the current study, alongside findings of previous studies, imply that further research into preceptor attitudes toward effective clinical educator behaviors may be warranted. Understanding of differences between ATS and preceptor clinical education valuations may provide valuable information to assist program administrators in negotiating common priorities for ATS and preceptors. Future research should include investigations of how preceptors form attitudes regarding clinical education and if preceptors actually practice clinical education in accordance with stated attitudes.

Implications for Theory

The conclusions of this research have implications for role theory as applied to athletic training preceptorship. Although the qualifications and responsibilities of the athletic training preceptor role are described within CAATE (2012) accreditation standards, previous research indicated that role definition lacked clarity, even to the preceptors themselves (Henning & Weidner, 2008). The conclusions of this study acknowledge that ATS expectations of preceptors are a significant component of preceptor role definition. Furthermore, differences were found in expected preceptor role behaviors between male and female ATS. The objective overview of ATS ratings of ideal clinical educator behaviors facilitated further consideration of the relevance of ideal behaviors in defining preceptor roles and the subjective nature of ideals. The conclusions and discussion of this research established that role incongruity exists between the descriptive norms, or actual preceptor behaviors, and the injunctive norms, or idealistic preceptor behaviors, described by ATS through their expression of ideal clinical educator behaviors on the SECEB.

Limitations

Although the findings of this research contribute to implications for practice, research, and policy, the study is not without limitations. The most obvious of these is the participant recruitment method utilized and the inability to track response rate. The study population was only accessible by asking athletic training program directors to cooperate by electronically forwarding a study hyperlink to athletic training students. Additionally, because of the anonymous nature of the study, there was no way to track how many of the 361 program directors actually forwarded study information to students. An attempt to overcome this limitation was made by sending personalized weekly reminders to encourage program directors to forward survey participation information to ATS. This method of participant recruitment is a commonly utilized research technique in athletic training (Mulholland & Martin, 2010; Volberding, 2011; Wright, 2009). Additionally, differences exist between the organizational cultures experienced by individual participants within this study, and between this and extant research. These cultural

variations should be considered as a limitation in consideration of the generalizability of these conclusions.

Operationally, the term *ideal* was utilized as a way for ATS to define the *perfect preceptor*. While the findings of the study provided valuable information for defining what ATS consider to be ideal characteristics, there are theoretical limitations. The reality is that quantitative descriptions of *ideal* effective clinical educator behaviors cannot be generalized to the overall population. An *ideal* is a subjective element with a meaning relative to each participant, therefore is more suited for qualitative inquiry.

Finally, the instrument utilized did not inquire regarding the frequency or duration of exposure that the participant had experienced with the current preceptor. In retrospect, this information could have provided valuable information regarding the development of the clinical relationship. An additional limitation, the use of a self-reporting data collection method may or may not be an actual description of ATS experiences with current preceptors. Although there is no way to verify truthful response by participants, the nature of the study was voluntary, with anonymity of response. Given these parameters, participants had no incentive to provide inaccurate responses.

Conclusion

Athletic training clinical education should provide students with authentic opportunities for supervised practice to integrate the knowledge, skills, clinical abilities, and professional behaviors necessary for independent professional practice. A key component of supervised clinical practice is the clinical preceptor, who assumes responsibility for clinical supervision, instruction, assessment, and the facilitation of clinical integration of knowledge with skills. Outcomes of the clinical experience are heavily dependent on student-to-preceptor interactions. This study reasserts this point, and further highlights the potential vulnerabilities inherent to this clinical education model. At the heart of the vulnerabilities were the effective clinical educator

behaviors of the preceptor. Evidence from other health professions indicated that clinical dyad sex congruence may impact the quality of clinical teaching and learning.

The purpose of this research was to examine athletic training students' (ATS) perceptions of effective clinical education behaviors by athletic training preceptors, and the impact of clinical learning dyad sex congruence on these perceptions, in Commission on Accreditation of Athletic Training Education (CAATE) accredited athletic training programs in the United States. Although the study failed to identify differences in athletic training students' experiences with actual effective clinical education behaviors based on dyad or student sex, it was successful at identifying differences in athletic training students' expectation of ideal preceptor effective clinical education behaviors based on student sex. Additionally, findings provided evidence that athletic training students are not routinely exposed to effective clinical educator behaviors. Furthermore, a gap was exposed between athletic training students' actual experiences with effective clinical education behaviors and their expectations of ideal preceptors.

The findings of this study, and their discussion, guided the conclusions, as well as, the implications and recommendations for policy, practice, and research. The current research contributes to athletic training literature on clinical preceptorship effectiveness and student expectations of effective preceptorship behaviors. Study results also contribute to knowledge about best practices for the creation of clinical education environments that foster the best possible experiential outcomes for athletic training students, and therefore better prepared practitioners. Future practitioners who are better prepared for the realities of the healthcare workplace, through effective clinical education, are more capable of assisting in addressing the existing healthcare provider shortage.

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APPENDICES

APPENDIX A

Participant Recruitment E-mail Scripts

Initial Contact E-Mail to Athletic Training Program Directors

Dear (Name),

I am a doctoral candidate at Oklahoma State University in the Educational Leadership program and the coordinator of athletic training clinical education at The University of Tulsa. I am conducting research on differences in athletic training students' perception of effective clinical educator behaviors based on biological sex in required clinical experiences. This research requires the participation of athletic training students in CAATE accredited professional [entry-level] athletic training programs.

I am respectfully requesting your assistance in forwarding the following information and link to all students participating in clinical experiences in your program. Please include the most recent graduates of your program in the distribution as well. Your consideration of this request is genuinely appreciated, as data collection would not be possible without your assistance.

The proposed study has been approved by the Institutional Review Board at Oklahoma State University and The University of Tulsa. If you have any questions or concerns, please feel free to contact: Mr. Ron Walker, Principal Investigator, 800 S. Tucker Dr. CH 310, Tulsa, OK 74104, 918-631-3240 or ron-walker@utulsa.edu; Dr. Tami Moore, Assistant Professor of Higher Education, 700 N. Greenwood Ave., Main Hall 2439, Tulsa, OK 74106, 918-594-8107, tami.moore@okstate.edu; or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.

In appreciation of your time and consideration,

Ron H. Walker, MA, LAT, ATC

Principle Investigator

Message for to Forward to Athletic Training Students

Dear Athletic Training Student,

I am a doctoral candidate at Oklahoma State University in the Educational Leadership and Policy Studies program and the coordinator of athletic training clinical education at The University of Tulsa. I am conducting research on differences in athletic training students' perception of effective clinical educator behaviors based on biological sex in required clinical experiences. I am respectfully requesting your participation, which will involve the completion of an online survey. This survey will take approximately 10 minutes to complete and all responses will be kept strictly confidential and anonymous. Please follow this LINK (unique hyperlink here) to access the consent to participate and to begin the study.

In appreciation of your time and consideration,

Ron H. Walker, MA, LAT, ATC

Principle Investigator

APPENDIX B

Survey of Effective Clinical Educator Behaviors

(Modified for Electronic Distribution)

Consent Statement

Intro Block

Oklahoma State University supports the practice of protection for human subjects participating in research. The following information is provided for you to decide if you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty. This study is being conducted to better understand differences in athletic training students' perception of effective clinical educator behaviors based on biological sex in required clinical experiences. Participants are asked to complete a 20 question online survey that will take approximately 10-15 minutes to complete. There are no known risks associated with this project which are greater than those ordinarily encountered in daily life. The information obtained from this study will help in better understanding students' perceptions of effective clinical educator behaviors and in improving students' clinical experiences.

The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you as an individual. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and well-being of people who participate in research.

Your participation is solicited, although strictly voluntary. You will not receive monetary or other compensation for your participation. Participation is completely voluntary and there will be no penalty or loss of benefits if you choose to not participate in this research study or to withdraw from it.

If you have questions about your rights as a research volunteer, you may contact Mr. Ron Walker, Principal Investigator, 800 S. Tucker Dr. CH 310, Tulsa, OK 74104, 918-631-3240 or ron-walker@utulsa.edu; Dr. Tami Moore, Assistant Professor of Higher Education, 700 N. Greenwood Ave., Main Hall 2439, Tulsa, OK 74106, 918-594-8107, tami.moore@okstate.edu; or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.

Completion of the survey indicates your understanding of the project and your willingness to voluntarily participate. By completing the survey you are also confirming that you are age 18 or older.

Please print this page for your records.

Survey of Effective Clinical Educator Behaviors (Dondanville, 2005)

Select the responses that correspond to :

- ***Your current*** clinical instructor (*from most recently completed rotation*) in the **left-hand column**
- ***An Ideal*** clinical instructor (*the perfect clinical instructor*) in the **right-hand column**

You will have two responses for each behavior statement (one on the left and one on the right).

My ***Current*** Clinical Instructor						The ***Ideal*** Clinical Instructor				
Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5		Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5
○	○	○	○	○	Encourages me to participate in clinical activities and patient care up to my ability level.	○	○	○	○	○
○	○	○	○	○	Refers me to educational aids (posters, books, journals, etc.) to encourage independent problem solving.	○	○	○	○	○
○	○	○	○	○	Watches me practice my clinical skills and interact with patients.	○	○	○	○	○
○	○	○	○	○	Offers praise for a job well done.	○	○	○	○	○
○	○	○	○	○	Gives immediate and specific feedback that helps me improve my skills.	○	○	○	○	○

Select the responses that correspond to :

- ***Your current*** clinical instructor (*from most recently completed rotation*) in the **left-hand column**
- ***An Ideal*** clinical instructor (*the perfect clinical instructor*) in the **right-hand column**

You will have two responses for each behavior statement (one on the left and one on the right).

My ***Current*** Clinical Instructor						The ***Ideal*** Clinical Instructor				
Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5		Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5
○	○	○	○	○	Gives fair, non-judgmental performance evaluations.	○	○	○	○	○
○	○	○	○	○	Provides time to discuss performance evaluations and opportunities for improvement.	○	○	○	○	○
○	○	○	○	○	Asks simple questions that require only recall of memorized facts.	○	○	○	○	○
○	○	○	○	○	Asks complex or difficult questions that make me think critically (IE. analyze, evaluate, or problem solve the situation).	○	○	○	○	○
○	○	○	○	○	Actively plans or structures the overall clinical experience.	○	○	○	○	○

Select the responses that correspond to :

- ***Your current*** clinical instructor (*from most recently completed rotation*) in the **left-hand column**
- ***An Ideal*** clinical instructor (*the perfect clinical instructor*) in the **right-hand column**

You will have two responses for each behavior statement (one on the left and one on the right).

My ***Current*** Clinical Instructor						The ***Ideal*** Clinical Instructor				
Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5		Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5
○	○	○	○	○	Participates in or leads discussions on thought-provoking, relevant topics.	○	○	○	○	○
○	○	○	○	○	Refrains from engaging in conversations that are unrelated to the clinical experience, my education, or patient care.	○	○	○	○	○
○	○	○	○	○	Actively supervises my clinical practice (i.e. has constant auditory and visual contact with myself and my patients.)	○	○	○	○	○
○	○	○	○	○	Takes an active role in organizing slow time in the clinical setting to promote learning and prevent boredom.	○	○	○	○	○
○	○	○	○	○	Answers questions honestly and intelligently when asked.	○	○	○	○	○

Select the responses that correspond to :

- ***Your current*** clinical instructor (*from most recently completed rotation*) in the **left-hand column**
- ***An Ideal*** clinical instructor (*the perfect clinical instructor*) in the **right-hand column**

You will have two responses for each behavior statement (one on the left and one on the right).

My ***Current*** Clinical Instructor						The ***Ideal*** Clinical Instructor				
Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5		Never 1	Rarely 2	Sometimes 3	Fairly Often 4	Very Often 5
○	○	○	○	○	Provides a clear, concise explanation of the material	○	○	○	○	○
○	○	○	○	○	Uses examples to clarify my understanding	○	○	○	○	○
○	○	○	○	○	Demonstrates a variety of clinical skills for my benefit	○	○	○	○	○
○	○	○	○	○	Bridges classroom knowledge to the clinical site and patient care.	○	○	○	○	○
○	○	○	○	○	Provides the time and materials for skill practice.	○	○	○	○	○

Demographic and Attitudinal Questions

Demographic and additional attitudes block

What is your age (in years) as of today?

18	19	20	21	22	23	24	25	26	27 or Older
○	○	○	○	○	○	○	○	○	○

What is your biological sex?

- Male
- Female

What is your Race/Ethnicity?

Caucasian	Pacific Islander	African American	Asian	American Indian	Hispanic / Latino	Other	Prefer not to give ethnicity
○	○	○	○	○	○	○	○

Are you currently pursuing, or have you recently completed, a degree in Athletic Training from a CAATE (Commission on the Accreditation of Athletic Training Education) accredited program?

- Yes
- No

What degree are you pursuing (or did you recently complete)?

- Bachelor's Degree
- Master's Degree

What is your academic classification within the athletic training degree plan?

- Freshman (completed less than 30 credit hours)
- Sophomore (completed 30-60 credit hours)
- Junior (completed 61-90 credit hours)
- Senior (completed over 90 hours)
- Recent Graduate

What is your academic classification within the athletic training degree plan?

- First year graduate student (Less than 18 graduate credit hours completed)
- Second year graduate student (more than 18 graduate credit hours completed)
- Recent Graduate

How many semesters of clinical experience in the athletic training program have you completed?

0	1	2	3	4	5	More than 5
○	○	○	○	○	○	○

In what setting did your most recently completed clinical experience take place?

- Collegiate (NCAA Division I)
- Collegiate (NCAA Division II)
- Collegiate (NCAA Division III)
- Collegiate (NAIA)
- Collegiate (Junior/Community College)
- High School
- Outpatient Rehabilitation Clinic
- Hospital/ Physicians Office
- Professional Athletics
- Other

What was the biological sex of the clinical instructor in your most recently completed clinical experience rotation?

- Male
- Female

What was the employment position of the clinical instructor in your most recently completed clinical experience rotation?

- Graduate Assistant Athletic Trainer
- Intern Athletic Trainer
- Part-time, staff athletic trainer
- Full-time, Assistant Athletic Trainer
- Full-time, Head Athletic Trainer
- Other Medical Professional (MD, DO, PT, etc)

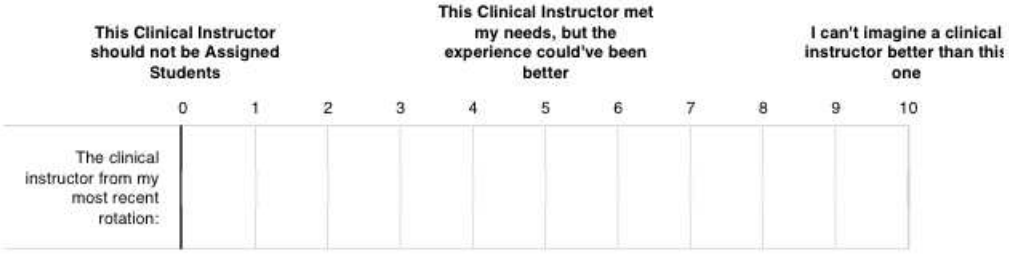
What credentials did the clinical instructor in your most recently completed clinical experience have? (check all that apply)

ATC	LAT	PT	MD	DO	PA	DC	Other	I'm not sure
☐	☐	☐	☐	☐	☐	☐	☐	☐

In what National Athletic Trainers Association District did this experience occur?

- 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
- 2 (Delaware, New Jersey, New York, Pennsylvania)
- 3 (District of Colombia, Maryland, North Carolina, South Carolina, Virginia, West Virginia)
- 4 (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
- 5 (Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota)
- 6 (Arkansas, Texas)
- 7 (Arizona, Colorado, New Mexico, Utah, Wyoming)
- 8 (California, Hawaii, Nevada)
- 9 (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, Tennessee)
- 10 (Alaska, Idaho, Montana, Oregon, Washington)

Please click on the bar and slide it left or right in order to generally rank your current clinical instructor (from your most recently completed rotation):



Please click on the bar and slide it left or right in order to rank your overall experience in your most recently completed clinical experience rotation, relative to an ideal clinical experience:

Do you have a preference whether your clinical instructor is male or female?

- Yes
- No

Would you prefer a clinical instructor of the same sex or opposite sex of you?

- Same sex
- Opposite sex

For the following 4 clinical educator behaviors, please click on them to drag and drop them according to their

importance to you.

- 1 should be of most importance to you
- 4 should be of least importance to you.

A Clinical instructor that:

- Gives feedback and student evaluation
- Gives information and presents relevant subject matter
- Maintains a physical presence in the clinical learning environment
- Asks questions and promotes critical thinking

Thank you for your participation!

If you wish to leave comments for the researcher, you may do so here:

APPENDIX C

Permission to Utilize Survey of Effective Clinical Educator Behaviors (Dondanville, 2005)

From: Dr. Abbey Dondanville <lecoeurtriste@earthlink.net>
Sent: Tuesday, September 18, 2012 1:10 PM
To: Walker, Ron
Subject: Re: SECEB Use

Hi again! Of course you have my permission to use the tool (so long as it is cited!). I hope your research goes well--I look forward to seeing it published. Thanks!

Abbey

-----Original Message-----
From: "Walker, Ron"
Sent: Sep 18, 2012 1:43 PM
To: "adondanv@wingate.edu"
Subject: SECEB Use

Abbey,

I hope things are going well!

We've visited at the educators conference (Trey Morgan is a Mutual friend), and I've contacted you before about your graduate work and the Survey of Effective Clinical Behaviors instrument (I thought via e-mail, but maybe phone). For some reason I've miss filed our previous e-mail conservation and, for the purpose of my dissertation, need to verify that I have your permission to utilize this instrument in the collection of data for my dissertation.

I appreciate your consideration; I look forward to visiting with you again soon.

RW

Ron H. Walker, MA, LAT, ATC, CSCS

Clinical Assistant Professor of Athletic Training
The University of Tulsa
800 South Tucker Drive
Chapman Hall 310
Tulsa, Oklahoma 74104
Office Phone: 918-631-324

APPENDIX D

Oklahoma State University Institutional Review Board Approval Letter

Oklahoma State University Institutional Review Board

Date:	Tuesday, June 11, 2013
IRB Application No	ED13104
Proposal Title:	Differences in Athletic Training Students' Perceptions of Effective Clinical Educator Behaviors
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 6/10/2014

Principal Investigator(s):

Ron Walker
3621 W Forest
Skiatook, OK 74070

Tami Moore
2439 Main Hall
Tulsa, OK 74106

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia Kennison, Chair
Institutional Review Board

APPENDIX E

The University of Tulsa Institutional Review Board Authorization Agreement

Institutional Review Board
Authorization Agreement

Name of Institution or Organization Providing IRB Review (Institution/Organization A):
Oklahoma State University
IRB Registration #: IRB00001305 **Federalwide Assurance (FWA) #, if any:** FWA00000493

Name of Institution Relying on the Designated IRB (Institution B):
The University of Tulsa
FWA #: FWA00006580

The Officials signing below agree that The University of Tulsa may rely on the designated IRB for review and continuing oversight of its human subjects research described below:

( ) This agreement applies to all human subjects research covered by Institution B's FWA.

(x) This agreement is limited to the following specific protocol(s):

Name of Research Project: Differences in Athletic Training Students' Perceptions of Effective Clinical Educator Behaviors
Name of Principal Investigator: Ron Walker
Sponsor or Funding Agency:
Award Number, if any:

(_) Other (*describe*):_____

The review performed by the designated IRB will meet the human subject protection requirements of Institution B's OHRP-approved FWA. The IRB at Institution/Organization A will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the Terms of its OHRP-approved FWA. This document must be kept on file by both parties and provided to OHRP upon request.

Signature of Signatory Official (Institution/Organization A):
Stephen McKeever Date: 6/11/13

Print Full Name: Stephen W.S. McKeever, Ph.D
Institutional Title: Vice President for Research and Technology Transfer

Signature of Signatory Official (Institution/Organization B):
Janet Haggerty Date: 13 June 2013

Print Full Name: Janet Haggerty, Ph.D.
Institutional Title: Vice Provost for Research

APPENDIX F

Indiana University of Pennsylvania Institutional Review Board Exemption Letter

Indiana University of Pennsylvania
www.iup.edu

Institutional Review Board for the
Protection of Human Subjects
School of Graduate Studies and Research
Stright Hall, Room 113
210 South Tenth Street
Indiana, Pennsylvania 15705-1048

P 724-357-7730
F 724-357-2715
irb-research@iup.edu
www.iup.edu/irb

August 27, 2013

Ron H. Walker
The University of Tulsa
800 South Tucker Drive
Chapman Hall 310
Tulsa, OK 74104

Dear Mr. Walker:

You have requested permission to use Indiana University of Pennsylvania as a research site for your study entitled, "Differences in Athletic Training Students' Perception of Effective Clinical Educator Behaviors."

You have provided the IRB at IUP with evidence of IRB approval from your home institution, as well as a copy of relevant materials from your approved human subjects' protocol.

Therefore, I am granting you access to use Indiana University of Pennsylvania as a research site, provided that you comply with the IRB materials that you have submitted to me. Please notify the IRB at IUP immediately should any changes to these materials occur.

Best wishes on your research.

Sincerely,

John A. Mills, Ph.D., ABPP
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Psychology

JAM/jeb

Cc: Mr. Jose Rivera, Dept of Health and Physical Education, IUP

APPENDIX G

The College of Mount St. Joseph Institutional Review Board Exemption Letter

COLLEGE OF MOUNT ST. JOSEPH

5701 Delhi Road, Cincinnati, Ohio 45233-1670
(513) 244-4232 • FAX (513) 244-4654

August 29, 2013

Ron Walker

The University of Tulsa

Dear Ron,

Reference: IRB Protocol S114-02: Differences in Athletic Training Students' Perceptions of Effective Clinical Educator Behaviors

The IRB has reviewed your protocol and determined it is exempt in accordance with Title 45, Code of Federal Regulations, 46.101(b)(2).

Best wishes for success in your research.

Sincerely,

Tracy A. McDonough, Ph.D.

Chair, Institutional Review Board

VITA

Ron H. Walker

Candidate for the Degree of

Doctor of Education

Thesis: THE EFFECT OF SEX CONGRUENCE IN ATHLETIC TRAINING STUDENTS' CLINICAL EDUCATION DYADS

Major Field: Higher Education

Biographical:

Education:

Completed the requirements for the Doctor of Education in Higher Education at Oklahoma State University, Stillwater, Oklahoma in May, 2014.

Completed the requirements for the Master of Arts in Education at The University of Tulsa, Tulsa, Oklahoma, in December, 1996.

Completed the requirements for the Bachelor of Science in Athletic Training at The University of Tulsa, Tulsa, Oklahoma, in May, 1995.

Experience:

Clinical Assistant Professor, The University of Tulsa (2006-present).

Visiting Clinical Assistant Professor, The University of Tulsa (2005-2006).

Director and Instructor, Athletic Training Education Program, Southwestern Oklahoma State University (2000-2005).

Clinical and Outreach Athletic Trainer, Eastern Oklahoma Orthopedic Center (1995-2000).

Professional Memberships:

National Athletic Trainers' Association
Mid-America Athletic Trainers' Association
Oklahoma Athletic Trainers' Association