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## AN EXPLORATORY STUDY ON PERCEPTIONS OF (IPE) TOWARDS INTERPROFESSIONAL PRACTICE IN ATHLETIC TRAINING

By

Carolyn Goeckel

**Dissertation Committee** 

Genevieve Pinto Zipp, PT, Ed.D (Chair) Vikram Dayalu, Ph.D., CCC-SLP Anthony Breitbach, PhD, ATC

Submitted in partial fulfillment of the Requirements for the degree of Doctor of Philosophy in Health Sciences Seton Hall University 2018 Copyright © 2018 Carolyn Goeckel All Rights Reserved

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Approved by the Dissertation Committee

Date 3 - 6 - 2018Date

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#### ABSTRACT

## An Exploratory Study on Perceptions of (IPE) Towards Interprofessional Practice in Athletic Training

Carolyn Goeckel

**Context:** Healthcare professional, including athletic trainers (ATs), are called to be collaborative-ready practitioners to effectively meet the needs of today's patient-centered care. Currently, little research exists exploring the infusion of IPE (interprofessional education) practices in athletic training programs or its effectiveness in producing collaborative-ready athletic training professionals. While research is needed to evaluate whether IPE learning models can produce AT professionals that are collaborative-ready for PCC (patient-centered care) several foundational questions should be addressed. First, educational researchers need to establish an understanding of athletic trainers' perceptions toward interprofessional practice (IPP), IPE, and the athletic trainer's role as perceptions are often linked to action. Additionally, exploring if perceptions of IPE are different amongst practicing athletic trainers and athletic training students would aid in providing a strong foundation for educators as they develop IPE learning experiences that are meaningful. Objective: To explore athletic training students and AT professionals perceptions toward interprofessional practice in athletic training using the Interdisciplinary Education Perceptions Scale (IEPS). Additionally, to identify factors in the demographic profile that impact perceptions of knowledge, skills, and abilities towards interprofessional practice among athletic training students and professionals. **Design:** A concurrent mixed method embedded design. Setting: Online survey instrument. Participants: 386 athletic training program directors received an email invitation to participate in the study with the request to forward the survey link to students, alumni, and preceptors. The final sample population size was (N=188). Interventions: Participants completed the Interprofessional Education Perceptions Survey (IEPS, McFadyen et al., 2007), a demographic profile and three open-ended questions. Results: Overall, the average mean scores on the IEPS was high, 62 out of 72, suggesting positive perceptions toward IPE and IP collaboration between the variables tested. An independent-samples ttest ( $\alpha$ = 0.05, t= (68.2)-.16, p =.88.) conducted between athletic training students (M=61, SD±12.71) and athletic training professionals (M=62, SD ±.064) was found to be statistically not significant. Suggesting no difference in perceptions between athletic training students and AT professionals. Results of an independent t-test ( $\alpha$ = 0.05 t= (185), 0.74, p= .23 between programs located with other health profession programs (HPPs),  $(M = 64, SD \pm 9.6)$  and those not located (M = 62, SD  $\pm$  7) with other HPPs was found to be

statistically not significant. A very small, but significant difference t (161) =1.64, p=.051(one-tailed), d=.3 was found on IEPS composite scores between participants who received structured IPE instruction (M=62, SD ±8.7) and participants' who did not (M=59, SD±10.6). Results suggest participants who received structured IPE, had slightly more positive perceptions of IPE and collaborative practice. ANOVA results for the four academic degree levels (Bachelor's, ELM, PPM, Doctorate), F (3, 184) = 1.72, p = .17 was found to be statistically not significant. Results suggest no difference in perceptions of IPE and collaborative practice between academic degrees. Results from the open-ended question identified simulation lab, case scenarios and hands-on as highly relevant to the students learning experience. Conclusion: In this study, athletic training students and athletic training professionals, highly valued IPE, IP collaborations, and recognized its impact on PCC. Understanding one's self and one's beliefs, behaviors and attitudes enable a professional to identify possible areas of collaboration with other disciplines. It creates openness, understanding of working together, and developing skills for teamwork. Therefore, while perceptions do not infer actions or produce identified behavior, it does provide the foundational base to support the body of knowledge regarding IPE effectiveness.

#### Chapter I

#### INTRODUCTION

Together with the healthcare community, the field of athletic training (AT) has evolved as a health profession. Remaining consistent throughout this growth is the interdisciplinary approach that exists among all the health professions. This collaborative and team-based approach to patient care is the hallmark of America's changing health care system (IOM, 2013). It is also the result of growing awareness and the need to improve the quality of patient care, patient safety and cost efficiencies within the healthcare system (WHO, 2010). Athletic training as a health profession is grounded in educational preparation and dates back to the founding of the profession in 1950 by the National Athletic Training Association (NATA) (Delforge & Behnke,1999; Mensch & Ennis, 2002; Weidner & Henning, 2002). Therefore, for athletic trainers to advance as a healthcare professional and integral member of providing patient-centered care (PCC), it is important "to know the past, to understand the present, which will guide the future" (Carl Sagan).

During the 1960s and 1970s, athletic training education was rooted in apprenticeship-based training within intercollegiate athletics. Athletic training programs (ATP) were part of a unit in physical education, primarily offering a minor or concentration in athletic training. It was common for program faculty to hold dual appointments and employed by both departments of intercollegiate athletics and physical education (Delforge & Behnke, 1999, Perrin, 2007).

As time went on, and with the continued growth of the profession, a uniform educational structure in preparing athletic training students for practice began to emerge (Perrin, 2007; Dodge, Walker & Laur, 2009). Over the next twenty years, significant contextual changes resulted in a more formal curricular model (Weidner and Henning 2002). Educational standards and content broadened as programs began to develop more specialized coursework specific to athletic training (Delforge & Behnke, 1999).

In 1990, a milestone event occurred when the American Medical Association (AMA) officially acknowledged athletic training as a health profession. Recognition from the AMA was pivotal in moving the profession of athletic training forward as a healthcare profession. Additionally, in 1996, the NATA Board of Directors endorsed recommendations from the educational task force, a group charged to develop a strategic plan to advance the profession. Aligning AT programs with peer health professions educational programs was a key and important recommendation of the task force report. Part of this recommendation stated that multidisciplinary coursework is coordinated with the teaching and exposure to other appropriate health professions (Breitbach, Brown, 2011). Another key recommendation of the task force included a dedicated academic major in athletic training. This started the phase-out of the internship route, which ended in 2004 (NATA Education Task Force, 1997).

In 2012, the NATA Board of Directors approved a proposal by the Executive Committee for Education (ECE), for the future direction to athletic training education. The committee recommended interprofessional education (IPE) should be "a required component in athletic training professional and post-professional education programs" (NATA recommendation 3, 2012). Another significant recommendation is the transition of the terminal degree in athletic training from the bachelor to master degree by the year 2022.

Following the growth and evolution of the athletic training profession from the 1950s, and its organizational roots into the 1990s when athletic training was recognized as a health profession, illustrates the great strides made in advancing the profession. Professional preparedness of athletic trainers has progressed from an apprenticeship-based training program provided through physical education and intercollegiate athletics to dedicated academic majors in the health professions. The key, however, is consistency. While these changes continued to position athletic training better and align athletic trainers as peers to other healthcare professions, they also contributed to varying levels of knowledge about the athletic training profession by the public, peer health professions and within the profession itself. As a result, the "desire of athletic training to be recognized as a 'bona fide' health profession persists today" (Breitbach A. & Richardson, 2015). Athletic training continues to face significant challenges as a health profession, including gaining recognition as an integral member of the healthcare team that contributes to patient-centered care (PCC).

One challenge to overcome is the limited awareness athletic trainers have of their and other health professions. The profession needs to articulate a uniform and consistent description when identifying an athletic trainer. The World Health Organization (2010, p.7) defined interprofessional education as "learning about, from, and with other health professions". The sequence of the wording is intentional. Before students learn from and with other professions, students first need to learn about their profession. According to Mensch and Miller (2008), athletic training students need to gain a more accurate understanding of the professional role and responsibilities of the certified athletic trainer. Equally important is the need for other health professionals to learn and understand the role and responsibilities of the athletic trainer. Gaining an understanding of one's discipline, and the roles and responsibilities of other disciplines help develop a self-professional identify, defines professional boundaries and offer opportunities where collaboration might be found (Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011). An important concept in the establishment of IPE, practice, and collaboration, is the ability to summarize the knowledge base of the discipline. IPE helps students to

understand their own professional identity while gaining an understanding of other professional's roles on the health care team (Bridges et al., 2011).

Athletic trainers regularly practice collaboratively, working side by side with the team physicians and other medical specialists to ensure that patients' care is safe, effective and efficient. This working relationship between professions is based largely on communication and an overall understanding and appreciation of each other's role in delivering health care (Finkham, 2002). However, another challenge the profession faces is that (IPE) has always been implied and not explicitly addressed. As a result, athletic trainers lack the mastery of the terminology and definitions associated with (IPE). Moreover, few collaborative opportunities exist between athletic trainers with other health care professionals. This lack of collaborative opportunities has created a limited awareness by peer healthcare professionals about the role and responsibilities of an athletic trainer. The athletic training profession is often not included in discussions of interprofessional education (IPE) at the institutional and governmental levels. Being left out of the conversation results in limited opportunities to learn together, which in turn effects collaboration between disciplines, and ultimately can affect patient-centered care.

These challenges faced by the athletic training profession are a reflection of the silo mentality, where health professions' education is isolated and involved only in developing knowledge, skills, and abilities associated with its' profession (Towle, 2016). The solution is to break down these silos

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for improved and consistent care that result in positive patient outcomes. More often than not, health care professionals usually operated within its distinct silo. This mindset is a product of students taught in separation or a "silo like" environment resulting in educational viewpoints that are isolated and offers limited awareness of other health professionals (Barr, Freeth, Hammick, Koppel, & Reeves, 2006; Campbell, Stowe & Ozanne, 2011, D Amour, Ferrada-Videla,San Martin Rodriguez & Beaulieu, 2005; Oandasan & Reeves, 2009).

Interprofessional education in health professions education is a way to help students gain knowledge of the roles and contributions of their and other health professions. The expectation is that this experience will produce a level of mutual respect and collaboration between these students when they become health professionals and help them increase the cooperation and communication necessary to deliver patient-centered care (PCC) that is safe, timely, efficient, effective and equitable (Barr et al., 2006, Towle, 2016). Health care professionals need to understand and rely on each other to provide "more comprehensive services, greater efficiencies in the delivery of care, increased patient satisfaction and ultimately better patient care and health outcomes" (Curran, Deacon, and Fleet, 2005, p. 77).

The goal of interprofessional education (IPE) is collaborative practice, and the key to patient-centered care is to focus on IPE. Therefore, IPE is an opportunity to provide future athletic trainers' with knowledge, skills, and abilities to improve patient outcomes, advance the profession and solidify an athletic trainers' role as a contributing member of the interdisciplinary team that delivers patient-centered care within today's healthcare system. Moving forward into a patient-centered care model, the challenge is to think broadly. As the profession of athletic training looks to the future, it has to prepare itself in the present. Now is the time to break down the silos, to explore the opportunities and actively address how to prepare future athletic trainers for collaborative practice.

#### **Background of the Problem**

The NATA acknowledged that advancing the athletic training profession as an interprofessional health care provider lies within the educational program's preparation of the students. In 2012, the NATA Board of Directors approved a proposal by the Executive Committee for Education (ECE), for the future direction in athletic training education. The ECE developed a strategic plan to advance recommendation 3 and the IPE initiative. A work group formed in 2013 to collaborate on a white paper for the purpose to serve as a resource on IPE and interprofessional practice (IPP) in athletic training (Breitbach & Richardson, 2015). The white paper acts as a resource on (IPE) and (IPP) as a component into entry-level and postprofessional athletic training education. By exploring pedagogy, the white paper provides the framework for educational programs to move forward with implementing (IPE) into the AT curricula. The content further is intended to inform the profession and other stakeholders on the background of (IPE) and interprofessional practice (IPP) in athletic training and enhances the awareness of the importance of (IPE) in AT practice (Breitbach & Richardson, 2015).

However, apart from these initiatives, several questions remain unanswered on IPE effectiveness in the development of athletic trainers for IPP. First, there is currently little evidence on the delivery of (IPE) or its effectiveness in AT programs. Thus, research is needed to evaluate whether IPE learning experiences can produce athletic training professionals that are collaborative-ready for PCC. Additionally, outcomes addressing the impact of IPE and the promotion of IPP among athletic trainers need to be established. However, before answering these questions, we argue that several foundational steps need to be taken. First, as researchers, we must seek understanding athletic trainers' perceptions of IPE, IPP and if IPE supports IPP given what we know about how perceptions influence actions (Ajzen, Joyce, Sheikh, & Cote, 2011).

#### Purpose of Study

The purpose of the current study was to explore athletic training students and AT professionals perceptions towards Interprofessional education and interprofessional practice in athletic training using the Interdisciplinary Education Perceptions Scale (IEPS). Additionally, to identify factors in the demographic profile that impact perceptions of knowledge, skills, and abilities towards interprofessional practice among athletic training students and athletic training professionals.

The objective was to gather and analyze the data on pre-existing perceptions of athletic trainers and athletic training students' confidence and competency towards interprofessional practice. Also, explore where, when, and how they acquired this knowledge, skills, and abilities.

#### Significance of Study

Athletic training looks to advance the profession and solidity an athletic trainers' role as a contributing member of the healthcare team. Exploring athletic trainer's pre-existing perceptions gives insight into their confidence and competence of IPE and interprofessional practice. Knowing ATs perceptions of IPE and IPP strengthens the body of evidence, guide future studies and is the first step in the continued development and assessment of the impact of IPE towards interprofessional practice in athletic training. Outcomes will help establish a baseline knowledge, and lay the groundwork for further study and evaluation that will help determine whether IPE learning experiences can produce collaborative-ready interprofessional AT professionals. Building upon this knowledge base will inform and provide valuable insight that will aide athletic training educators as they seek to infuse interprofessional education (IPE) into the curricula. Ultimately, identifying whether IPE prepares athletic trainers as a health care member who provides patient-centered care resulting in positive patient outcomes.

#### **Conceptual Framework**

This study looked to explore athletic trainers' existing perceptions of whether IPE does or not prepare them for collaborative practice. Ajzen's and Fishbein's (1975, 1985) Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) provide a base framework to explore athletic training students' and athletic trainers' perceptions toward interprofessional practice.

Social cognitive theories refer to theories where individual beliefs and thoughts are viewed as processes prevailing between perceptions and actions (Godin, Belanger-Gravel, Eccles & Grimshaw, 2008). According to social theorists, "the most important predictor of behavior is the intention to perform that behavior" (Ajzen, Joyce, Sheikh, & Cote, 2011). Fishbein & Ajzen (1975) proposed a theoretical model for understanding behavior centered on the attitude construct. Their Theory of Reasoned Action (TRA) looked at behavioral intentions, attitude (direct and indirect) and the influence of social norms (Figure 1). In this theory, attitudes are a function of the underlying beliefs about the behavior. Seen as the perceived expectation to perform the behavior, subjective norms are the motivation or intention to act on the behavior. Together, attitude and subjective norm influence behavior through intention.

Ajzen's (1985) theory of Planned Behavior (TPB), links beliefs and behavior. (Figure 1). It is a theory explaining human behavior and is an extension of (TRA). Ajzen intended to improve the predictive power of the (TRA) by adding to the original theory a perceived behavioral control (Madden, Ellen, & Ajzen, 1992). The Theory of Planned Behavior states, "behavioral achievement depends on both motivation (intention) and ability (behavioral control)" (Ajzen et al., 2011). The perception of the individual refers to a view of what a person believes or thinks which influence intentions that can predict behaviors and ultimately actions (Rhodes, Blanchard, & Matheson, 2006). The most important predictor of the actual behavior is the intention to perform a specific behavior. In the TPB, attitude toward the behavior, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions and ability to carry out the behaviors (Ajzen, 1991).



#### Figure 1

Theory of Reasoned Action, Fishbein and Ajzen (1975) and Theory of Planned Behavior (Ajzen, 1985)

A systematic review conducted in Canada by Godin, Belanger-Gravel, Eccles, & Grimshaw, (2008), aimed to predict healthcare professionals' intentions and behaviors. The key question the authors wanted to answer was which theoretical construct is most relevant for the study of health care professionals' behavior. The review specification included study's using a social cognitive theory approach. Seventy-eight studies met the inclusion criteria. Among these, seventy-two provided information on the determinants of intention and sixteen prospective studies provided information on the determinants of behavior. Seventy of the seventy-two studies included looked at the purpose of behavior.

The authors reported that concerning the factors explaining intention, "the most consistently significant cognitive factors (*i.e.*, at least 50% of the time) were beliefs about capabilities, beliefs about consequences and the social/professional role and identity" (Godin et al., 2008). The theory most often identified was the TRA or its extension the TPB. When researchers are looking to predict behavior in the health professions Godin et al., (2008) concluded that the TPB is an appropriate construct for studies that explore health-care professionals' behavior and intention.

Understanding one's self and one's beliefs, behaviors and attitudes enable a professional to identify possible areas of collaboration with other disciplines. It creates openness and understanding of working together and developing skills for teamwork. Therefore, while perceptions do not infer

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actions or produce identified behavior, it does provide the foundational base to support the body of knowledge regarding IPE effectiveness.

#### **Research Questions and Hypothesis**

This study explored athletic trainers' perceived knowledge, skills, and abilities towards interdisciplinary collaboration. Four questions explored athletic trainers' perceptions of interprofessional education and teamwork as identified by the level of agreement to the items on the Interdisciplinary Education Perception Scale (IEPS). Three additional questions looked to explain further and understand the impact of IPE on the practice of athletic training.

The four quantitative questions and hypothesis addressed in this study included:

**RQ1:** Is there a significant difference in athletic training students' and AT professionals' perceptions of interprofessional practice (IPP) in athletic training as identified on the Interdisciplinary Education Perceptions Scale (IEPS) composite score?

**Ha1:** There is a significant difference in AT students' and AT professionals' (IEPS) composite scores

**RQ2:** Do athletic training programs, located within the same academic unit as other health profession programs (HPP), lead to significant differences in AT students' and AT professionals' perceptions of IPP as identified on the IEPS composite score?

**Ha2:** AT students' and AT professionals whose athletic training program is located within the same academic unit, as other (HPP) will present with significantly higher IEPS composite scores than those who are not.

**RQ3:** Does structured IPE instruction lead to significant differences in AT students' and AT professionals' perceptions of IPP in athletic training as identified on the IEPS composite score?

**Ha3**: AT students' and AT professionals' who received structured IPE instruction during their education will present with significantly higher IEPS composite scores than those who do not receive structured IPE instruction.

**RQ4:** Does academic degree level lead to significant differences in AT students' and AT professionals' perceptions of IPP as identified on the IEPS composite score?

**Ha4:** AT students' and AT professionals' with the highest earned academic degree will present with significantly higher IEPS composite scores than those who do not.

To further expand he quantitative findings, three open-ended questions looked to add depth, as themes within and across the participants' responses were explored to add insight into their perceptions. Findings from research question five, six and seven, looked to verify, explain and strengthen the quantitative results of this study.

The three qualitative questions addressed in this research study included:

**RQ5**: What professionals do you believe the athletic training student should be exposed to during academic preparation to support (IPE)? Please briefly explain why.

**RQ6:** Where do you think (IPE) is best learned? Please briefly explain why.

**RQ7**: Would you recommend or not recommend Interprofessional Education to other members of your discipline? Please briefly explain why

#### Chapter II

#### LITERATURE REVIEW

The goal for students engaged in IPE is to learn how to function in an interprofessional team and carry this knowledge, skill, and value into their future practice. Ultimately as part of a collaborative team, the goal of IPE and IPP initiatives is providing patient care that focuses on improving patient outcomes (Buring, Bhushan, & Brazeau, 2009). Through the history and development of IPE, the importance of collaborative practice to reduce practice errors and improve quality of care and patient outcomes are evident. To improve IPE education and its contributions to future practice, the following literature review includes studies that explored the effects of IPE in facets of the healthcare system.

#### Impact of IPE on Students

According to Oandasan & Reeves, (2005), students favor IPE more when the experiences are directly relevant to their current or future practice, and collaborative practice increases efficiency and understanding of interprofessional roles (Richardson, Letts, Childs, et al., 2010). One goal of IPE is the improvement in the level of confidence for communicating across professions, and a positive influence on students' willingness to continue learning together throughout their professional preparation (Breitbach et al., 2015).

A study conducted by Klocko et al., (2012) aimed to improve students' communication and teamwork skills while allowing them to learn more about health professions outside their discipline. In a new curriculum, Klocko explored if health profession students' (N=12) attitudes toward communication and teamwork improved while they learned more about health professions outside their discipline. The author hypothesized that exposure to a new curriculum over a period of two semesters would positively influence students understanding of communication and teamwork. Klocko (2012) found that student attitudes improved, as they perceived to have gained more confidence towards communication and teamwork skills.

Mueller, Klingler, Paterson & Chapman, (2008) surveyed OT, and PT clinicians from Canada in both private and public practice, (97%) of the respondents agreed it is essential for OT & PT students to be involved in IPE during their training. Fifty-seventy percent of OTs and (43%) of PTs agreed received the appropriate level of IPE training during their entry-level training. The majority or (65%) of the overall responses chose clinical placement as the location/time IPE should be completed. Twenty-six percent chose the classroom and (5%) chose "other."

In a cross-sectional study, Makino, Shinozaki, et al., (2013) examined if alumni who studied in an IPE program at a pre-licensure stage maintained a positive attitude toward collaborative practice (CP) once graduated and in practice. Students who participated were enrolled in PT, OT and nursing programs respectively. Students in a first-year lecture reported negative attitudes toward collaborative practice while students enrolled in the third year clinical course reported positive attitudes towards collaborative teamwork. Overall, the mean score of alumni was significantly lower compared to students currently enrolled. However, it is important to note that this was not a longitudinal study and the alumni surveyed was not the same cohort surveyed when enrolled in the program. Results identified that students possessed more positive attitude towards IPE than alumni did in clinical practice. Findings from this study suggest that changes in professional identity in a team may be due to contact with patients after graduation in the postgraduate clinical healthcare experience. Further, the reduction of attitudes toward healthcare teams in the postgraduate clinical experience may be related to "team efficacy".

In a longitudinal study conducted in Newfoundland, Curran et al., (2008) explored student attitudes toward IPE. The authors examined the effect of IPE on attitudes toward IPE, attitudes toward interprofessional teamwork and overall satisfaction with IPE curriculum. Participants included undergraduate students enrolled in the school of pharmacy, school of social work and the schools of nursing. The authors concluded that overall, students from across professions reported positive attitudes towards the concept of interprofessional teamwork.

In another study, Coster & Norman et al., (2008), investigated the development of health students' attitudes/perception and readiness for IP learning among several health profession disciplines including PT, OT, and nursing. The authors reported most students on entry begin the program with high positive attitudes towards IPE and collaborative practice and that these positive attitudes diminish over time. One explanation that the authors gave is that upon entrance, students had a higher perception of their skill and abilities and as they progressed through the program those perceptions were effected by experiences and a more advanced didactic component.

The purpose of a study by Hood, Cant, Baulch, et al., (2013) was to explore the perceptions of senior nursing, midwifery, nursing-emergency health (paramedic), medical, physiotherapy and nutrition-dietetics students toward interprofessional learning (IPL).Using the Readiness for Interprofessional Learning Scale (RIPLS), the authors surveyed across disciplines (N=741) and reported a (46%,) response rate. Highest ranked response agreed across disciplinary groups. The top five rated items were determined by all disciplines and included recognizing the importance of learning together to develop "trust and respect among students. Other highly rated items included recognition that "patients would benefit if students worked together to solve a patient's problems and learning with other students will help them become a more effective member of a health care team." Overall, students from all disciplines demonstrated a positive attitude towards, and active support of, interprofessional learning and, interestingly, those with IPL experience had significantly stronger attitudes towards participation in IPL compared with those without IPL experiences.

#### Impact of IPE on Faculty

The faculty is stakeholders in IPE. Faculty members report benefits of IPE such as increased collegiality with other team members, significant opportunity to model IP collaboration in the classroom and community, and increased scholarship opportunities (Breitbach et al., 2013). Ho (2008), identified several barriers that affect IPE and faculty who are constructing IPE experiences. He found a significant obstacle for faculty involved in IPE included a limited understanding of other professions. Additionally, faculty from different professions may have different professional values, cultures, biases, and they may not fully understand what other health professionals do in a collaborative environment (Ho, 2008). According to the IOM (2010), it is important that faculty develop professional trust among team members and work to model interprofessional collaboration by developing, supporting, and sustaining cooperation across participating disciplines. Many faculty and preceptors have not been formally instructed in team approaches during their professional education and likely did not have explicit training in either leading or being part of, collaborative efforts (Gilbert, 2005).

Common collaborative methods to enhance and forward goals of IPE include IPE courses, clinical/fieldwork (practice) education, and information technology (Gilbert, 2005; Oandasan & Reeves, 2005). Faculty members may need help constructing and evaluating IPE, however. IPE is more than just putting multiple disciplines into the same class. IPE activities must include specific and measurable objectives and evaluation metrics to assess outcomes (Gilbert, 2005). There is uncertainty in how to measure IPE competency-based models. A multipoint-of-view approach should be used to plan and evaluate the outcomes and value of IPE (IOM, 2010). Community-based health professionals can help faculty understand the needs and priorities of the patients and future employers to identify purposeful goals of IPE during planning phases (IOM, 2010).

Faculty support from higher-level administration facilitates a culture change, which embraces IPE organizationally. Examples of organizational barriers in which administration can help include class scheduling and facility availability (IOM, 2010; Ho, 2005; Breitbach, 2013). In addition, Breitbach et al. (2013) and Aston (2012) identified that IPE is very time intensive for the faculty to develop and deliver, thus, the workload should be adjusted. Upperlevel administrators should further support faculty involved with IPE through appropriate merit increases, and recognition of faculty IPE activity during the promotion and tenure process (Gilbert, 2005). Further research is necessary to explore benefits of IPE for faculty and students. IPE contributes to better communication, understanding of other's roles and responsibilities, improved teamwork, learning how to interact with other professionals, improved team functioning, and trust in other team members. Planning of IPE activities is time consuming, detail oriented and requires commitment and persistence. Significant barriers for faculty, students, and preceptors to IPE include disciplinary and prior interaction biases, faculty buy-in for breaking down disciplinary silos, coordination of program schedules, faculty development, and limited role models. Support from the higher-level administration for IPE and strong leadership advocating for IPE is necessary for IPE to succeed and be impactful.

#### Impact of IPE on Healthcare Professions

The fundamental definition of coordinated health care involves recognizing the talent and ability of each member of the interprofessional team (Hall, 2005). Collaboration and teamwork among health care professionals are essential aspects of the delivery of high-quality patient care. Research has demonstrated that interprofessional cooperation in practice improves patient care and outcomes, reduces medical errors, and enhances job satisfaction and retention (Schroder et al., 2011). The next generation of health care professionals must be prepared to function successfully in this culture. Various entities, such as the Institute of Medicine and American Board of Medical Specialties, have suggested that the preparation of the health care workforce should include interprofessional education (IPE) (Batalden, Ogrinc, & Batalden, 2009). They identified healthcare competencies for all healthcare providers, regardless of discipline. These skills are consistent with the foundational behaviors of professional practice identified within the NATA Education Competencies for professional education (NATA, 2011). The competencies include evidence-based practice, patient-centered care, interprofessional education and collaborative practice, healthcare informatics, quality improvement, and professionalism (Batalden et al., 2009).

Traditionally, the professions of nursing and medical schools have been the driving force behind advances in interprofessional education (IPE) as well as clinical practice. The American Association of Colleges of Nursing (AACN) identifies interprofessional learning as an expected competency for masters (2011) and doctoral preparation (2006). Along with nursing, pharmacy also includes IPE in its accreditation guidelines (ACPE, 2011). The American Colleges of Pharmacy (AACP) largely advocated that "all colleges and schools of pharmacy provide faculty and students meaningful opportunities to engage in education, practice, and research in interprofessional environments to better meet the health needs of society" (Krobath et al., 2007, ACCP White Paper, 2017, p.6). The National League for Nursing (NLN) recommends repeated and systematic IPE experiences, matching student levels across disciplines. The gold standard for implementation of these experiences was through carefully planned and developed simulations to gain an appreciation for all skills the various professions provided in an environment where discussions could take place (NLN, 2012).

In a study to assess commonalities in interprofessional education accreditation mandates across professions, Zoreck (2013) found that accrediting agencies lack a universal mandate/standard for IPE. Although health professions identify and recognize the importance of interprofessional education and interprofessional practice, the current approach to IPE standards across health professions is uni-professional (Zoreck, 2013). The authors reasoned that establishing one universal IPE standard would create baseline preparation of IPE across the health professions. This approach offers a way to address the challenge for graduates to experience IPE and appreciate other health professional roles and responsibilities, and the added ability to collaborate to improve the delivery of health care to patients effectively (Zoreck, 2013). A conclusion can be made that all health care professionals, throughout the United States and including the profession of athletic training, need to act in unison and collaborate to create one universal IPE standard. To this end, Hertwick et al., (2012) suggested educational programs should require each applicant of a health professions program to shadow different healthcare providers/professionals in varied health care settings as part of the admissions process.
Jones et al., (2012) performed a review of the status of IPE in the first clinical experience of pharmacy students. The results of the review indicated schools with multiple health profession programs have more success with the integration of interprofessional education into the clinical environment. The review also identified a lack of tools to assess IPE in pharmacy practice experiences.

While few accreditation standards specifically address required interprofessional education in physical therapy, there are numerous indications of interprofessional practice. Physical therapists collaborate with many other personnel involved with the patient/client. "The academic environment must provide students with opportunities to learn from and be influenced by knowledge outside of, as well as within, physical therapy" (CAPTE 2013). "The physical therapist professional curriculum includes clinical education experiences for each student that encompasses opportunities for involvement in interdisciplinary care" (CAPTE, 2013).

One concrete example where physical therapy, athletic training education, and other healthcare professions, have similarities in interprofessional education comes in the form of service learning. Service learning, as an interprofessional education experience, may maximize the opportunity to understand the patient-centered care and the importance of collaboration among health professionals (Bridges et al., 2010). Collaborative work among health care professions is the key to quality interprofessional

patient/client care. Interprofessional collaboration in health care is considered a high priority, as concerns about patient safety and the need for effective and efficient care have reached alarming proportions (Bainbridge, Nasmith, & Orchard, 2010). Service learning is an easy way to overcome many of the IPE challenges, such as varying schedules, while providing the students' opportunities for collaborative learning outside the traditional academic setting.

The current healthcare environment is becoming increasingly reliant on team-based care and interdisciplinary training for its practitioners (Tucker et al., 2003). Healthcare reform in the US will require today's health science students to be able to function well in interdisciplinary teams to maximize efficiency and effectiveness in patient care. Numerous studies found that the quality of patient care increased. Noted was the increased level of teamwork among healthcare professionals (Ferrell & Winn, 2006; Headrick, Barton, & Ogrinc, 2012; Hobgood, Sherwood, & Frush, 2010; Calman, Hauser, Lurio, Wu, & Pichardo, 2012; Korner, Ehardt, & Steger, 2013; Nadolski, et al., 2006). Most educators in the health professions realize intuitively that health science students need multiple instructional events and opportunities to practice interdisciplinary teamwork. They also need to see their respective health science faculty members working together in a collegial way to internalize the importance of mutual respect and reliance among healthcare disciplines (Hall et al., 2001).

Interprofessional education initiatives allow students across health care professions to learn to collaborate effectively with each other and learn what areas their scope of practice might overlap with other professions. IPE fosters a deeper understanding of how their professional expertise may best work with another health care provider to achieve good patient outcomes (Mueller et al., 2013). Interprofessional education further strengthens students own professional identity and increases awareness of the need to educate others about his/her professional role as a healthcare professional (Lie et al., 2013). Additionally, early exposure to different professions and the health care system may lead to a more positive view of interprofessional collaboration among the different health profession students and entry-level professionals (Hertwick et al., 2012).

Athletic trainers have consistently worked side by side with team physicians and other medical specialists to ensure that together, the care provided for physically active individuals is delivered effectively. This close working relationship is based mainly on excellent communication and an overall understanding and appreciation of each other's role in delivering health care (Finkham, 2002). A growing number of orthopedic doctors continually look to employ athletic trainers in a physician's offices to increase practice efficiency, revenue, and productivity, while ensuring patient education and satisfaction (Brockenbrough, 2009).

This interprofessional approach to health care promotes a higher standard of

care and better patient outcomes.

One challenge that athletic training must overcome is to develop a more uniform description of who athletic trainers are as a health care provider and define roles and responsibilities of daily practice. Clarke & Hassmiller (2013), linked "roles and responsibilities in interprofessional practice require each discipline come to the table with the ability to articulate the knowledge base of their discipline". An important concept in the establishment of interprofessional education, practice, and collaboration in athletic training is the ability to summarize their knowledge base. As various health care professions pursue increasing educational preparation and consequent recognition of their clinical abilities, athletic trainers must effectively communicate their value as part of the healthcare team. Our strong link to supervising physicians should continue to pave the path towards increased awareness and recognition of our educational preparation and clinical expertise.

Athletic training can learn from the early endeavors of nursing and medicine into the interprofessional education journey (Thibault, 2011). Answers to the major questions as to when to implement, how long, and what is required, is crucial to the success of IPE for athletic training. Athletic training needs to view the IPE experience as a continuum for lasting effects for the learner to occur. The discipline of athletic training is committed to understanding the capabilities of the various health care professionals interacting with on a daily basis and recognize their value, as well a shared vision for better health care and education (Kruse, 2012). In return, athletic trainers should foster collaborative efforts to further solidify their place as part of the interprofessional team.

## **IPE Location**

Throughout the literature, more success with the integration of IPE is noted when health professional programs are housed together. A set of studies looked at the location of HP programs for the promotion of IPE within the programs and throughout the curriculum. Jones, Blumenthal, et al., (2012) reviewed the status of schools of pharmacy IPE experiences. Out of 116 US colleges of pharmacy, 95 colleges (82%) responded. Schools with multiple health profession programs, (more than six programs) were more likely to have IPE and had more success with the integration of IPE. The authors concluded that common institutional alignment with "peer" professions, by both by their academic level and the academic unit might facilitate opportunities for other programs seeking IPE involvement.

#### **Delivery of IPE into Curricula**

From the literature review, it was identified that students respond positively to IPE, but it is unknown if early IPE experiences have a positive impact on students' learning together throughout their professional preparation. Questions arise about the timing of introducing (IPE), and the research literature is mixed when to start formal (IPE) (Jones, Blumenthal, Peterson, et al., 2012). Though students may not initially understand the complexities of interprofessional relationships, research supports the importance to develop a common framework of best practices early during professional preparation (Jones et al., 2012; Mueller et al., 2013; Hertwick et al., 2012). On the other hand, studies also suggest that IPE may not be beneficial early in pre-service education because students need to develop a clear sense of their professional identities before fully understanding the professional identity of others (Bronstein, 2003).

Lie, Walsh et al., (2013) conducted a study to elicit the opinions from second-year PA students (N=21) attending University of California on the delivery of (IPE). Two groups of students on the same geriatric clinical rotation, one group part of an interprofessional team and one group not part of an interprofessional team, were polled after the completion of the rotation. The authors found agreement among all PA students that (IPE) should be required and introduced early.

In England, Pollard, Miers, Gilchrist, & Sayers, (2006) explored the readiness for interprofessional learning at different times of their education among students from nursing, midwife, physical therapy PT, occupational therapy, social work, mental health, and special education. The study

surveyed student perceptions during and after their education and if these opinions changed over time. The authors reported that most students on entry begin the program with high positive attitudes towards IPE and collaborative practice and that these diminish over time. The authors postulated that students upon admission to the program overestimated their skill level. Diminished attitudes reflected unrealistic perceptions of IPE. Diminished beliefs, the authors felt, were the result of bad experiences and interactions during clinical rotations, which caused a loss of confidence in communication and teamwork. The authors also acknowledged that the students lose focus on the value of IPP as a result of the demands of the specific skill set and abilities required (Pollard et al. 2006).

Overall, studies showed that students who received IPE during their education program reported perceptions of more confidence in their abilities towards IPP after graduation. Learning should be included in curricula in all degree programs. The debate continues but perhaps earlier in the course of study counteracts negative stereotypes or attitudes and encourages the development of interprofessional collaboration skills (Hood et al. 2013).

#### Adult Learning Theory

Research supports that IPE initiatives need to be grounded in a theoretical model, connecting theory to practice. A review of IPE models published between 2005 and 2010 identified only forty-seven percent of the published studies reported the use of learning methods in the development and implementation of the IPE program. Additionally, how the theories were used and which approaches were most effective in IPE development was not always clear (Abu-Rish et al., 2012). The literature offers several theoretical frameworks for IPE development and implementation. These include adult learning theory, contact hypothesis, reflective practitioners, experiential learning, social identity theory, and intergroup contact theory (Oandasan, & Reeves 2005, Clark, 2006, Abu-Rish, Et Al., 2012, Khalili et al., 2013). According to Abu-Rish (2012), the adult learning theory and contact hypothesis theory were the most commonly implemented and cited.

One adult learning theory commonly referenced in healthcare education is Kolb's experiential learning theory (ELT). In this method, learning is described as a process through which experiences can affect how individuals develop and synthesize knowledge that they gain through experiential learning experiences (Kolb, 1984, 41). The adult learner is guided by Kolb's theory, which has two assumptions. First, the learner can adapt and change his/her knowledge, skill, and attitude to experiential learning and second; learning continues to evolve after the completion of the learning cycle to a more complex level (Davies & Gidman, 2011). This achievement directs the learner to another set of experiences, which in turn leads him or her to another cycle of learning (Poore et al., 2014). Health profession disciplines, such as nursing, use Kolb's Experiential Learning Theory's (ELT) approach to learning (Baker et al., 2008; Lisko & O'Dell, 2010). Poore et al., (2014) recommended Kolb's ELT to guide simulation-based IPE to improve communication and collaboration with health professional students. The authors found that utilizing Kolb's theory provided a foundation and process for the individual learner who participates in the simulation.

The research of Baker et al. (2008), Dillon, Noble, and Kaplan (2009), and IOM (2010), recognized the use of IPE as an effective teaching strategy in early co-education of students from different professions in the healthcare field. From the data analyzed in this study, experiential learning was identified as a preferred method and a good fit for athletic training.

#### Summary

Existing studies have shown that there is little definitive information available on the effectiveness of IPE activities for healthcare professional (HCP) students. It has been demonstrated that IPE may give students opportunities to learn about other professionals and develop a sense of autonomy. However, the reasons behind and the extent to which students' perceptions of inter-professional collaboration change after structured IPE are not well understood.

To fully inform institutions of the value of IPE, more rigorous evaluation of the impact of students' perceptions on IPE towards IPP is needed. The literature showed that students respond positively to IPE. Studies demonstrated that students who received IPE curriculum during their education program reported perceptions of more confidence at graduation about their skills towards IPP. Further, the literature showed more success with the integration of IPE when health professional programs were housed together.

Though the research reports many positive outcomes in regards to IPE, gaps in the literature still exist. There is no consensus within the research to determine the best time to implement IPE. Uncertainty still exists if early IPE experiences have a positive impact on students' learning together throughout their professional preparation. What was also learned from the literature is that there is limited research in the area of AT on IPE. Also, there is no evidence to support that perception of confidence and competency in IPP in AT is the result of formal IPE education. Therefore, research supports the need to investigate further athletic trainers' attitudes and perceptions to improve education and future practice.

## Chapter III

## METHODS

## Study Design

The current study explored athletic trainers' and athletic training students' perceptions of (IPE) and interprofessional practice (IPP) in athletic training. To answer the questions purposed, the researcher implements Creswell & Plano Clark (2011), concurrent mixed method embedded design. Creswell & Plano-Clark (2011, p. 92), describe this design as a collection and analysis of both qualitative and quantitative data in combination, on the same topic, and at the same time. In an embedded design, a traditional quantitative or qualitative design is determined the primary method that guides the study and a secondary or lesser "embedded" design offers a supportive role to the overall findings of the study (Creswell, Plano-Clark, 2011).

For this study, embedded into the more substantial or primary quantitative design was the smaller qualitative design (Figure 2). The quantitative results provided the researcher a general understanding of the research problem. To expand on these findings, three open-ended questions explored the participants' point of view, helping to give clarity to the overall outcomes. The qualitative findings refined and further strengthened and validated the quantitative results.





Mixed Methods Concurrent Embedded Design Creswell and Plano-Clark (2011)

According to the research literature, the collection of both quantitative and qualitative data provides different but complimentary data that is merged, so in combination, can generate more understanding of the findings than either research approach can offer alone. The researchers described mixed methods as a type of investigation that "validates the findings generated by each method through evidence produced by the other" (Creswell; Hanson et al, 2005; Clark.2005; Reeves et al., 2015). Kroll and Neri, 2009, p 42). Amid the limited literature that exists on (IPE) and (IPP) in athletic training, conducting a mixed method embedded design helped to establish a base knowledge.

## **Quantitative Procedures**

Initial data analysis included screening the data for assumptions of normality and equality of variance across sample populations. Research literature had shown that the parametric methods examining differences between means, for sample sizes greater than five, "do not require the assumption of normality", and will yield nearly correct answers (Portney & Wadkins, 2009 pgs. 85 & 437; Norman 2010). The sample size for the factors explored in this study was higher than five, and therefore, met the assumption of normality. To retain the 'robustness' in the analyses, a parametric approach was used.

Exploring (RQ1 thru RQ-4), quantitative analysis was conducted using SPSS version 24 software. An independent *t-test* or one-way analysis of variance (ANOVA) tested for the differences between groups as identified on the overall IEPS scores. The alpha significance level for analysis was set at p >.05 for all statistical tests. Levene's test of equality was computed, meeting the assumption of equal variances across samples, unless a violation is noted. Appropriate post hoc analysis was conducted if the results identified significant mean differences.

## **Qualitative Procedures**

Qualitative analysis of the three open-ended questions, research questions five thru seven (RQ5-RQ-7), further explored athletic trainers' perceptions of IPE and the future of IPE for the athletic training profession. The first part of each question was straightforward (closed-ended) and sought single word answers to the following; RQ5) what health professions AT students should be exposed, RQ6) what is the best learning environment for IPE and; RQ7) do you or do you not recommend IPE for AT students.

Pre-determined A priori codes/categories or themes were generated from the characteristics of the phenomenon being studied and based on earlier work; from theories and literature reviews; from local, commonsense constructs; and from researchers' values (Bulmer 1979; Strauss 1987; Maxwell 1996; Ryan & Russell, 2003). This approach of generating concepts from theory or previous studies is useful for qualitative research, especially at the inception of data analysis (Berg, 2001). Research question five and seven were derived from theoretical constructs, the researcher's experience, and from the literature (Kolb, 1984; Breitbach & Richardson, 2015). The predetermined themes for research question six was derived from the published core competencies for interprofessional collaborative practice established in 2011 by the Interprofessional Education Collaborative (IPEC, 2011).

The researcher sought to achiever inter-rater agreement with a second coder, a Seton Hall University faculty member from the School of Health and

Medical Sciences, who is a qualitative expert. Each coder separately analyzed AT students and AT professionals responses to each question. For this study, a summative content analysis involved counting and comparing the keywords and interpreting the responses (Hsieh & Shannon, 2005). Categories and themes emerged from the data, and greater than (90%) agreement on the content was established between the two coders (Creswell & Clark, 2011). Creswell & Clark, (2011), examine qualitative comments to explain the initial quantitative results and identify trends. For this study, responses examined by the researcher helped to expand, verify and clarity the quantitative findings.

#### Instrumentation Design

## **On-line Survey Design**

Embedded instrument design is defined by Creswell and Plano-Clark (2011, p.105), as integrating a qualitative component within a traditional, validated quantitative design instrument. The current study's design was structure following Creswell's instrument design. The researcher developed one online survey with three separate sections. Participants were asked to complete a revised version of the *Inter Educational Perceptions Scale* (IEPS) a traditional and validated survey instrument developed by McFadyen, A. K., Maclaren, W. M., and Webster, V. S. (2007). The twelve items on the (IEPS) identified if there were significant differences in the level of agreement

amongst athletic trainers' perceived confidence and competency toward IPE and (IPP). The composite score on the IEPS served as the dependent variable for this study.

The demographic data helped establish whether the individuals in the study were a representative sample of the target population for generalization and to identify possible outliers within the population who participated. In this study, specific factors identified from the demographics served as the independent variables.

At the end of the demographic questions, the researcher asked the participants to respond to three open-ended questions. By integrating an embedded instrument design, with a smaller qualitative component into the primary quantitative instrument, the researcher met the intent of the concurrent embedded design used in this study.

#### **Demographic Profile**

The researcher developed the demographic profile. The profile included thirteen questions to identify characteristics of the study's population and factors that may influence the participant's perceptions of IPE. General characteristics of the population included; age, gender, years of experience and work setting. The demographic variables (IV) explored in this study included, professional status (student, clinician), alignment of AT program with other health profession programs, formal, structured instruction in IPE and academic degree. The vetting process to establish clarity and content validity included feedback from peer students during research forum. After revisions, an expert panel of peer colleagues within the health professional education programs vetted the profile. After two additional revisions, the final profile gained approval by consensus. The final questions on the demographic profile included three open-ended questions. The development and vetting process for the open-ended questions was the same as for the demographic profile.

#### Interdisciplinary Education Perceptions Scale (IEPS)

The researchers, McFadyen, Maclaren, and Webster (2007) developed the revised version of the Inter Educational Perceptions Scale (IEPS) and was the survey instrument of chose used for this study. Information on the IEPS can be found at nexusipe.orqlmeasurement-instruments and is available in the public domain.

Throughout the IPE literature, the revised version of the IEPS is considered a validated and widely utilized tool in survey research studies (Blue, Chesluk, & Conforti, 2015; Goelen, De Clercq, Huyghens, & Kerckhofs, 2006; Zoller & Blue, 2012; Vaughan, Macfarlane, Dentry, & Mendoza, 2014; Arthur, et al., 2012).

Luecht et al., (1990) developed the original Interdisciplinary Education Perception Scale (IEPS), which consists of 18 statements. The survey statements are framed to gather attitudes towards interprofessional collaboration based on self-perceived beliefs, behaviors, and attitudes toward one's professions' capabilities, and contributions; collaboration with others; and trust of others' judgment (Luecht, 1990). Luecht et al., (1990) established content validly of the instrument by consulting five faculty researchers who used their clinical expertise to determine the factors most relevant for IPE. McFadyen (2005) established construct validity of the original (IEPS) from feedback on the survey from eight different healthcare disciplines.

In the revised version, statement items did not change; however, McFadyen et al., (2007) remodeled the subscale (SS) structure and removed six statements found redundant. The revised version of the survey is a twelve-item tool. McFadyen et al., (2007) organized the statements into three subscales: competency and autonomy, the perceived need for cooperation and perception of actual cooperation. Subscale one (SS1) refer to perceptions of one's professions roles and responsibilities. Subscale two (SS2) refers to understanding perceptions of one's professional identity both positive and negative and explores the need for interdisciplinary cooperation as it impacts one's profession (Luecht et al., 1990). The third subset (SS3) explore perceptions of teamwork and collaboration (actual cooperation) between one's profession and other professions. The revised (IEPS) instrument demonstrates greater stability of the tool when collecting perceptions of interprofessional education (McFadyen, 2007). The authors reported test-retest reliability of .6 and reported good internal consistency for the total scale Cronbach's alpha value ( $\alpha$  = .87 - .88) (McFadyen, 2007).

Participants responded to 12 survey statements using a 6-point Likert scale (from 1 = "Strongly disagree" to 6 = "Strongly agree").On the individual statement level, the scale appears ordinal, but when the 12 statements are summed to generate a composite score, the scale becomes interval (Pell, 2005; Carifio & Perla 2008; Lie, Fung, Trial & Lohenry, 2013). When scoring the (IEPS), participants indicated their level of agreement with each of the 12 statements. An overall composite score of 72 represents the highest level of agreement with the statements and concepts related to interprofessional education and teamwork, indicating positive perceptions towards IPE and IP collaboration. A score of 12 represents the lowest possible level of agreement indicating less positive perceptions towards IPE and IP teamwork.

## Variables

#### Independent Variable (IV)

Independent Variables (*demographic factors*) explored in this study included: 1) professional status (AT student, AT professional); 2) location, (AT program with other health profession programs); 3) curriculum, (received structured IPE instruction); 4) education (academic degree) and; 5) instructional environment IPE is best learned. The researcher explored if these demographic variables lead to significant differences in AT students' and AT professionals' perceptions of knowledge, skills, and abilities of (IPE) towards collaborative practice in athletic training.

## Dependent Variable (DV)

The dependent variable for this study was the composite score on the *Interdisciplinary Perceptions Scale (IEPS)*. This survey scale provides six possible overall scores. A score between 60 and 72 represent a high level of agreement with an achieved score of 72 indicating the highest level of agreement and very positive perceptions towards (IPE) and IP collaboration. Scores towards 48 indicate a moderate level of agreement and moderately good perception towards (IPE) and IP. Scores towards 36 indicate a moderate level of disagreement and somewhat poor perception towards (IPE) and IP collaboration. A score between 24 and 12 indicates a low level of agreement, with 12 being the lowest possible level of agreement and indicating a poor perception towards (IPE) and IP collaboration.

#### **Data Collection Procedures**

Before the start of data collection, the researcher received approval from Seton Hall University's Institutional Review Board (IRB) (Appendix A). In the email, invitation disclosures discussed voluntary participation, safety, confidentiality, and the opportunity to withdraw if desired. Participants were notified of the study's IRB approval, along with additional IRB details (i.e., who to contact with concerns). The study's purpose, objectives, and benefits to the participants were identified. Before entering the survey, participants were told that if choosing to proceed they were giving their informed consent to participate in this research study. Once they began the survey, which was supported by Survey Monkey, and continues past the first page, the participant automatically gave permission to participate in this research study. The process ended if the participant chose not to click the survey link.

To recruit for this study, contact information for AT program directors (PD) at the undergraduate, entry-level masters' and the post-professional master level was collected from the open access CAATE website available to the public. Three-hundred eighty six AT program directors (PD) received a blast email invitation to participate in this study with the request to forward the survey link to students, alumni, and preceptors. The email contained a solicitation letter and the web link needed to access the online survey. The letter of solicitation detailed the purpose and objectives of the study and informed the participants to complete the survey should take no more than 20 minutes. Disclosures included voluntary participation, safety, confidentiality, and the opportunity to withdraw if desired. Participants were made aware of the study's IRB approval, along with additional IRB details (i.e., whom to contact with concerns).

The target population included athletic trainers and athletic training students. The PD's letter of solicitation requested they complete the survey and asked that they forward the study to current students, graduates and clinical preceptors associated with their AT program. This process of asking the initial participant to forward the study to other participants who meet the criteria causes a chain referral or "snowballing" effect (Portney and Watkins 2009). According to Portney and Watkins (2009, p.156) "snowball sampling is most useful when the population of interest is hard to reach". For this study, the snowball sampling approach was an appropriate technique because there is no open-access directory for current AT students as well as no way for the researcher of this study to identify alumni and preceptors affiliated with each AT program.

Recruitment lasted six weeks with two reminders emailed every two weeks. Participants were instructed to complete the survey at their convenient location as long as internet access was available. Participants were reminded that by accessing the survey and proceeding past the first page, they gave their consent to participate. After the six week recruitment period ended, the survey closed (Figure 3).



*Figure 3:* Procedure and Data Collection Process

## **Selection Criteria**

The sample population included AT students and AT professionals. Participants either qualified or disqualified from the study based on the inclusion and exclusion criteria.

## **Inclusion Criteria**

For AT students to qualify for participation in this study they needed to meet the following inclusion criteria: 1) Enrolled in a CAATE accredited athletic training education program; 2) Ability to read and understand English and 3) Need reliable access to internet service.

For AT professionals to qualify for participation in this study they needed to meet the following inclusion criteria: 1) Credentialed in athletic training by the Board of Certification (BOC); 2) Ability to read and understand English and 3) Need reliable access to internet service.

## **Exclusion Criteria**

AT students were not included in this study if:1) Enrolled in a Non CAATE accredited AT program; 2) Did not speak or understand English and; 3) No access to reliable internet.

AT professionals were not included in this study if 1) Not board certified athletic trainers; 2) Did not speak or understand English and; 3) No access to reliable internet.

## Sample Size of Population

Two analysis conducted before to the start of data collection determined the recommended sample size needed to achieve statistical significance. The researcher performed an A priori power calculation using G\* power 3.1 analysis with an effect size of .5, *p* level .05, and power of .95. Results of the G\* power analysis identified the minimum recommendation minimal sample size at 193. Results of a second power analysis conducted with Raosoft, a free online sample calculator, identified the minimum recommended minimal sample size at176. (Table 1). The two analysis, G\*Power analysis (N=193) and Raosoft analysis (N=176,) provided a recommended minimal range needed to achieve statistical significance, (Table1).

From the 386 known surveys emailed, the return rate was 206 surveys. Eighteen of the returned surveys were incomplete and excluded from the study's analysis (Table 2). The final sample population size (N=188) was within the recommended range of Raosoft's analysis minimum recommended sample size (N=176) and G\* Power analysis minimum recommended sample size (N=193).

## Table 1.

## Required Sample Size Calculation

Survey Calculations	Distribution
Margin of Error	5%
Confidence Interval	95%
Population Size	386
Response Distribution	50%
Calculated Recommended Sample Size (G*Power)	193 >176 (Raosoft)

## Table 2.

# Survey Response Rate

Survey Count	Ν
Total surveys distributed	202
(CAATE accredited programs '	386
Total surveys returned	206
Surveys excluded	18
(18 incomplete3	
Surveys included	188
(completed survey) ATS (n=54) ATs (n=134)	

## **Chapter IV**

#### RESULTS

Analysis of the data followed procedures with the simultaneous collection of both the quantitative and qualitative data strands, separate analysis of the data, and merging the two data strands for further investigation, (Creswell & Clark, 2011, Portney & Wadkins, 2009). The quantitative analysis focused on participants overall score on the IEPS and qualitative study focused on responses to three open-ended questions. The ability to merge the strands of data from both the quantitative and qualitative findings allowed the researcher to generalize the findings, which made for a more robust study.

## **Participants**

Table 3 summarizes the demographic characteristics of the study's participants. From the 209 surveys returned, (N=188) completed surveys were included for analysis. The total number of participants included 54 AT students (36%) and 134 AT professionals (64%). Participants' genders were 36 men (36%) and 120 women (64%). Breaking down age, (48%) of the participants were between 23 and 32 years old (n=90) and represented the largest age group. In other age categories, (20%) of participants were between 18 and 22 (n=38), and (20%) between the ages 33-42 (n=37).

Participants predominant occupational setting was school-based (66 high school and 92 college). Participants employed in the high school setting were (35%) with (49%) of the participants employed in the collegiate setting. Additionally, 15 participants were employed in clinical outreach (8%), seven in a professional setting (4%), and eight participants were employed as an athletic trainer in a physician's office (4%) (Table 3).

Similar characteristic of the participants in this study was reported in a published study on demographic factors and labor force in athletic training (Kahanov & Eberman, 2011). Out of a sample population (N=18,571) of practicing athletic trainers, Kahanov & Eberman (2011, p.423) identified (52%) were male and females represented (48%) of the athletic training population. In addition, the three predominant work settings included; (25%) secondary school, (35%) college and (40%) employed in a clinical setting with the average clinician age in the thirties. In comparison, the characteristics of the participants in the current study demonstrated a relatively equal distribution and fair representation of the AT profession which helped establish generalizability for this study (Kahanov & Eberman, 2011).

## Table 3:

Characteristics	n	Percent	
Darticinante			
	- 4	<b></b>	
A I students	54	36%	
AT professionals	138	64%	
Gender			
Male	68	36%	
Female	120	64%	
Age			
18-22	38	20%	
23-32	90	48%	
33-42	37	20%	
43-52	15	08%	
53-65	08	04%	
Occupational setting			
High School	66	35%	
Collegiate	92	49%	
Professional	07	04%	
Clinical outreach	15	08%	
AT in physician's office	08	04%	

Demographic Characteristics of Sample Population (N=188)

## **Descriptive Statistical Analysis**

An overall score of 72 represents the highest level of agreement of items scored on the (IEPS). Higher scores indicate positive perceptions of IPE and IP collaboration (teamwork). Analysis conducted on the composite (IEPS) score was used to answer the questions posed in this study; however, it was interesting to look at the three subscales that identified specific constructs related to interprofessional education and teamwork (Table 4). Using a six-point Likert scale (from1=strongly agree to 6=strongly disagree), participants indicated their level of agreement with each of the 12 statements. Constructs in subset one (SS1) refer to competency and autonomy (answers reflex perceptions towards roles and responsibility) of individuals (athletic trainers) in their profession (Goeln et al., 2006). Statement seven in (SS1) "*Individuals in my profession trust each other's professional judgment,*" revealed a significant difference (p=.04) in agreement level. Responses reflect that AT students (n=52, M=5.2,  $SD \pm 1.3$ ) had a higher level of agreement in constructs related to competency and autonomy concepts of interprofessional education and teamwork when compared with AT professionals (n=134, M=4.9 SD±.94) (Table 4).

Subset 3 constructs relate to perceptions of actual cooperation for interdisciplinary teamwork between one's profession and other professions (Luecht, 1990). Answers reflect perceptions towards actual collaboration in healthcare. Statement ten in (SS3) "*Individuals in my profession have good relations with people in other professions* reported a significant difference (p=.04) agreement level. Results reflect AT students (n=54 M=5.2, SD ±.96) again had a higher level of agreement with concepts related to actual cooperation for interdisciplinary teamwork between one's profession and other professions and other profession and other profession and profession and professions compared with AT professionals (M=5.0 SD±.90 n=134) (Table 4).

## Table 4:

# Results of the Interdisciplinary Education Perception Scale (IEPS)

three subscele constructs (McEadvan Maalaran and	subscale constructs (McEadvon, Maclaron and Groups						
Webster, 2007)		A⁻ St	r udent		AT Profes	ssional	
SSI-Competency and Autonomy ( questions 1,3,5,7,8)	n	М	SD	n	М	SD	SIG
01. Individuals in my profession are well trained	54	5.4	±1.0	134	5.3	±.81	.07
03.Individuals in my profession are very positive about their goals and objectives	54	5.2	±.1	134	5.0	±.90	.06
05. Individuals in my profession are very positive about their contributions and accomplishments	54	5.2	±.76	134	5.1	±.83	.05
07. Individuals in my profession trust each other's professional judgement	52	5.2	±1.3	134	4.9	±.94	.04
08. Individuals in my profession are extremely competent	53	5.1	±.11	134	5.1	±.87	.60
SS2 Perceived Need for Cooperation (questions 4,6)	n	М	SD	n	м	SD	SIG
04. Individuals in my profession need to cooperate with other professions	53	5.6	±.76	133	5.7	±.68	.48
06. Individuals in my profession must depend upon the work of people in other professions	53	4.5	±1.1	134	4.8	±1.2	.11
SS3- Perceptions of Actual Cooperation (questions							
2,9,10,11,12)	n	Μ	SD	n	Μ	SD	SIG
02. Individuals in my profession are able to work closely with individuals in other professions	54	5.4	±1.0	134	5.4	±.86	.63
09. Individuals in my profession are willing to share information and resources with other professions	53	5.3	±1.2	134	5.2	±.91	,47
10. Individuals in my profession have good relations with people in other professions	54	5.2	±.96	133	5.0	±.90	.04
11. Individuals in my profession think highly of other related professions	54	5.1	±1.1	134	4.9	±.95	.13
12. Individuals in my profession work well with each other	53	5.3	±1.0	134	5.2	±.91	.51

## Table 5:

Descriptive Statistics	IEPS	Composite	Score
------------------------	------	-----------	-------

Groups	Ν	Mean	Std. Deviation
Professional			
Status			
AT	134	61 73	0.064
professional	101	01.70	0.001
AT student	54	61.44	12.71
AT Program Alignment with Health Profession Disciplines Aligned with NOT Aligned with Structured IPE Instruction Yes	155 32 109	61.83 60.50 62.31	9.64 6.98 8.62
110	54	59.70	10.55
Academic Degree			
Bachelors	59	61.92	10.64
ELM	51	61.84	11.38
PPM	52	62.96	5.93
Doctorate	26	58,94	4.40

## **Quantitative Data Analysis**

The questions posed in this study explored athletic trainers perceptions of concepts related to IPE towards interprofessional practice as identified by the IEPS composite scores attained. IEPS composite scores were compared between groups and included the variables RQ1) Professional status, (AT students, AT professional), RQ2) location, (AT program with other health profession programs), RQ3) curriculum (structured IPE instruction) and RQ4) education, (Bachelors, entry-level masters (ELM), post-professional masters (PPM) and doctorate).

## **Research Question One**

Ha1: There is a significant difference in AT students' and AT professionals' IEPS overall composite scores.

For question one, the variable professional status was explored. Before analyzing the data, statistical assumption tests were performed. With a sample size greater than twenty, normality of the data was assumed (table 5), but the assumption of variance was violated, F (1,186) = 4.3, p = .04, so degrees of freedom were adjusted from 186 to 68.2 (Table 6). Table five reports the overall IEPS mean scores and SD for AT students (M=61, SD±12.71) and AT professionals (M=62, SD ±.064). An achieved score of 72 on the IEPS represents the highest level of agreement with statements on the survey. The IEPS mean score for AT students was 61 of 72 and for AT professionals 62 of 72. Results identified a very high level of agreement with statements on the IEPS suggesting AT students and AT professionals' had positive perceptions toward IP collaboration. Results also reflected that AT students (SD±12.7), had greater variation in IEPS statement responses than AT professionals (SD ±.064) (Table 5).

For hypothesis one, an independent-samples t-test was conducted to test if there was a significant difference on the overall IEPS scores between AT students (M=61, SD $\pm$ 12.71) and AT professionals (M=62, SD  $\pm$ .064).

Results of the independent sample *t-test* ( $\alpha$ = 0.05, *t*= (68.2)-.16, *p* =.88.)(*two-tailed*), was found to be statistically not significant (Table 6); therefore rejecting the alternate hypothesis (Table 6). Results suggested no significant difference in perceptions in concepts related to IPE and collaborative teamwork between AT students and AT professionals.

## Table 6

Results of Independent T- Test Group Mean Differences (AT students, AT professionals) IEPS Composite Scores

		Lever Test Equal Variar	ne's for ity of nces		t-tes	t for Equ	ality of I	Means	
	Sig. (2- Mean F Sig. t df tailed) Differ						95% t Diffe Lowe	CI of he rence r Upper	
IEPS Composite Score	Equal variances assumed	4.276	.040	-0.192	186	0.848	-0.287	-3.23	2.66
	Equal variances not assumed			-0.155	68.2	0.877	-0.287	-3.97	3.39

Note: Satterthwaite approximation employed due to unequal group variance \* p < .05.

## **Research Question Two**

Ha2: AT students' and AT professionals whose AT program is located

within the same academic unit, as other (HPP) will present with significantly

higher IEPS composite scores than those who are not.

For research question two, the factor program location was explored. Table 5 illustrates overall IEPS mean scores and SD for participants whose AT program are located (M = 64, SD ±9.6) and those who AT program are not located (M = 62, SD ± 7) within the same unit as other (HPPs). The overall IEPS mean score was 64 of 72 and 62 of 72 respectively. Results reflected a high level of agreement with statements on the IEPS in participants who's AT program was located and participants who's AT programs was not located with other health care profession programs (Table 5)

For hypothesis two, to test if there was a significant difference in the overall IEPS scores between participants whose AT program is located (M = 64, SD ±9.6) with other health profession programs and those who AT program is not (M = 62, SD ± 7), an independent-samples t-test was used. Results of the independent *t-test* ( $\alpha$ = 0.05 *t*= (185), 0.74, *p*= .23 (one-tailed) was found to be statistically not significant; therefore rejecting the alternate hypothesis (Table7). Results suggested no difference in perceptions of concepts related to IPE and collaborative teamwork between AT programs that were not. Table 7:

Results of an independent sample t- test, between groups (AT programs aligned, AT programs not aligned with other HPP)

Levene's Test for Equality of Variances						t-test for Equality of Means				
	F Sig. t df				df	95% Confidence Std. Interval of Sig.(2- Mean Error Difference tailed) Differ Differ Lower Up			lence al of the ence Upper	
IEPS Composite Score	Equal variances assumed	0.353	0.553	0.742	185	0.459	1.332	1.796	-2.21	4.88
	Equal variances not assumed			0.915	58.47	0.364	1.332	1.456	-1.58	4.245
* p < .05.										

## **Research Question Three**

**Ha3:** AT Students' and AT professionals' who received structured IPE instruction during their professional education will present with significantly higher IEPS composite scores than those who do not receive structured IPE instruction

For research question three, the factor instructional IPE was explored. Mean scores and SD on the (IEPS) for participants who received structured IPE instruction were (M=62, SD  $\pm$ 8.7) and for participants who did not receive structured IPE were (M=59, SD $\pm$ 10.6) (Table 5). The overall IEPS score was 62 of 72 for participants who received structured IPE and was 59 of 72 for participants who did not. Responses to statements on the IEPS from participants', who did not receive structured IPE, reflected a slightly lower agreement with statements on the IEPS (Table 5).

For hypothesis three, to test if there was a significant difference in the overall IEPS scores between participants who received structured IPE instruction (M=62, SD ±8.7) and participants' who did not receive IPE instruction (M=59, SD±10.6) an independent-samples t-test was used. This test revealed a very small, but significant difference on IEPS composite scores between participants who received structured IPE instruction and participants who did not *t* (*161*) =1.64, *p*=.051(one-tailed), *d*=.3 (Table 8); therefore the alternate hypothesis was accepted (Table 8). Results suggested participants who received structured IPE had slightly more positive perceptions of IPE and collaborative practice than participants who did not receive IPE
Table 8:

Results of independent t- test, between groups (received structured IPE, did not receive structured IPE)

	Levene's Test for Equality of Variances				t	test for	Faual	ity of N	leans	
		F	Sig.	95% Confidence Std. Interval of th Sig. (2-Mean Error Difference Sig. t df tailed) Differ Differ Lower Uppe			6% dence I of the rence Upper			
IEPS	Equal variances assumed	1.92	0.168	1.64	161	0.103	2.553	1.556	-0.519	5.625
Composite Score	Equal variances not assumed			1.54	89.2	0.128	2.553	1.663	-0.752	5.858
* p < .05.										

A post hoc analysis using G\*Power for independent sample *t-test*, identified a resulting small power level ( $\beta$ .2). The effect size for this analysis (d = .2) was found to not exceed Cohen's, (1988) convention for a large effect (d = .80). However, as reported by Cohen (1988), the importance of the value for Cohen's effect size is debatable in how much of a measure of practical significance these results provide. As an exploratory study, the purpose was not to confirm an effect but instead explore participants' perceptions.

## **Research Question Four**

Research question four explored the factor of education level. Table 5 report the mean score and SD on the (IEPS). Fifty-nine participants identified with a bachelor's degree (M= 61.92, SD $\pm$  10.64), 51 identified an ELM degree (M= 61.84, SD $\pm$  11.38), 52 identified the PPM degree (M= 62.96, SD $\pm$  5.93) and 26 identified a doctorate (*M*=58.04, *SD*=4.40) (Table 5). Participants with a bachelor degree (M=62) reflected the same overall mean IEPS score as the ELM (M-62) and PPM (M=63). A lower overall IEPS mean score was seen for the doctorate (M=58) (Table 5). Results reflected less variation on IEPS statement responses in the PPM (SD $\pm$  5.93) and the doctorate (SD $\pm$ 4.40) compared to the two professional degrees, bachelor (SD $\pm$ 10.64) and ELM (SD $\pm$ 11.38), (Table 5).

**Ha4**: AT students' and AT professionals' with the highest academic degree will present with significantly higher IEPS composite scores than those who do not.

To test the hypothesis for question four, a one-way analysis of variance (ANOVA) between subjects was conducted to determine if there was a significant difference in mean scores between academic degrees. Results at  $\alpha$ =.05, for the four conditions (Bachelor's, ELM, PPM, Doctorate), *F* (3, 184) = 1.72, *p* =.17 was found to be statistically not significant (Table 9), therefore rejecting the alternate hypothesis. Results suggested no difference in perceptions of IPE and collaborative practice between degree levels.

Table 9:

Results of a one-way analysis (ANOVA) between subjects (Bachelor's, ELM, PPM, Doctorate)

IEPS Composite Score					
	Sum of		Mean		
	Squares	df	Square	F	Sig.
Between Groups	434.624	3	144.875	1.72	0.165
Within Groups	155.21	184	84.305		
Total	15946.83	187			
* p < .05.					

#### **Qualitative Data Analysis**

Qualitative findings were used to understand the factors that influenced the participants perceptions measured on the IEPS and to further understand the impact of IPE on the practice of athletic training. The last three questions of the demographic profile included three open-ended questions. Answers to the first part of each question set the stage for the second qualitative component. The second part of each question started with "why" and looked to encourage a meaningful answer based on the subject's knowledge, experience, and perceptions.

Forty-one AT students (76%) and 108 AT professionals (81%) responded to research question five. When reviewing Table 10, participants could provide more than one response, which explains why the frequency count for students (73) and professionals (257), is much larger than the sample size (N=149).

Before data analysis, eight pre-determined (Apriori) categories were identified based on the literature and researchers experience. The researcher merged liked responses into one category. Categories included; Emergency Medical Services (EMT, paramedic), physician (sports MD, orthopedist, team MD, neurologist); physical therapist (PT) occupational therapist (OT), physician's assistant (PA), speech language pathologist (SLP) and nursing (school nurse, NP). One newly identified category that emerged from the data was mental health (sport/school psychologist, SW, counselor) (Table 10).

Two coders, the researcher, and the seconder coder, separately reviewed and matched the responses into the predetermined categories. Each coder tallied and recorded the frequency of each response and emerging themes. The two coders, established >90% inter-coder agreement for each item reviewed (Creswell & Clark, 2011),

#### **Research Question Five**

The first part of question five asked the participants to, "*identify the professions AT students need to interact.*" For AT students and AT professionals, similar percentages were recorded in the pre-determined categories and included: physical therapists (68% students, 70% professionals), emergency responders (29% professionals, 27% students), and physician assistants (24% professionals, 20% students). Speech-

language pathology had a similar percentage recorded at (5%) for both professionals and students (Table 10).

A high percentage of AT professionals identified physician (79%), the predominant healthcare professional that students need exposure and to interact with more. This is consistent with the practice of athletic training and the requirement to practice under the supervision of a physician. However, a smaller percentage of AT students identified the physician (49%); suggesting more exposure and interaction is needed between the physician and AT student during their educational preparation. Nursing was another category with a varied range of responses between students and professionals. Only (5%) of AT students identified nursing compared to (33%) for AT professionals who identified nursing as a predominant profession students need exposure and more interaction (Table 10). AT professionals who work in a school-based setting, regularly interact with the school nurse, and the results again suggest students need more exposure and communication with the nursing staff during their clinical rotation.

Mental health professionals was not a predetermined category but one that emerged from the data. Both AT students (12 %) and AT professionals (7 %) identified the mental health professional as a health profession that students need more exposure and communication. This response reflects the recent initiative by the AT profession to raise awareness among AT professionals, stressing the need to develop a collaborative approach when

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addressing psychological concerns related to identifying mental health illness and referring athletes at risk for the appropriate care (Neil, 2015).

Sample responses listed in (Table 11) described the words and phrases used to explain 'why' working with other professions is important. Building on "what" professional AT students need which was identified as exposure and interaction, the second part of question five provided further insight into the participants thought processes and looked to strengthen the IPE framework. The core competencies of the interprofessional collaborative practice (IPEC, 2010) provided the predetermined categories for reflection (roles & responsibilities, teamwork, communication, and values). Inter-rater agreement level was established at >.90.

Fifty-seven percent of participant phrases were coded into the category roles and responsibilities. Samples phrases include "*gain perspective*"; "*get to know other professions*"; "*learn about other professions*"; and "*other professions learn about us*". Of significance here, is the participants' positive attitudes towards learning together. In addition, their awareness of the knowledge and abilities needed to articulate one's profession to others as well as learning the importance of other health professional roles as a member of the healthcare team providing patient-centered care.

Twenty-six percent of the phrases such as "*health professions we work most with*"; "*working together to provided patient care*" and "*to establish relationships*" were coded in the category teamwork. Participants' responses reflect a knowledge of the value of teamwork and collaboration. Coded within the communication and the values category, phrases such as "*talk together about things*", *best for patient care, and "build relationships*" *reflect a perception of self-confidence in communication with other professionals*". These comments or phrases reflected that both AT students and professionals support the concepts and importance of IPE towards preparing for interprofessional practice. Responses verified the quantitative findings of high agreement identified on the IEPS composite scores and validated the participants' positive perceptions of knowledge of and abilities toward teamwork and collaboration.

The findings in this study parallel the findings in a study by van Schaik, Plant, Diane, Tsang, & O'Sullivan, (2011). In the van Schaik et al., study the authors used a survey that focused on a simulation-based interprofessional team-training program with health professionals using open-ended questions. Themes that emerged from the study revealed an increase in understanding professional roles, hands-on experience, and the value of debriefing. The authors reported an increase in self-confidence, attitude and a positive impact on self-efficacy (van Schaik et al., 2011)

## Table 10

# Healthcare Professionals that AT Students Need Exposure

> 90% agreement level	AT Student		AT Professional	
	(n=41, 76°	%)	(n=108,	81%)
	<u>Respons</u>		se Rate	
Code /Category	Count	Percent	Count	Percent
AT	2	5%	5	5%
Emergency Responders (EMT, paramedic)	11	27%	31	29%
Physician (sports MD, orthopedic, team MD, neuro, specialist)	20	49%	85	79%
PT	28	68.3%	76	70%
PA	8	20%	26	24%
ОТ	4	10%	19	18%
SLP	2	05%	3	05%
NU,NP	2	05%	36	33%
Mental health (counselor, SW, sport psychology)	5	12%	7	6.5%

## Table 11

#### Sample responses from AT students and AT professionals

Roles & Responsibility (57%)	Teamwork (26%)	Communication (9%)	Values (7%)
Better understanding others roles	Health professions work with most	Interact with most frequently in my career	Build relationships
Gain perspective and get to know other professions	Come into contact and interact most often with	Improve communication	Best for patient care
Learn about other professions Other professions learn about us	Working together for patient care Establishes relationships	Talk together about things Dealing with a matter that could be	All are integral to complimentar y and complete athletic
Unaware what AT does	We can learn from & learn with to be better healthcare professionals	handled better knowing avail. resources & professionals	nealthcare

#### **Research Question Six**

RQ6: Where do you think (IPE) is best learned? Please briefly explain why.

In question six, the first part was designed for the participants to identify the setting or environment where they perceived IPE is best learned. Five pre-determined themes were based on learning theories and experience (Kolb, Boyatzis & Mainemelis, 1999). Liked responses were merged into one category. Categories included classroom (didactic, lecture, small groups), laboratory experiences (simulation, hands-on, scenarios) and clinical experiences (fieldwork). From the study data, a fifth category emerged, "throughout the curriculum".

Forty-one AT students and 107 AT professionals provided responses. When looking at (Table 12), participants could provide more than one response, which explains why the response total for students (n=72) and responses for professionals (n=174), is greater than the total number of respondents (N=148). For AT students and AT professionals, similar response rates were recorded in three pre-determined learning environments. The largest percentage of responses was recorded for the clinical setting at (78% students and 74% professionals), responses for the laboratory setting was (49 % students and 46% professionals) and for the classroom setting was (37% students and 36% professionals) (Table 12). Perceptions of students and professionals identified that classroom and clinical IPE alone are not beneficial, and that clinical experiences are far more preferred.

Results from the current study are similar to results reported in the research literature. Morison, et al., 2003 compared classroom and clinical learning among nursing and medical students on how best to facilitate undergraduate interprofessional learning. They identified that most IPE curricula included two or three phases. Early phases were more didactic and later phases were often more clinically based.

## Table 12

Response	rates from A I	students and AT	protessionais
			<b>0</b>

	<u>Groups</u>				
	AT Student		AT Professior		
	(n=41)		(r	า=107)	
		Respons	e Rate		
	Count	Percent	Count	Percent	
Classroom (didactic, large, lecture, small groups, theory, textbooks, concepts)	15	37%	39	36%	
Lab (hands-on, simulation, scenario situations)	20	49%	49	46%	
Clinical (fieldwork, observation, )	32	78%	79	74%	
Work (on the job, employed, after graduation,)	5	2%	2	1%	
Throughout curriculum,(during the program, threaded, graduate program)	0	0%	5	1%	

Table 13 themes suggest that (92%) of students and professionals believe experiential learning such as clinical rotations and observation, hands on opportunities, real-time and simulation learning experience are most meaningful when learning IPE. Participants' used phrases "*It helps broaden knowledge scope and gain practical knowledge and experience" and "More meaningful to do with other professions"* to support and help clarify why clinical or experiential learning is most beneficial. Additionally, (87%) of the participants identified the value of the classroom experience. Together this question helps to inform the quantitative question regarding receiving IPE instruction and identified the classroom and real time experiences as added opportunity for collaboration and teamwork.

The literature offered a wide variety of pedagogy and teaching strategies used in IPE (Aston et al., 2012; Bainbridge & Wood, 2013; Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011; Thistlewaite & Moran, 2010). Teaching strategy examples found in the literature included both small and large group formats as well as the use of didactic or classroom lecture, observational learning/analysis, and experiential learning techniques. Many authors emphasized that regardless of the format or specific learning strategy used, reflection from these experiences is particularly important to the process of learning IPE (Abu-Rish, et al., 2012; Aston, et al., 2012; Bainbridge & Wood, 2013; Hammick, Freeth, Koppel, Reeves, & Barr, 2012; Oandasan & Reeves, 2009;Thistlewaite & Moran, 2010).

## Table 13

Experiential Learning (clinical, sim lab) (92%)	Integrating one on one discussions (classroom small groups. labs) (87%)
It helps broaden knowledge scope and gain practical knowledge and experience	Get as much experience as possible for learning purposes and the future
Hands-on learning	Exchange ideas Get to see other in their setting and how need to work together
More meaningful to do with other professions	See what other health professionals
Actively participating in the health profession	
Exposed to working with wide groups of health professionals	
Real-life situations and interactions with other health professions	

Sample responses from AT students and AT professionals

## **Research Question Seven**

RQ7: Would you recommend or not recommend Interprofessional Education

to other members of your discipline? Please briefly explain why.

Research question seven explored the participants' perceptions toward

recommending IPE. Analysis of the question as a whole provided more than a

yes or no answer; it provided insight and explained the why of recommending

IPE (Table 14). The overwhelming of yes responses (97%) reflected the

positive endorsement of IPE with participants using terms such as "absolutely" and "strongly" recommend. Phrases such as "provide best possible patient care" and "want to know who best professional to refer patient" supported the participant's knowledge of the role of IPE in promoting patient-centered care (Table 14). The participants confidence in replying yes to recommending IPE, together with the positive phrases offer a positive attitude toward IPE and promotes the knowledge that the participants value interdisciplinary practice in athletic training to improve the delivery of healthcare. Similar results were reported throughout the IPE literature, recognizing the use of IPE as an effective teaching strategy in early coeducation of students from different professions in the healthcare field (Baker et al., 2008; Dillon, Noble, and Kaplan 2009; and IOM, 2010). Table 14

Sample responses from AT students and AT professionals

Would you recommend IPE?	Briefly explain why			
97%	Increase understanding of AT profession, educate			
Recommend 1% Require	others about AT			
1% Not sure	Want to know who best professional to refer patient			
1% No	Prepares you for providing best care for your patient			
	Expanding my knowledge and skills to be a better AT			
	Most other health disciplines do not know/understand what ATs are capable of doing and IPE will help other health professions learn about our professions			
	Provide best possible patient care			
	AT is growing and working in more settings			

## Chapter V

## DISCUSSION

Overall, this study identified positive attitudes for IPE among AT students and AT professionals. Mostly, IEPS scores were high which is consistent with previous studies (Ahmad, Chan, Wong, Tan, & Liaw, 2013; Coster et al., 2008; McFadyen et al., 2010). Mean score findings on the IEPS found a high level of agreement with the 12 statements; suggesting positive perceptions toward concepts related to IPE and collaborative practice.

Though results implied no significant difference between groups, it was apparent that both athletic trainers and athletic training students equally value and perceive the importance of IPE. Participant responses indicated a broader awareness of the impact of IPE needed to foster interprofessional collaborative practice and leading to improved patient care and outcomes. In a mixed methods study by Pinto, Lombardi, Ellis, and Davies (2010), in which the IEPS was administered followed by participation in focus groups for physical therapy students in Toronto, with the purpose of examining how a structured IP clinical experience influences perceptions of IPC, the authors reported no statistically significant differences in mean scores between groups on the IEPS. Participants did however; show a more significant positive trend in total IEPS statement scores (Pinto et al., 2010).

There also was no significant difference on the IEPS overall score between AT programs aligned compared to those not aligned with other health profession programs. However, because the majority of AT programs are housed in the same unit as peer professions, this alignment appears to facilitate more opportunity for AT programs to participate and foster IPE inclusion with other health care professions. These findings are supported in the literature, which indicates that AT programs aligned with other health care professional programs offer an IPE environment and potentially greater access to (IPE) opportunities (Breitbach & Cuppett, 2012). The authors presented the results of two studies that examined the presence of IPE in athletic training programs. AT Program directors were surveyed in 2012 and again in 2015. In both studies, the analysis revealed a significant relationship between a level of accreditation and the academic unit housing the program. Significant changes were also shown in programs that offered IPE from 2012 to 2015. The proportion of AT programs who participated or had access to IPE programs increased significantly from (23%) in 2012 to (37%) in 2015. The authors reported an odds ratio, which illustrated those programs surveyed in 2015 where almost twice as likely to have an IPE program compared to programs surveyed in 2012. The authors concluded that IPE has a more significant presence for AT programs that reside in health professions

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academic units. However, of concern is that less than 50% of these AT programs participate in IPE (Breitbach et al., 2017).

Breitbach & Brown (2011) reported that students surrounded by other health professional students create a means for professional socialization, which in turn creates practitioners who appreciate the role of their profession and the role of other professionals in the health care team.

Unexpectedly, both AT students and professionals perceived that they received structured IPE during their education. These results implied a small but significant difference between the groups, suggesting that participants who received structured IPE appreciated the knowledge, confidence, and skills gained through structured IPE experiences. Results reflect a positive impact on athletic trainers' attitudes toward, and perceptions of the importance of collaboration within the healthcare team and that these perceptions may lead to actions that positively affect IPP and that this can lead to improved patient outcomes. The study results are consistent and supported by the research of Rose et al., (2009), who reported that (70%) of health professional students reported a favorable view of attitudes after an IPE program. Van Schaik et al., (2011) found a positive impact on medical residents and nurses' self-abilities after participation in a real code situation and reported an overall positive effect on team collaboration. Themes evolving from the gualitative data implied that ATs valued structured IPE instruction regardless if the received or just perceived they received and

engaged in structured IPE during their educational program (Table 15).

Not surprisingly, doctorate scores were lower with a less positive agreement with the items on the IEPS and compared to the other degree levels. In a survey study, Curran et al., (2005), examined attitudes towards IPE and IPC among academic administrators in Canada representing several health professions programs. Results indicated no significant difference between the academic faculty responses to the total score and between items related to IPE and IPC. In general, administrators had positives attitudes towards IPE; however, barriers identified included conflicts with scheduling, "rigid curriculum, turf battles and lack of perceived value by the higher administration" (Curran, Deacon, & Fleet, 2005, p. 76). Another study by Eliot, Breitbach, Wilson, & Chushak, (2017), examined institutional factors that affect the level of IPE participation within AT and nutrition and dietetic programs across the United States. The authors reported AT faculty involvement scored low on the Interprofessional Education Assessment and Planning Instrument for Academic Institutions (IPE-APT) which measures whether program faculty participates in IPE initiatives/program. One possible reason the authors gave for the low score is the perceived work setting and clinical role of the AT by other health professionals. The authors commented that this is a possible reason why AT faculty are not recruited to participate as faculty members on IPE teaching teams (Eliot et al., 2017).

Table15

Embedded Qualitative with Quantitative Findings

Quantitative	Qualitative
ATS and ATP perceived they engaged in	Where is IPE best learned and WHY
Structured IPE	- Clinical - Lab
Higher positive perception	simulation
Importance of	scenarios
Interprofessional collaboration	hands-on
	- Classroom

The qualitative component of this study provided feedback on the organization and delivery of structured IPE. Several valuable suggestions may improve the effectiveness of the IPE experience; results identified simulation lab, case scenarios and hands-on as highly relevant to their learning experience (Table 15). In a study conducted by Lumague et al., (2006), students reported, "all health care education should include opportunities enabling them to develop the skills, behaviors, and attitudes needed for interprofessional collaboration." Another study by Woodroffe, Spencer, Rooney, Le, & Allen, (2012), reported positive attitudes towards team learning and enhanced learning and benefits of IPE. The authors commented on the importance of learning about each of the other professions as well as learning the importance of other health professional roles. Results also indicated a strong communication or confidence in communication with other professionals.

The value of experiential learning opportunities identified in this study further supports the findings of van Schaik et al., (2011) survey study that focused on a simulation-based interprofessional team-training program with health professionals using open-ended questions. Themes revealed an increase in understanding of professional roles, hands-on experience, and the value of debriefing. The survey results indicated an increase in selfconfidence, attitude and a positive impact on self-efficacy (van Schaik et al., 2011).Furthermore, our results support the results of a study by Pinto at el. (2010) that suggested structured IPE clinical placements offer students valuable collaborative learning opportunities and greater understanding of interprofessional collaborative practice.

In general, the literature supports the need for IPE initiatives and curricula to be grounded in a theoretical model, connecting theory to practice. Central to IPE is the relevance and ability to incorporate various theoretical constructs that incorporate a conceptual framework for instilling IPE into AT curricula. Ajzen's theory of reasoned action and planned behavior provided the underlying structure to guide this study. The theory's construct believes perceptions influence attitudes and behavior in turn influences actions. Additionally, responses identified the value of "doing" and clinical experiences as to how students' best learn IPE. These responses clarified and validated perceptions of how students gain knowledge skills, and abilities. The results of this study reinforced the understanding of athletic training students as adult

learners. Kolb's Experiential Learning Theory, where learning occurs from doing is an adult learning theory that supports this study. Defined by Kolb (1984) as creating knowledge through the process of learning from experience. Kolb's ELT is a model of learning that combines experience, perception, cognition, and behavior as a perspective on learning (Kolb, 1984).

Based on the literature explored it can be supported that Interprofessional Education is built on social and experiential learning (Reeves et al., 2007). IPE curriculum needs to recognize the adult learning needs of the participants and structure teaching with this in mind. In research question five, AT students did not identify nursing as a profession that they need to be exposed. These findings strengthen the theoretical basis suggesting that when AT clinical students are not involved in meaningful experience with other health professions affiliated with the clinical site they value their interactions to a lesser degree. The practicing AT however can be working side by with nursing professionals for example on a regular basis. Therefore, to address this issue, AT programs need to find ways for students to gain more exposure to other health professions during clinical rotations. Further, AT programs need to mentor preceptors on how best to integrate meaningful IPE and IPP opportunities into students learning experience when out on clinical rotations.

Kolb's ELT offers the education program a process for delivering IPE and a mechanism to maximize the learning of the health professions student. Kolb's framework for ELT is a learning process that provides an effective strategy for the development of IPE programs and instills a method for learning. Incorporating a theoretical framework such as an adult learning theory and in combination with a theory that provides a foundational component, can lead to a credible evaluation of IPE programs. The utilization of Kolb's ELT in conjunction with IPE can influence the educational research of healthcare professionals and students to improve future practice.

Existing studies have shown that IPE promotes collaboration among HCPs, resulting in improved patient outcomes and reduced costs; however, there is less information available on the effectiveness of IPE activities for HCP students and more specifically AT students. While it has been shown that IPE may give students opportunities to learn about other professionals and develop a sense of autonomy, the reasons behind and the extent to which students' perceptions of inter-professional collaboration change after structured IPE are still not well understood especially in AT. Before more indepth evaluation can begin, the first step is to explore AT pre-existing perceptions on where, when and how ATs acquire knowledge and skills regarding IPP. A more rigorous evaluation of the impact of IPE on students' perceptions is needed to more fully inform institutions of the value of IPE. Having a better foundational understanding of athletic trainers' perceptions of IPE and IPP, research can now move forward to include assessing the impact of IPE experiences on AT students' abilities to practice, safely effectively and efficiently and a member of the interprofessional team.

#### LIMITATIONS

This study was not without limitations. The revised IEPS, used for this study, is a brief survey instrument with good construct validity. It is considered a stable and reliable survey instrument. The revised version of the IEPS had more established psychometric properties but probably better suited for students never exposed to IPE in the classroom or clinical experience. The psychometric properties of the original scale are not well established. The original scale had good content validity, but reliability was based on internal consistency only. The original version (Luecht, 1990) does not have as reliable psychometrics as the revised version but is probably better suited for use with more mature undergraduates who have experience of clinical placements, graduate and postgraduate students and or clinicians. Moreover, Pinto et al. (2010, pg155) hypothesized that the positive wording of the statements on the IEPS might influence the responders to agree and thus result in the higher score. Besides, the authors believed not having a neutral option on the scale can lead to a dichotomous response (agree, disagree) and may have influenced the participant to score higher.

One final limitation to note surrounds the studies N. Access to athletic trainers' email is limited to members of the NATA; Student addresses are not

available on the NATA website. As a result, the researcher was dependent on the AT program director to forward and follow-up with students, alumni, and preceptors affiliated with their programs.

#### CONCLUSION

From this study, athletic training students and athletic training professionals, highly valued IPE, IP collaborations, and recognized its impact on PCC. Understanding one's self and one's beliefs, behaviors and attitudes enable a professional to identify possible areas of collaboration with other disciplines. It creates openness, understanding of working together, and developing skills for teamwork. Therefore, while perceptions do not infer actions or produce identified behavior, it does provide the foundational base to support the body of knowledge regarding IPE effectiveness. Ajzen's perception to action theory lays a strong foundational framework for the infusion of IPE learning experiences in the academic arena as it speaks to the notion that if we support one's perception then we are moving forward to action.

What this study offers AT programs, who are now required to implement IPE, is that experimental learning IPE activities are what students perceive helps them, and adult learning literature supports this approach. Therefore, as AT transitions to a master's level terminal degree, it would make sense that IPE initiatives incorporate diverse experiential learning opportunities and begin to assess their individual effectiveness.

In conclusion, IPE and IPP exist across health professions, but the practice of healthcare often remains silo based. The breakdown of silos and integration of teamwork and collaboration will lead to meaningful experiential learning opportunities across disciplines. Athletic trainers must continue to move forward and collaborate with other professions to understand better the roles and responsibilities of their profession and those of others while ensuring patient-centered care. Future research can explore varied and diverse IPE experiences in an attempt to determine the most effective experiences. Finally, future research can assess the impact of continuing education experiences in IPE on practicing athletic trainers.

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## APPENDIX A

Seton Hall University IRB Approval

## SHU IRB

