THE IMPACT OF MASTER'S LEVEL STATUS ON ATHLETIC TRAINING PROGRAMS' PLANNING AND IMPLEMENTATION OF INTERPROFESSIONAL EDUCATION CURRICULA: A CAUSAL-COMPARATIVE, PREDICTIVE, CORRELATIONAL STUDY

by

Zachary Ryan Hobson

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Liberty University

2021

THE IMPACT OF MASTER'S LEVEL STATUS ON ATHLETIC TRAINING PROGRAMS' PLANNING AND IMPLEMENTATION OF INTERPROFESSIONAL EDUCATION CURRICULA: A CAUSAL-COMPARATIVE, PREDICTIVE, CORRELATIONAL STUDY

by Zachary Ryan Hobson

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Liberty University, Lynchburg, VA

2021

APPROVED BY:

Shanna Akers, Ed.D., Committee Chair

Joseph Fontanella, Ed.D., Committee member

ABSTRACT

The purpose of this study was to determine if a significant difference in the extent of interprofessional education (IPE) implementation exists between recently-transitioned and established Master of Athletic Training (MAT) programs, as well as if a significant difference in the extent of IPE implementation exists between MAT programs' didactic curriculum and clinical education. Additionally, this study evaluated if the number of years a program has been at the MAT status is predictive of successful IPE implementation. The researcher used the 10-item form of the Interprofessional Education Assessment and Planning Instrument for Academic Institutions to collect data on IPE implementation from 66 program directors of Commission on Accreditation of Athletic Training Education (CAATE)-accredited MAT programs across the United States. An independent samples *t* test did not reveal a statistically significant difference in IPE implementation at an alpha level of .02 between recently-transitioned and established MAT programs. Furthermore, a Wilcoxon signed rank test did not reveal a statistically significant difference in IPE implementation between MAT programs' didactic curriculum and clinical education. Lastly, a bivariate linear regression analysis failed to produce a strong, statistically significant model to predict IPE implementation from the number of academic years at the MAT status. The lack of statistically significant results may be the function of limited survey responses, especially among established MAT programs. The researcher recommends additional research on IPE implementation, as more athletic training programs make the transition to the MAT degree. Finally, the researcher posits that further guidance from the CAATE will improve IPE implementation across both recently-transitioned and established MAT programs.

Keywords: Interprofessional education, degree transition, didactic curriculum, clinical education

Dedication

This dissertation is dedicated to my wife and best friend, Amy. Thank you for pushing me to pursue this degree and for supporting me along this journey. I am so incredibly thankful for your love and encouragement. I love you, Amy.

Acknowledgments

I must first thank Jesus Christ, my Lord and Savior, for blessing me beyond measure and for guiding me in my pursuit of this degree. I would not be where I am today without His incredible love and grace, for which I am eternally grateful.

I would like to thank my dissertation chair, Dr. Shanna Akers, for her guidance and continual support over the course of this journey. I am incredibly thankful for the wisdom and perspective that she brought to my topic, which made this a truly enriching inquiry.

Additionally, I would like to thank my committee member and methodologist, Dr. Joseph Fontanella. Dr. Fontanella provided valuable insights specific to Chapters Three and Four, for which I am grateful.

I must also thank the many professors at Liberty University who helped develop and refine the initial phases of this dissertation. These professors include Dr. Antionette Stroter and Dr. Michelle Barthlow.

Finally, I would like to thank Dr. Anthony Breitbach of Saint Louis University and Dr. Giampietro Vairo of the Pennsylvania State University. These individuals helped guide me in the selection of my dissertation topic and provided valuable insights along the way.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Athletic training (AT)

Certified Athletic Trainer (ATC)

Commission on Accreditation of Athletic Training Education (CAATE)

Doctor of Pharmacy (PharmD)

Interprofessional education (IPE)

Interprofessional Education Assessment and Planning Instrument for Academic Institutions (IPE-API)

Interprofessional Education Collaborative (IPEC)

Interprofessional practice (IPP)

Master of Athletic Training (MAT)

Master of Science in Athletic Training (MSAT)

National Athletic Trainers' Association (NATA)

Nutrition and Dietetics (ND)

Occupational therapy (OT)

Physical therapy (PT)

Readiness for Interprofessional Learning Scale (RIPLS)

Registered Nurse (RN)

World Health Organization (WHO)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, causal-comparative and predictive, correlational design study is to determine if a significant difference in the extent of interprofessional education (IPE) implementation exists between recently-transitioned and established Master of Athletic Training (MAT) programs, as well as if a significant difference in the extent of IPE implementation exists between MAT programs' didactic curriculum and clinical education. Additionally, this study will evaluate if the number of years a program has offered the MAT degree predicts the success of IPE implementation. Chapter One provides a background of IPE, specifically within the context of athletic training (AT) education. Upon providing a detailed background and an overview of the theoretical framework for this study, the problem statement is presented to address the current gap in the literature. Next, the purpose and significance of the present study is outlined. Finally, the research questions are presented followed by the study's key terms and their definitions.

Background

The United States health care system has become increasingly complex over the course of the last decade, requiring a greater degree of collaboration across the various health care professions (Breitbach et al., 2020; Barzansky et al., 2019). The initial wake of the COVID-19 pandemic placed substantial strain on health care facilities around the world and demonstrated the importance of a team-based approach to the provision of care (Breitbach et al., 2020), otherwise known as interprofessional practice (IPP) (Barzansky et al., 2019).

To engage in quality IPP, health care professionals must foster mutual respect and understanding of each vocations' responsibilities and roles (Barzansky et al., 2019), which is

suggested to be best accomplished through IPE (Batteson & Garber, 2019). A recent systematic review by Herath et al. (2017) found that the university is the primary source of IPE programs; thus, health care education programs have a unique responsibility to prepare their students to engage in collaborative practice. However, the AT profession has been relatively excluded from IPE initiatives, despite a longstanding commitment to the principles of IPP (Breitbach, 2016).

The concept of IPE began to emerge in the United States and Canada in the 1960s and 1970s (Baldwin, 2010). Fransworth et al. (2015) recognized that the IPE "movement" truly began to pick up around the late 1980s with the release of two reports by the World Health Organization (WHO): *Continuing Education for Physicians* (World Health Organization, 1973) and *Learning Together to Work Together for Health* (World Health Organization, 1988). In 2010, the WHO revised their definition of IPE as "when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (p. 7). While IPE has been an emphasis in the curricula of nursing, medicine, and other health care professions, IPE had been relatively absent from AT programs until this point in time (Breitbach, 2016). Shortly following the revised WHO definition of IPE, the Executive Committee for Education of the National Athletic Trainers' Association (NATA) published the *Future Directions in Athletic Training* in 2012, which called for IPE to be formally implemented in AT education (Breitbach, 2016; Executive Committee for Education, 2012).

The initial implementation of IPE in AT education was rather limited, which Breitbach and Cuppett (2012) suggested was due to a lack of associated knowledge among AT educators. Thus, Breitbach and Richardson (2015) authored a paper to help educate AT professionals on IPE and IPP, while also providing other health care professions with rationale for including AT students in their IPE-related initiatives (Breitbach, 2016). However, the AT profession at large

has continued to struggle with inclusion in IPE-related discussions at the "institutional, governmental, and international levels" (Breitbach, 2016, p. 138). A recent study by Eliot et al. (2017) provides evidence to support this notion, as they found nutrition and dietetics (ND) programs had greater availability of IPE opportunities when compared to AT programs. Moreover, Breitbach et al. (2018) found that 63% of their surveyed AT programs were not accessing IPE opportunities.

Nevertheless, leaders in AT education have begun to recognize the increasing importance of formally implementing IPE in students' professional preparation (Breitbach, 2016). With the profession currently undergoing a transition to a professional master's degree, the Commission on Accreditation of Athletic Training Education (CAATE) has released new standards for the accreditation of these programs. Within these standards, the CAATE (2020) will now require professional master's programs to incorporate planned IPE, albeit with little guidance. Although these standards did not go into effect until July of 2020 (Commission on Accreditation of Athletic Training Education, 2020), recent evidence has suggested advances in implementing IPE, as Manspeaker et al. (2020) found that 11 of 17 surveyed MAT programs reported IPE activities as part of their didactic curricula. However, it remains unclear whether or not MAT programs across the country will consistently incorporate such IPE initiatives.

As athletic trainers continue to gain employment in emerging settings, such as hospitals, outpatient rehabilitation clinics, public safety, the armed forces, and occupational health settings (Barzansky et al., 2019; Rizzo et al., 2015), the implications of successful IPE implementation on society-at-large broaden. To ensure the preparedness of health care students to collaboratively care for various patient populations within society, the Interprofessional Education Collaborative (IPEC; 2016) recently refined their four, core competencies (Barzansky et al., 2019). These

competencies encompass the following: 1) values and ethics, 2) roles and responsibilities, 3) interprofessional communication, and 4) teams and teamwork (Interprofessional Education Collaborative, 2016). Manspeaker et al. (2020) suggest that professional master's programs should continue to integrate these core competencies as part of their IPE efforts to better prepare AT students for IPP. Furthermore, Breitbach et al. (2018) propose that embedding the IPEC (2016) competencies within IPE initiatives will allow MAT students to develop the skills and knowledge needed to work in an interprofessional, patient-centered, and community- and population-oriented practice model. Therefore, the status of IPE implementation within MAT programs requires further examination to serve as an indication of how well the AT profession is preparing its students to meet the needs of society-at-large while working in various, emerging health care settings.

As mentioned previously, IPE has been a longstanding focus of education in the nursing profession (Breitbach, 2016). Recent investigations have revealed that structured simulations serve as one of the more common methods of IPE implementation among nursing education programs (Fewster-Thuente & Batteson, 2018; Lavoie et al., 2018). The learning theories that have been suggested to underpin the effectiveness of these simulations include Bandura's (1977) theory of self-efficacy and Kolb's (1984) experiential learning theory (Fewster-Thuente & Batteson, 2018; Lavoie et al., 2018). Lavoie et al. (2018) cite self-efficacy as an important learning outcome that is achieved through IPE simulations, as efficacy is believed to influence one's effort and persistence (Bandura, 1977). Furthermore, simulations allow students to take an active role in their learning, which is reflective of Kolb's (1984) experiential learning theory (Fewster-Thuente & Batteson, 2018). Therefore, Bandura (1977) and Kolb's (1984) learning

theories may similarly drive the IPE efforts and initiatives within AT education and, thus, will serve as the theoretical framework for the present study.

In summary, health care education programs are uniquely situated to prepare their students for collaborative practice through IPE. While some health care professions, such as medicine and nursing, have a long history with IPE, the AT profession has struggled to enter the fold until somewhat recently (Breitbach, 2016). The increased employment of athletic trainers in emerging, non-traditional settings has begun to open the door for improved IPP (Barzansky et al., 2019; Rizzo et al., 2015). Moreover, the current and ongoing transition of the AT profession to a professional master's degree has inspired hope of increased inclusion and engagement in IPE initiatives (Eliot et al., 2017), which may be best driven by Kolb's (1984) experiential learning theory and Bandura's (1977) theory of self-efficacy. However, a lack of guidance, and a related gap in the literature, creates uncertainty regarding the extent to which IPE initiatives have been implemented within MAT programs' curriculum and clinical education.

Problem Statement

The literature surrounding IPE in AT education has grown in recent years; however, the implications of the degree transition and the 2020 CAATE standards coming into effect require additional inquiry, specifically within the context of MAT programs. A recent study by Breitbach et al. (2018) asked AT program administrators to assess their readiness, availability, and participation in IPE within various aspects of their programs, including both the didactic and clinical education domains. This study provided valuable insights on the landscape of IPE in AT education and various factors that may influence participation, but the data were collected among a variety of AT programs, including those at the undergraduate level. Furthermore, Morrell et al. (2018; 2019) conducted a two-part study to examine the attitudes toward and effects of an IPE

simulation among nursing, occupational therapy, and AT students; however, the AT students in this study were also at the undergraduate level (Morrell et al., 2018; 2019). Additionally, Morrell et al. (2018; 2019) acknowledged how the transferability of their findings is rather limited, as these studies were conducted at a single institution. Thus, due to these limitations, additional inquiry is needed among MAT programs.

One of the more recent publications that examined IPE in AT education was conducted exclusively among professional MAT programs (Manspeaker et al., 2020). This qualitative inquiry sought to understand how MAT program faculty and clinical education coordinators were integrating IPE within their didactic curricula (Manspeaker et al., 2020). However, this study failed to assess if IPE was being integrated into students' clinical education and if the longevity of the program's MAT degree status influenced their findings (Manspeaker et al., 2020). Additionally, this study did not provide quantitative data and associated statistical analyses to examine differences in IPE implementation. Therefore, the problem is the general lack of research surrounding whether or not a recent degree transition has influenced the degree of IPE implementation among MAT programs.

Purpose Statement

The purpose of this quantitative, causal-comparative and predictive, correlational design study is to determine if a significant difference in the extent of IPE implementation exists between recently-transitioned and established MAT programs, as well as if a significant difference exists in the extent of IPE implementation between MAT programs' didactic curriculum and clinical education. This study will compare the dependent variable of IPE implementation across the independent variables of program status (i.e., recently-transitioned and established MAT programs) and location of IPE implementation (i.e., didactic curriculum

and clinical education). IPE implementation is defined as those areas of a MAT program where "students from two or more professions learn about, from and with each other" (World Health Organization, 2010, p. 7). Furthermore, programs that have been at the MAT status for three academic years or less will be categorized as recently-transitioned, whereas those programs at the MAT status for greater than three academic years will qualify as established. Breitbach et al. (2018) used a three-year timeframe to assess improvements in IPE; thus, three years will define the cutoff for the recently-transitioned programs. Finally, the didactic curriculum includes the academic material presented through lectures, assigned readings, and webinars (Welsch et al., 2018), whereas clinical education is the portion of AT students' preparation that involves the formal practice of clinical proficiencies, such as laboratory and clinical experiences (Weidner & Henning, 2002).

Additionally, this study will evaluate if the number of years a program has offered the MAT degree predicts the success of IPE implementation. The predictor variable will be the programs' years at the MAT status, while the criterion variable will be IPE implementation. The number of academic years that an AT program has been at the MAT status defines this predictor variable. As mentioned previously, IPE implementation is defined as those areas of a MAT program where "students from two or more professions learn about, from and with each other" (World Health Organization, 2010, p. 7); thus, successful IPE implementation is indicated by a holistic presence of IPE, as measured by the total scores of the 10-item Interprofessional Education Assessment and Planning Instrument for Academic Institutions (IPE-API) self-assessment survey (Association for Prevention Teaching and Research, 2009). All AT programs that currently offer a professional master's degree, being either a MAT or a Master of Science in Athletic Training (MSAT), will be asked to participate in this study via a voluntary survey. Thus,

the study population will be comprised of the program directors of the participating MAT/MSAT programs, as these individuals drive the IPE efforts of their respective programs.

Significance of the Study

This study is important in addressing if AT programs have been responsive to the call for improved IPE implementation following the master's degree transition (Breitbach et al., 2018). Furthermore, the academic level of AT programs has been suggested to influence IPE involvement (Eliot et al., 2017). Thus, through the comparison of IPE implementation among recently-transitioned and established MAT programs, this study will help delineate whether or not an immediate uptick occurs in IPE involvement following a degree transition, or if significant differences exist. Moreover, with the new CAATE (2020) standards leaving the location and degree of IPE implementation up to the discretion of program directors and faculty, this study will also provide an initial glance at how well and where programs are carrying out IPE initiatives to meet this accreditation standard. Ultimately, this study will provide timely evidence for MAT program administrators and AT professionals, as undergraduate AT programs are continuing to transition to the professional master's degree.

Additionally, this study will further measure the extent to which MAT programs are implementing IPE in their didactic curricula, as Manspeaker et al. (2020) provided limited quantitative data in their predominately qualitative study. Thus, this study may identify discrepancies between IPE implementation in the didactic curricula and clinical education of MAT programs, which would be of particular interest to program administrators. Furthermore, due to the increased number of AT programs now at the professional master's degree, this study will include a larger sample size of MAT programs, which has been absent from previous studies (Breitbach et al., 2018; Eliot et al., 2017).

Research Questions

RQ1: Does a significant difference in the extent of IPE implementation exist between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey?

RQ2: Does a significant difference in the extent of IPE implementation exist between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey?

RQ3: How accurately can the success of IPE implementation be predicted by the number of years an AT program has been at the MAT status, as measured by the 10-item IPE-API self-assessment survey?

Definitions

1. *Athletic training (AT)* – "Athletic training includes a wide array of knowledge and skills encompassing emergency injury care and the prevention, examination, diagnosis, treatment, and rehabilitation of acute and chronic medical conditions" (Ebersole & Pfeiffer, 2018, p. 149).
2. *Commission on Accreditation of Athletic Training (CAATE)* – "Accredits professional programs at the baccalaureate and master's degree levels and post-professional degree programs at the master's and doctoral degree levels and non-degree residency programs in specialty areas of athletic training in the United States and internationally" (Council for Higher Education Accreditation, 2019).
3. *Clinical education* – "The portion of the athletic training student's professional preparation that involves the formal acquisition, practice, and evaluation of clinical proficiencies through classroom, laboratory, and clinical experiences in medical care

environments" (Weidner & Henning, 2002, p. 222), as measured by ordinal responses to Item Two of the 10-item IPE-API self-assessment survey (Association for Prevention Teaching and Research, 2009).

4. *Didactic curriculum* – The educational content presented through lectures, assigned readings, and webinars (Welsch et al., 2018), as measured by ordinal responses to Item One of the 10-item IPE-API self-assessment survey (Association for Prevention Teaching and Research, 2009).
5. *Established Master of Athletic Training (MAT) program* - An athletic training program that has been at the professional master's degree for greater than three years (Breitbach et al., 2018), as measured by nominal responses to Question Three of the demographic survey (Appendix C).
6. *Interprofessional education (IPE)* – "When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010, p 7).
7. *Interprofessional education (IPE) implementation* – Those areas of a MAT program where "students from two or more professions learn about, from and with each other" (World Health Organization, 2010, p. 7), as measured by discrete scores on the 10-item IPE-API self-assessment survey (Association for Prevention Teaching and Research, 2009).
8. *Interprofessional practice (IPP)* – "When multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, caregivers and communities to deliver the highest quality of care across settings" (World Health Organization, 2010, p. 7).

9. *Master of Athletic Training (MAT)* – The degree level at which professional education in athletic training will occur following the final undergraduate cohort in 2022 (Henning et al., 2013).
10. *National Athletic Trainers' Association (NATA)* – "The professional membership association for certified athletic trainers and others who support the athletic training profession" (National Athletic Trainers' Association, n.d.).
11. *Number of years at Master of Athletic Training (MAT) status* – The number of academic years that an athletic training program has offered the MAT degree, as measured by discrete responses to Question Four of the demographic survey (Appendix C).
12. *Recently-transitioned Master of Athletic Training (MAT) program* – An athletic training program that has been at the professional master's degree for three years or less (Breitbach et al., 2018), as measured by nominal responses to Question Three of the demographic survey (Appendix C).

CHAPTER TWO: LITERATURE REVIEW

Overview

A systematic literature review was employed to examine the current implementation of IPE within AT education programs, as well as other, related health care programs. Chapter Two opens with a discussion of the theoretical frameworks previously employed in IPE-related studies, highlighting theories such as the experiential learning theory and the theory of self-efficacy, which will guide the present study. Next, a synthesis of recent publications pertaining to the prevalence and types of IPE experiences employed in health care education programs are presented, as well as student perceptions of these initiatives. This particular section of Chapter Two serves to highlight the potential disparities in IPE inclusion and implementation between AT and other health care education programs. Finally, recent literature that illuminates the benefits of IPP and collaboration among health care professionals is briefly discussed, further supporting the need to explore this gap in the health care education literature.

Theoretical Framework

Incorporating a theoretical framework for this quantitative, causal-comparative and predictive, correlation study of IPE among MAT programs is an essential component to guiding this inquiry. Furthermore, establishing a theoretical basis for the present study is a unique endeavor, as Fewster-Thuente and Batteson (2018) have suggested a lack of a tested and agreed upon theoretical underpinning for IPE implementation. However, in their 2018 theoretical review, Lavoie et al. identified Kolb's (1984) experiential learning theory and Bandura's (1977) theory of self-efficacy as two, frequently-cited theories employed to explain the learning mechanisms of simulation. Collaborative simulations appear to be one of the most commonly utilized IPE initiatives in health care education research, as will be discussed later in this chapter.

This section of Chapter Two will examine the utility of Kolb's (1984) experiential learning theory and Bandura's (1977) theory of self-efficacy in assessing the implementation of IPE initiatives.

Experiential Learning Theory

Kolb's experiential learning theory purports that "learning is a continuous process grounded in experience" (Kolb, 1984, p. 28). In other words, learning is a process where experience is constantly modifying the concepts that individuals learn over time (Kolb, 1984). This theory originated in the work of John Dewey (1938), Kurt Lewin (1946), and Jean Piaget (1952) (Kolb, 1984; Miettinen, 2000). Dewey (1938) proposed a model of the learning process that demonstrated how learning moves experience into action. Similarly, Lewin (1946) proposed a model specifically for action research and laboratory training that emphasized the importance of employing concrete experience to test and validate abstract concepts, as well as the significance of feedback processes (Kolb, 1984). Finally, Piaget (1952) proposed a model that "identifies those basic developmental processes that shape the basic learning process of adults" (Kolb, 1984, p. 25). Thus, the work of these researchers ultimately informed the four-part learning cycle that encapsulates the experiential learning theory (Kolb, 1984; Miettinen, 2000).

The four-part learning cycle proposed by Kolb (1984) demonstrates how hands-on experience influences the process of creating knowledge. This cycle is comprised of concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984). Concrete experience enables learners to fully and openly engage themselves in new experiences, which are then assessed from multiple perspectives through reflective observation (Kolb, 1984). Learners anchor their observations in sound theories to create concepts, which may then be utilized to guide decisions and solve problems during active experimentation (Kolb,

1984). Thus, Kolb's (1984) experiential learning theory offers an appropriate framework to employ in studies examining the implementation of IPE initiatives and experiences.

Experiential Learning in Interprofessional Education

The experiential learning theory has become increasingly more relevant, as Fewster-Thuente and Batteson (2018) state that "students today do not wish to learn in a static environment where information is transmitted to them passively" (p. 3). Instead, these authors claim that students want to take an active role in the learning process, which is readily accomplished through experiential learning approaches (Fewster-Thuente & Batteson, 2018). The health care education literature reveals that collaborative simulations are one of the most commonly employed methods of IPE, which is rooted in experiential learning (Baker et al., 2008; Fewster-Thuente & Batteson, 2018; Lavoie et al., 2018; Poore et al., 2014; Stocker et al., 2014). Lavoie et al. (2018) discussed how the simulation itself is linked to the concrete experience and active experimentation steps of the learning cycle. Meanwhile, the debriefing sessions function to accomplish the reflective observation and abstract conceptualization phases (Lavoie et al., 2018). Thus, Kolb's (1984) experiential learning theory appears to be a guiding theory of IPE, specifically among those collaborative experiences involving simulations.

Examining the utility of Kolb's (1984) theory within IPE more closely, Baker et al. (2008) established the centrality of experiential learning within their model of interprofessional health care education. Through a series of IPE simulations among nursing and medical students, researchers found that experiential learning opportunities improved nursing students' confidence as members of health care teams (Baker et al., 2008). Moreover, Stocker et al. (2014) acknowledged the importance of intentionally incorporating each step of Kolb's (1984) learning cycle within simulations to truly optimize these activities among various health care students. The authors further support this theoretical framework for IPE by suggesting that the experiential

learning cycle provides “an effective structure for a simulated team training session” (p. 3). Therefore, existing literature supports the notion that Kolb’s (1984) experiential learning theory provides a strong theoretical basis to create and evaluate IPE simulations and related activities.

Experiential learning also has significant implications for health care students preparing to transition to professional practice. Fewster-Thuente and Batteson (2018) demonstrated how students from various programs, including physical therapy (PT), medicine, and pharmacy, among others, were able to apply what they learned from an IPE simulation to their clinical practice. These authors note how IPE simulations are especially beneficial in allowing unlicensed students to apply their learning rather than simply observing a health care professional (Fewster-Thuente & Batteson, 2018). Similarly, Poore et al. (2014) have suggested that IPE simulations guided by Kolb’s (1984) experiential learning theory provide prelicensure nursing students with opportunities to improve their communication and collaboration with students of other health professions. Therefore, the present study may further extend Kolb’s (1984) experiential learning theory in the examination of IPE implementation, which would include collaborative simulations, specifically within the context of MAT programs.

Theory of Self-Efficacy

The theory of self-efficacy originated in the work of Albert Bandura (1977). This theory operates under the assumption that expectations of self-efficacy are created and strengthened by various cognitive, behavioral, and environmental factors (Bandura, 1977). Furthermore, the theory of self-efficacy suggests four sources that influence expectations of self-efficacy, which include performance accomplishments, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). Performance accomplishments are centered on mastery experiences and include participant modeling and self-instructed performance, among others

(Bandura, 1977). According to Bandura (1977), performance accomplishments provide the most authentic base of experience for individuals and, therefore, create strong efficacy expectations. Meanwhile, vicarious experience relies on comparisons to others' performances, and verbal persuasion involves leading others through suggestions (Bandura, 1977). Finally, Bandura (1977) acknowledges that people often rely on their psychological state to judge their self-efficacy, as emotional arousal can influence individuals' ability to cope in different situations.

Furthermore, Bandura (1977) posits that expectations of self-efficacy "determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences" (p. 194). Within the health care education literature, self-efficacy has been identified as a valuable learning outcome of collaborative simulations (Lavoie et al., 2018). Stocker et al. (2014) noted how simulated team training enables individuals to observe others and benefit from vicarious experience, as described by Bandura (1977). Furthermore, facilitators and students participating in simulations provide each other with verbal persuasion during periods of debriefing (Stocker et al., 2014). Finally, Stocker et al. (2014) posited that creating high-fidelity scenarios that are engaging and difficult may increase learning by heightening students' physiological state, which is consistent with Bandura's (1977) theory. By pushing participants outside of their comfort zones, these authors suggest that IPE simulations allow students to learn from their experiences and failures, as well as those of others, which can drive them to a deeper level of understanding and self-efficacy (Stocker et al., 2014). Thus, Bandura's (1977) theory of self-efficacy appears to be an additional framework worth employing in studies concerning IPE implementation within health care education programs.

Self-Efficacy in Interprofessional Education

Numerous studies surrounding IPE implementation have effectively utilized Bandura's (1977) theory of self-efficacy as a theoretical framework. As mentioned previously, Lavoie et al.

(2018) demonstrated how the theory of self-efficacy is among the most frequently cited learning theories used to guide the assessment of nursing competencies during collaborative simulations. One such example is Durkin and Feinn's 2017 study, which examined perceived levels of self-efficacy for interprofessional learning among traditional and accelerated nursing students. These authors examined nursing students' willingness to engage in interprofessional learning, as opposed to observing, their willingness to provide interprofessional team evaluation and feedback, and their self-reported confidence or stress associated with the IPE experience (Durkin & Feinn, 2017). Their findings demonstrated how students with prior exposure to IPE exhibited greater levels of perceived self-efficacy, suggesting that they are more likely to engage in IPP (Durkin & Feinn, 2017). In a similar study among postgraduate nursing and medical students, Watters et al. (2015) found that participation in simulation training led to improvements in communication, leadership, teamwork, and self-efficacy in clinical scenarios. Therefore, the nursing education literature demonstrates the effectiveness of framing IPE experiences within the theoretical context of Bandura's (1977) theory of self-efficacy.

In addition to nursing students, a recent study by Allen et al. (2018) also reveals the engagement of students from physician assistant, dietetic, and social work programs in an interprofessional, critical care simulation. These researchers sought to identify a relationship between self-esteem and self-efficacy among these health care students as they participated in a simulation involving a cardiopulmonary event (Allen et al., 2018). At the conclusion of their study, Allen et al. (2018) found a positive correlation between self-efficacy and self-esteem as a result of the IPE simulation. Moreover, qualitative feedback gathered during their period of debriefing suggested that additional IPE opportunities are necessary to further improve self-

efficacy and prevent role confusion among health care students (Allen et al., 2018), which serves to support the aim of the present study in examining IPE implementation among MAT programs.

Recent inquiry also demonstrates how Bandura's (1977) theory of self-efficacy extends beyond simulation, as Hagemeier et al. (2014) examined the effects of an interprofessional communication course on the self-efficacy beliefs of students from nursing, medical, and pharmacy programs. At the conclusion of the interprofessional course, Hagemeier et al. (2014) found significant improvements in the health care students' self-efficacy beliefs related to their interprofessional communication. Therefore, as demonstrated in the numerous studies examining the relation between IPE initiatives and health profession students' beliefs of self-efficacy, Bandura's (1977) theory appears to provide a solid basis for IPE-related inquiry and, thus, will be another lens through which to view the present study.

Situating the Present Study

The theoretical review of Lavoie et al. (2018) and numerous recent studies have demonstrated the utility of Kolb's (1984) experiential learning theory (Baker et al., 2008; Fewster-Thuente & Batteson, 2018; Poore et al., 2014; Stocker et al., 2014) and Bandura's (1977) theory of self-efficacy (Allen et al., 2018; Durkin & Feinn, 2017; Hagemeier et al., 2014; Watters et al., 2015) in IPE-related research. Although each study examining Kolb's (1984) experiential learning theory within IPE utilized the modality of collaborative simulations, Stocker et al. (2014) recommend that future studies also evaluate programs' curricula and modes of assessment. Furthermore, Fewster-Thuente and Batteson (2018) suggest that the experiential learning theory provides a solid, theoretical basis from which to conduct various IPE-related investigations. Similarly, Poore et al. (2014) posit that providing students with diverse IPE opportunities leads to a greater development of the communication and collaboration skills that

are fostered through experiential learning. Therefore, examining the overall implementation of IPE within MAT programs may further extend Kolb's (1984) experiential learning theory in this area of study while also serving to address a significant gap in the health care literature.

The vast majority of the presented studies examining Bandura's (1977) theory of self-efficacy within IPE also did so within the context of interprofessional simulations (Allen et al., 2018; Durkin & Feinn, 2017; Watters et al., 2015). However, Durkin and Feinn (2017) suggested that utilizing the theory of self-efficacy as a framework for further inquiry may lend insights to the IPE-related experiences that health care programs commonly employ to maximize learning. Furthermore, these authors acknowledged how students' perceived levels of self-efficacy may influence their participation in other interprofessional learning experiences (Durkin & Feinn, 2017). Similarly, Allen et al. (2018) acknowledged how additional opportunities for IPE outside of simulations are needed, such as the interprofessional communication course in the Hagemeier et al. (2014) study, to decrease role confusion and the practice of learning and teaching in silos. Therefore, as a portion of the present study is examining the location of IPE exposures, Bandura's (1977) theory of self-efficacy may yield additional insights related to potential disparities in IPE implementation between programs' didactic curriculum and the hands-on experiences that are gained through clinical education.

Related Literature

Recent publications have emphasized the importance of incorporating IPE initiatives in AT curricula. Rizzo et al. suggested in their 2015 report that the "inclusion of AT in IPE programs could facilitate the profession's desire to be seen as true health professionals" (p. 257). These IPE programs are proposed as an ideal opportunity to prepare AT students for collaborative practice, which may further improve patient outcomes (Eliot et al., 2017;

Manspeaker et al., 2020; Rizzo et al., 2015). Additionally, engaging in IPE initiatives has been suggested as a means to improve the administrative alignment of AT programs with other health care disciplines (Eliot et al., 2017; Rizzo et al., 2015) Therefore, this section of the literature review will discuss recent publications pertaining to the prevalence, types, and perceptions of IPE initiatives among AT and related health care programs, as well as highlighting some of the reported benefits and challenges of interprofessional collaboration in professional practice.

Prevalence of IPE Initiatives

Previous research demonstrates how IPE has been a long-standing emphasis for numerous health care education programs, especially within the disciplines of nursing and medicine (Breitbach, 2016; Greer et al., 2014). However, as mentioned in Chapter One, the AT profession has long struggled to be included in IPE-related discussions from local to international levels, despite embracing the principles of IPP (Breitbach, 2016). Nevertheless, as AT programs continue to make the transition to the graduate professional degree, leaders in AT education recognize the potential for increased involvement in IPE initiatives (Breitbach, 2016; Eliot et al., 2017). Therefore, in order to provide context for this anticipated progress, recent research surrounding the prevalence of IPE initiatives among AT and related health care education programs were examined.

Prevalence of IPE in Nursing Education Programs

The prevalence of IPE initiatives in health care programs at large is well-documented in the health care education literature. However, Eliot et al. (2017) have suggested that nursing programs, along with medicine and pharmacy programs, have set the standard for incorporating IPE initiatives within their curricula. Thus, the accrediting bodies for nursing, medicine, and pharmacy education programs have outlined standards relative to the inclusion of IPE in their respective guidelines (Eliot et al., 2017). In their recently-updated standards, the Commission on

Collegiate Nursing Education (2018) states that baccalaureate and graduate nursing programs' curricula should include planned clinical experiences that "foster interprofessional collaborative practice" (p. 16). Furthermore, the Accreditation Commission for Education in Nursing (2020) standards require that the curricula and instructional approaches of undergraduate and graduate nursing programs reflect interprofessional collaboration. As a result, the vast majority of journal articles reviewed in Chapter Two included either undergraduate or graduate nursing students in the pool of study participants, as will be illuminated and discussed in the subsequent paragraphs.

The prevalence of IPE opportunities among undergraduate nursing programs is well-established, as numerous studies cited the inclusion of these particular nursing students (Allen et al., 2018; Bultas et al., 2016; Hinyard et al., 2017; House & Wahl, 2021; Jutte et al., 2016; Lairamore et al., 2018; Lairamore et al., 2019; Laverentz et al., 2020; Livingston et al., 2016; Marcussen et al., 2019; Mishoe et al., 2018; Russell et al., 2020; von der Lancken & Levenhagen, 2014). Hagemeier et al. (2014) specified that the students in their study were in the first year of their nursing program, while Scott et al. (2020) highlighted that their participants were seniors, suggesting that nursing students benefit from a consistent stream of IPE experiences across the span of their education. Moreover, Durkin and Feinn (2017) conducted their study amongst traditional and accelerated baccalaureate nursing students to examine differences in interprofessional learning between these sub-populations of students. Similarly, a series of studies by Morrell et al. (2018; 2019) included students from an accelerated nursing program in an IPE experience, while a recent study by Groessl and Vandenhouten (2019) incorporated registered nurse (RN) participants seeking their Bachelor of Science in Nursing (i.e., RN-to-BSN). Thus, the current evidence suggests a wealth of opportunity for IPE exposures among various undergraduate nursing programs.

In addition to the literature reviews of Kent and Keating (2015), Lim and Noble-Jones (2018), and Welsch et al. (2018), the presented evidence appears to support the notion that nursing students are included in IPE programs and experiences on a consistent basis and further demonstrates the extensive research surrounding IPE within the field of nursing. Furthermore, nursing students in graduate programs have also benefited from the inclusion in IPE initiatives. In their recent study, Beebe et al. (2018) examined the interprofessional learning experiences of graduate psychiatric mental health nursing students with various other health care students. Moreover, Watters et al. (2015) conducted their study amongst RNs and doctors during their initial post-graduate years to determine their perceptions of IPE. Although some of the reviewed studies failed to specify the degree level of their nursing-student participants (Liaw et al., 2019; Renschler et al., 2016), the evidence yielded through this literature review supports a wide-spread availability of IPE for nursing students within various programs of study.

Recent investigations have also demonstrated IPE availability for nursing programs on a global scale. Milutinović et al. (2018) sought to determine the effects and perceptions of IPE amongst nursing students in a Serbian university following the completion of their first clinical rotations, while Castrèn et al. (2017) underwent a similar investigation amongst Finnish and Swedish students during their final semester of their respective programs. Furthermore, in their study among universities in the United Kingdom, Whiting et al. (2016) assessed pediatric nursing students' perceptions of IPE. At the conclusion of their structured literature review, Lim and Noble-Jones (2018) examined the transferability of their findings to nursing education programs in Singapore. Finally, a recent investigation of IPE implementation at a large, Australian university contained a large proportion (n = 461) of Master of Nursing students

(Bloomfield et al., 2021). Thus, it is apparent that IPE is an emphasis of nursing education both within the United States and around the world.

Prevalence of IPE in Medical and Pharmacy Education Programs

Medicine and pharmacy education programs also receive guidance on IPE from their respective accrediting bodies. In their current accreditation standards, the Liaison Committee on Medical Education (2019) includes interprofessional collaborative skills under their standard concerning curricular content. More specifically, this standard communicates that the core curriculum of a medical education programs must prepare students to "function collaboratively on health care teams that include health professionals from other disciplines as they provide coordinated services to patients" (Liaison Committee on Medical Education, 2019, p. 11).

Similarly, Standard 11 of the Accreditation Council for Pharmacy Education's (2015) most current standards states that the curricula of Doctor of Pharmacy (PharmD) degree programs should prepare "all students to provide entry-level, patient-centered care in a variety of practice settings as a contributing member of an interprofessional team" (p. 7). This standard encompasses the key elements of interprofessional team dynamics, education, and practice, ensuring that pharmacy students are prepared to interact with other prescribers and various health care professionals (Accreditation Council for Pharmacy Education, 2015). Therefore, in light of these standards, medicine and pharmacy education programs were also well-represented in the study samples of the recent publications examined for purposes of this literature review.

Diverse opportunities for medical and pharmacy students to learn with students from other health care disciplines is rather evident in the current IPE-related literature (Bloomfield et al., 2021; Liaw et al., 2019; Livingston et al., 2016; Mozer et al., 2021; Renschler et al., 2016; Scott et al., 2020; Ward et al., 2016; Welsch et al., 2018). Kent and Keating (2015) revealed that 15 of the 26 studies comprising their literature review included medical students, while 13 of the

26 studies included students from PharmD programs. Moreover, Berger-Estilita et al. (2020) found that the IPE-related data yielded from their systematic review of 23 journal articles was primarily reported for first-year medical students, followed closely by third-year and second-year students, respectively. Similarly, the studies of Fewster-Thuente and Batteson (2018), Gunaldo et al. (2020), Hagemeier et al. (2014), and Mozer et al. (2021) were conducted amongst first- and second-year medical and pharmacy students, suggesting that IPE is introduced early on in these particular health care programs.

Additionally, the studies of Scott et al. (2020), Milutinović et al. (2018), and Marcussen et. al. (2019) demonstrated how opportunities for interprofessional learning have been appropriately employed across the span of medical students' education, as these studies examined IPE interventions among third-, fourth-, and fifth-year medical students, respectively. Furthermore, the study from Watters et al. (2015) engaged medical doctors in a collaborative simulation during the initial years of their post-graduate work, indicating the importance of IPE as students transition to professional practice. Finally, the studies from Beebe et al. (2018), Liaw et al. (2019), Livingston et al. (2016), and Scott et al. (2020) demonstrated the engagement of PharmD students in a variety of IPE experiences over the course of their educational program. Therefore, it is evident that both medical and pharmacy education programs have put an emphasis on IPE similar to nursing education programs.

Prevalence of IPE in Allied Health Care Education Programs

In addition to the disciplines of nursing, medicine, and pharmacy, numerous other allied health care education programs have infused IPE in their curricula and, therefore, are well-documented in the literature. These programs encompass the disciplines of physician assistant (Allen et al., 2018; Fewster-Thuente & Batteson, 2016; Fewster-Thuente & Batteson, 2018; Gunaldo et al., 2020; Welsch et al., 2018), exercise physiology (Beebe et al., 2018; Lairamore et

al., 2018; O'Shea et al., 2019; Renschler et al., 2016), respiratory therapy (Al-Qahtani, 2016; Russell et al., 2020; Welsch et al., 2018), and public health (Anderson et al., 2019; Gunaldo et al., 2020; Renschler et al., 2016). Furthermore, numerous studies included students from social work programs among the sample population (Allen et al., 2018; Groessl & Vandenhouten, 2019; Liaw et al., 2019; Marcussen et al., 2019; Ward et al., 2016; Welsch et al., 2018), extending beyond the typical allied health care domain. Nevertheless, three particular allied health care disciplines provide opportunity for further examination, which include PT, occupational therapy (OT), and ND, as will be discussed in the subsequent paragraphs.

The discipline of PT is of particular interest to this literature review, as Fewster-Thuente and Batteson (2018) noted how PT programs have incorporated interprofessional competencies within their curricula in a manner similar to nursing, medicine, and pharmacy education programs. According to the Commission on Accreditation in Physical Therapy Education (2020), PT programs must include IPE in both their didactic and clinical curriculum. Thus, to satisfy these accreditation standards, PT education programs must provide evidence that students have opportunities to engage in IPE that will help develop their "values/ethics, communication, professional roles and responsibilities, and teamwork" (Commission on Accreditation in Physical Therapy Education, 2020, p. 22). As a result, the recent literature demonstrates that IPE is well-established within PT programs (Al-Qahtani, 2016; Fewster-Thuente & Batteson, 2016; Fewster-Thuente & Batteson, 2016; Gunaldo et al., 2020; House & Wahl, 2021; Kent & Keating, 2015; Lairamore et al., 2019; Mozer et al., 20201; von der Lancken & Levenhagen, 2014). Furthermore, numerous studies investigating IPE among PT programs have also included AT students in the sample of participants (Bultas et al., 2016; Hinyard et al., 2017; Lairamore et al.,

2018; Mishoe et al., 2018), suggesting a degree of administrative alignment between the two professions.

Similarly, OT education programs have demonstrated a notable presence in IPE engagement in the allied health care literature (Kent & Keating, 2015; Lairamore et al., 2019; Liaw et al., 2019). The Accreditation Council for Occupational Therapy Education (2020) has also required OT education programs to develop the principles of interprofessional team dynamics within their students, as outlined in their most-recent accreditation standards. Moreover, similar to PT programs, OT education programs have engaged in IPE studies with AT programs (Bultas et al., 2016; Hinyard et al., 2017; Lairamore et al., 2018), including a unique series of studies from Morrell et al. (2018; 2019). Therefore, the allied health care discipline of OT appears to have also emphasized the importance IPE efforts, as demonstrated in both their accreditation standards and inclusion in relevant studies.

Finally, ND education programs are among those allied health care disciplines with a notable presence in the IPE literature. The Accreditation Council for Education in Nutrition and Dietetics (2018) requires didactic programs to include instruction that will ultimately enable ND students to "identify and describe the work of interprofessional teams and the roles of others with whom the registered dietitian nutritionist collaborates in the delivery of food and nutrition services" (p. 10). Thus, students from ND education programs were included in numerous, recent studies examining IPE implementation (Allen et al., 2018; Al-Qahtani, 2016; Beebe et al., 2018; Hinyard et al., 2017; Kent & Keating, 2015; Lairamore et al., 2018; Ward et al., 2016).

One particular study that necessitates a closer examination is that of Eliot et al. (2017), which specifically examined IPE among AT and ND programs. At the conclusion of their study, Eliot et al. (2017) found that less than half (38%) of the surveyed ND programs had access to

IPE initiatives; however, the authors suggested that this finding varied by type of accreditation, noting a greater prevalence (60%) of IPE initiatives among ND programs with a clinical component. Furthermore, these researchers found that ND programs demonstrated a greater readiness for IPE opportunities in terms of clinical rotations, course outcome scores, and community projects when compared to AT programs (Eliot et al., 2017). Therefore, as demonstrated by Eliot et al. (2017) and the numerous studies examined over the course of this literature review, AT education appears to be falling behind other allied health programs in terms of implementing IPE initiatives, requiring further examination.

Prevalence of IPE Among AT Education Programs

Access to IPE initiatives among baccalaureate AT programs appears to have improved significantly in recent years, demonstrating a growth of 14% between 2012 and 2015 (Breitbach et al., 2018). However, Breitbach et al. (2018) noted that 63% of all AT programs examined in their study still lacked access to IPE opportunities, which is posited to be the function of a lack of institutional infrastructure and readiness for IPE initiatives. Such a theory is further supported by the low rates of AT faculty participation in IPE experiences when compared to ND programs, as reported by Eliot et al. (2017). Furthermore, few studies occurring outside of the AT education literature included AT students in their participant populations (Bultas et al., 2016; Hinyard et al., 2017; Lairamore et al., 2018; Mishoe et al., 2018; Renschler et al., 2016). Nevertheless, the ongoing degree transition of the AT profession and the associated implementation of updated CAATE (2020) accreditation standards may have provided additional avenues for professional MAT programs to incorporate IPE in recent years, necessitating further examination.

Standard Eight of the 2020 accreditation standards for professional MAT degree programs addresses the incorporation of IPE (Commission on Accreditation of Athletic Training Education, 2020). However, the annotation for this particular standard provides MAT program

administrators with insufficient guidance as to how to incorporate such IPE measures, stating that “varying methods can be used” (Commission on Accreditation of Athletic Training Education, 2020, p. 2). Furthermore, the CAATE (2020) standards state that MAT students must have “multiple exposures” (p. 2) to IPE, leaving one to question the consistency with which IPE is implemented from one MAT program to another. Although professional master’s programs have demonstrated increased access to IPE in recent investigations, the small sample sizes of these studies appear to lack statistical power (Breitbach et al., 2018; Eliot et al., 2017; Manspeaker et al., 2020). Additionally, numerous bachelor’s level AT programs have undergone, and will continue to undergo, curricular revisions since these prior investigations in order to meet these new accreditation standards (Breitbach, 2016; Commission on Accreditation of Athletic Training Education, 2020; Manspeaker et al., 2020). Therefore, with increasingly more AT education programs elevating to the graduate level, further investigation is required to assess the current status of IPE implementation within MAT programs.

Types of IPE Experiences

A wide-variety of IPE experiences have been reported in the health care education literature, suggesting the feasibility of employing such initiatives. Thus, this section of the literature review will expand upon the types of IPE experiences that have been previously employed across health care and AT education programs. Additionally, distinguishing the types of collaborative learning experiences that AT programs have engaged in, when compared to other allied health programs, will further demonstrate the lack of IPE inclusion suggested by Breitbach (2016). Furthermore, this section of Chapter Two will provide context for the progress of IPE implementation among recently-transitioned MAT programs.

Types of IPE Across Health Care Education Programs

Perhaps one of the most frequently employed methods of IPE in the health care education literature is that of collaborative simulations, as demonstrated in a recent systematic literature review by Berger-Estilita et al. (2020). Collaborative simulations have provided health care educators with the means to engage their students in hands-on scenarios that often require IPP, and may be incorporated in a low- or high-fidelity capacity. Examples of low-fidelity experiences from the reviewed literature include simulated patient care rounds (Fewster-Thuente & Batteson, 2016; Fewster-Thuente & Batteson, 2018), simulated safety issues (House & Wahl, 2021), primary care visits (Ward et al., 2016), mock rehabilitation sessions for critically ill or injured patients (Lairamore et al., 2019), and safe patient handling (von der Lancken & Levenhagen, 2014).

High-fidelity simulations are also well-documented in recent literature. These simulations include scenarios surrounding the management of various acute illnesses and conditions, such as cardiopulmonary resuscitation for a septic patient (Allen et al., 2018) the management of a stroke patient (Lairamore et al., 2019), and the management of a patient with a spinal cord injury (Morrell et al., 2018; Morrell et al., 2019), among others (Watters et al., 2015; Welsch et al., 2018). Furthermore, the study by Livingston et al. (2016) demonstrates the growth and promise of hosting an annual “Disaster Day,” which included students from various health care professions in a variety of high-fidelity, disaster simulations. Therefore, collaborative simulations encompass a variety of non-emergent and emergent conditions and enable students from various health care professions with hands-on opportunities to learn with and from each other, as is the goal of IPE (World Health Organization, 2010).

As technology has advanced, collaborative simulations have improved significantly and have also begun to occur in virtual settings, as demonstrated in numerous recent studies (Beebe

et al., 2018; Liaw et al., 2019; O'Shea et al., 2019; Scott et al., 2020). Liaw et al. (2019) utilized virtual simulation training in which health care students assumed online avatars to participate in interprofessional hospital rounds. Moreover, in light of the COVID-19 pandemic, Rutledge et al. (2020) acknowledged how numerous universities quickly turned to telehealth approaches to satisfy IPE experiences. Recent investigations by Begley et al. (2019) and Quesnelle et al. (2018) have demonstrated the utility of telehealth tools in delivering interprofessional case studies and simulations, respectively. Furthermore, O'Shea et al. (2019) employed a web-based videoconferencing platform to replicate the current telehealth system and provide ND and exercise physiology students with a unique IPE exposure.

Recent literature has also revealed the benefits of incorporating standardized patients (SPs) in both live (Bethea et al., 2019; Collins et al., 2020) and virtual settings (Scott et al., 2020; Wynn, 2020). Scott et al. (2020) incorporated SPs in a telehealth simulation to provide health care students at a rural university with a unique IPE experience. Similarly, Wynn (2020) utilized SPs in an interprofessional telehealth simulation among social work and psychiatric mental health nurse practitioners during the onset of the pandemic. Thus, telehealth tools and virtual simulations incorporating SPs are providing new and unique avenues for IPE during a time when remote learning has become necessary in response to the COVID-19 pandemic.

Regardless of the setting of simulated IPE exposures, numerous publications have recognized the utility of concluding simulations with a period devoted to debriefing (Fewster-Thuente & Batteson, 2016; Lairamore et al., 2019; Liaw et al., 2019; Morrell et al., 2018; O'Shea et al., 2019; Scott et al., 2020; Ward et al., 2016; Welsch et al., 2018). Lavoie et al. (2018) acknowledged how debriefing allows students to reflect on and conceptualize their experiences, which ultimately enables students to apply their learning to similar scenarios in the

future. Furthermore, Morrell et al. (2018) demonstrated how a period of debriefing may help students recognize the value and importance of IPE and IPP in providing high-quality care. Therefore, debriefing is an important component of collaborative simulations and, thus, IPE.

A number of recent studies surveying the status of IPE in American academic health centers demonstrated high IPE activity in both didactic courses and clinical education rotations (Clay et al., 2018; Greer et al., 2014; Milutinović et al., 2018; Renschler et al., 2016). Thus, another commonly-reported method of IPE is shared courses and practicums (Beebe et al., 2018; Bultas et al., 2016; Hagemeier et al., 2014; Hinyard et al., 2017; Welsch et al., 2018). As a result, the utilization of the TeamSTEPPS didactic curriculum, often accompanied by simulations, has been extensively researched (Berger-Estilita et al., 2020; Laverentz et al., 2020; Russell et al., 2020; Ward et al., 2016; Welsch et al., 2018). Similarly, the study of Anderson et al. (2019) incorporated an online, asynchronous IPE module, while Beebe et al. (2018) explored the value of an eight-week distance education course. Therefore, IPE courses of various forms and delivery methods appear to be well-established among health care education programs.

As universities continue to create and direct resources toward IPE programs across their health care disciplines (Anderson et al., 2019; Gunaldo et al., 2020; Laverentz et al., 2020), unique opportunities for IPE have arisen. One such example is the IPE passport program of Laverentz et al. (2020), which was conducted among nursing students over the course of two years of their academic study. Furthermore, IPE-related training sessions have proved to be a consistent medium to teach interprofessional competencies and improve collaborative practice (Bloomfield et al., 2021; Clay et al., 2018; Greer et al., 2014; Liaw et al., 2019; Marcussen et al., 2019; Mishoe et al., 2018; Mozer et al., 2021). Thus, health care educators have continued to

find new and interesting ways to engage their students in IPE, as demonstrated in the reviewed literature.

Finally, collaborative group projects have been well-documented as a source of IPE. The studies of Fewster-Thuente and Batteson (2016) and Mishoe et al. (2018) incorporated interprofessional case studies, and Lairamore et al. (2018) similarly infused interprofessional case scenarios over the course of their six-year cohort study. Additional examples of collaborative group projects from the health care literature include the development of wellness plans (Beebe et al., 2018), semester-long community projects (Hinyard et al., 2017), and group presentations (Jutte et al., 2016), further suggesting a variety of practical methods for program administrators to consider to satisfy their respective accrediting bodies' IPE-related standards.

Types of IPE Among AT Education Programs

Recent publications demonstrate limited opportunities for students from AT programs to engage in the previously-discussed methods of IPE implementation. Inclusion of AT students in IPE projects has been noted (Jutte et al., 2016; Lairamore et al., 2018; Mishoe et al., 2018), but not without discrepancies. In the 2018 study by Lairamore et al., AT students were not included in the initial cohort. Additionally, the AT participants in this particular study were indistinguishable from the exercise science student participants, which was due to both disciplines providing small sample sizes. Furthermore, recent publications related to opportunities in interprofessional simulations appear to be limited to a series of studies by Morrell et al. (2018; 2019) and a qualitative study by Manspeaker et al. (2020). Liaw et al. (2019) suggested that the flexible and practical nature of virtual simulations may play a larger role in interprofessional team training moving forward, providing a feasible alternative for AT programs to consider. However, a more current examination among MAT programs is required to determine if, and how, these methods of IPE are being implemented.

In regards to interprofessional courses, the inclusion of AT appears to be present (Bultas et al., 2016; Hinyard et al., 2017; Manspeaker et al., 2020; Renschler et al., 2016), but often in smaller proportions compared to the other allied health programs represented in these studies. Moreover, limited involvement in IPE didactic training (Manspeaker et al., 2020; Mishoe et al., 2018) suggests further disparities between AT and other allied health care programs. The academic unit in which AT programs are housed has been identified as a potential factor influencing access to these IPE initiatives (Breitbach et al., 2018; Eliot et al., 2017; Manspeaker et al., 2020). Thus, this variable will require careful consideration when examining MAT programs' current involvement in IPE opportunities. Finally, the majority of these recent studies included samples of AT students at the undergraduate level, warranting further investigation in light of the transition to a graduate degree.

Perceptions of IPE Initiatives

To better understand the purpose and importance of IPE initiatives, a general survey of the literature concerning student and faculty perceptions and attitudes toward collaborative learning was conducted. The primary aim of numerous studies was to assess such IPE-related perceptions, as detailed in their respective titles (Al-Qahtani, 2016; Berger-Estilita et al., 2020; Groessl & Vandenhouten, 2019; Hinyard et al., 2017; Jutte et al., 2016; Lairamore et al., 2018; Lairamore et al., 2019; Laverentz et al., 2020; Renschler et al., 2016), suggesting the value of this particular line of inquiry. Furthermore, perceptions specifically related to student and program readiness for IPE were evaluated, as an underlying theme of the present study is to determine MAT programs' preparedness to engage in such initiatives. Therefore, the subsequent paragraphs outline the various instruments that are frequently employed to assess IPE-related

perceptions and readiness before discussing such attitudes among students in related health care and AT education programs.

A variety of instruments have been utilized in the health care research to gauge students' perceptions of and readiness for collaborative learning experiences. Among one of the most commonly employed scales is the Readiness for Interprofessional Learning Scale (RIPLS) (Al-Qahtani, 2016; Berger-Estilita et al., 2020; Groessl & Vandenhouten, 2019; Jutte et al., 2016; Lairamore et al., 2018; Marcussen et al., 2019; Milutinović et al., 2018). Additional scales that were frequently cited in the reviewed literature include the TeamSTEPPS Teamwork Attitudes Questionnaire (Beebe et al., 2018; Berger-Estilita et al., 2020; Fewster-Thuente & Batteson, 2016; Russell et al., 2020; Welsch et al., 2018), the Attitudes Toward Health Care Teams Scale (Berger-Estilita et al., 2020; Groessl & Vandenhouten, 2019; Guraya & Barr, 2018; Liaw et al., 2019; Renschler et al., 2016), the Student Perceptions of Interprofessional Clinical Education tool (Anderson et al., 2020; Berger-Estilita et al., 2020; Gunaldo et al., 2020; Scott et al., 2020; Ward et al., 2016), the Interprofessional Attitudes Scale (Laverentz et al., 2020; Mishoe et al., 2018; Morrell et al., 2018), and the Team Skills Scale (Berger-Estilita et al., 2020; Renschler et al., 2016; Ward et al., 2016). Thus, there is an abundance of recent data yielded from these instruments highlighting the perceptions, and associated benefits, of collaborative learning amongst various health care students.

Furthermore, qualitative analysis of verbal (Beebe et al., 2018; Kent & Keating, 2015; Manspeaker et al., 2020; Morrell et al., 2018; Whiting et al., 2016) and written feedback (Bultas et al., 2016; Kent & Keating, 2015; Lairamore et al., 2019; Lim & Noble-Jones, 2018) are also common methods of assessment. Finally, the Interprofessional Education Assessment and Planning Instrument for Academic Institutions (IPE-API) (Association for Prevention Teaching

and Research, 2009) has been utilized to assess institutions' overall preparedness to implement IPE initiatives (Breitbach et al., 2018; Clay et al., 2018; Eliot et al., 2017; Greer & Clay, 2010; Greer et al., 2014). The IPE-API is of particular interest, as this instrument will be employed in the present study to assess MAT programs IPE implementation. Thus, this section of the literature review will outline and synthesize student perceptions of and readiness for IPE initiatives, as collected by these instruments and assessments, to further support the utility of such collaborative learning opportunities in health care education.

Perceptions of IPE Across Related Health Care Programs

Reported outcomes of IPE-related literature demonstrate predominately positive perceptions of these collaborative, educational experiences. Primarily, these initiatives have promoted students' perceived value of IPE and, thus, interprofessional teamwork (Al-Qahtani, 2016; Anderson et al., 2019; Beebe et al., 2018; Bloomfield et al., 2021; Bultas et al., 2016; Fewster-Thuente & Batteson, 2016; Fewster-Thuente & Batteson, 2018; Gunaldo et al., 2020; Hinyard et al., 2017; House & Wahl, 2021; Kent & Keating, 2015; Lairamore et al., 2019; Laverentz et al., 2020; Liaw et al., 2019; Marcussen et al., 2019; Mishoe et al., 2018; Mozer et al., 2021; O'Shea et al., 2019; Renschler et al., 2016; Ward et al., 2016; Watters et al., 2015; Welsch et al., 2018; Whiting et al., 2016). However, Renschler et al. (2016) have suggested that these perceptions are not necessarily shared across all disciplines, as the medical students in their study did not demonstrate significant improvements in attitudes toward interprofessional teamwork following either a one- or two-semester course. Nevertheless, Al-Qahtani (2016) demonstrated a significant, positive relationship between students' year of study and the teamwork and collaboration subscale of the RIPLS, suggesting that additional IPE exposures may improve teamwork perceptions and attitudes with time. Furthermore, qualitative feedback yielded from the studies of Beebe et al. (2018), Bultas et al. (2016), Lairamore et al. (2019), and

Whiting et al. (2016) further detailed the utility of IPE initiatives in improving students' perceptions of interprofessional teamwork and collaborative practice. As a result of such initiatives, Gunaldo et al. (2020) posited that health care students develop a greater understanding of the IPEC (2016) competencies and, thus, interprofessional teamwork.

An additional outcome reported from IPE studies is the improvement in students' awareness of varying health professions' roles in patient care (Bloomfield et al., 2021; Bultas et al., 2016; Fewster-Thuente & Batteson, 2016; Gunaldo et al., 2020; House & Wahl, 2021; Kent & Keating, 2015; Lairamore et al., 2018; Laverentz et al., 2020; Lim & Noble-Jones, 2018; Mozer et al., 2021; Scott et al., 2020; Ward et al., 2016; Welsch et al., 2018). The simulations presented in the journal articles of Fewster-Thuente and Batteson (2016), Scott et al. (2020), and Ward et al. (2016) were tailored to the disciplinary roles of the students represented in each study, which ultimately fostered better role awareness. Furthermore, IPE programs and courses have proven to be a valuable method to supplement students' knowledge of disciplinary roles (Bultas et al., 2016; Gulando et al., 2020; Laverentz et al., 2020). However, the qualitative feedback gathered during the debriefing sessions Allen et al. (2018) and Russell et al. (2020) demonstrated significant role confusion among the study samples. Therefore, additional opportunities for IPE and collaborative practice have been recommended (Allen et al., 2018; Russell et al., 2020).

Similarly, positive changes in attitudes towards other disciplines have resulted from such IPE experiences (Beebe et al., 2018; Bloomfield et al., 2021; Gunaldo et al., 2020; Guraya & Barr, 2018; Lairamore et al., 2019; Livingston et al., 2016; Mishoe et al., 2018). More specifically, the qualitative themes of trust and respect have emerged in recent investigations utilizing interprofessional teams (Beebe et al., 2018; Lairamore et al., 2019), which reflects one

the primary goals of IPE as described by the IPEC (2016). However, Kent & Keating's (2015) literature review established that changes in attitude towards other disciplines do not appear to be dependent upon engagement in IPE, and may result from single discipline education. Nevertheless, IPE initiatives appear to provide students from varying health care disciplines with the opportunity to build relationships on a foundation of mutual respect, as opposed to "rivalry, stereotypes, or power" (Mishoe et al., 2018, p. 10).

Numerous studies have also demonstrated positive perceptions and outcomes relative to students' interprofessional communication skills (Hagemeier et al., 2014; Lairamore et al., 2019; Lim & Noble-Jones, 2018; Morrell et al., 2018; O'Shea et al., 2019; Russell et al., 2020; Watters et al., 2015). The structured literature review of Lim and Noble-Jones (2018) discusses the development of effective communication skills as a primary outcome of IPE initiatives. Thus, improvements in interprofessional communication were well-documented among those studies incorporating simulation-based learning (Lairamore et al., 2019; Morrell et al., 2018; O'Shea et al., 2019; Russell et al., 2020; Watters et al., 2015), as these IPE initiatives require careful coordination between the participating disciplines. Moreover, didactic curriculum and courses devoted to interprofessional communication have been noted as meaningful opportunities for health care students to refine these skills and observe the benefits of IPE (Hagemeier et al., 2014; Russell et al., 2020). Therefore, the wide range of outcomes associated with interprofessional learning and collaboration presented in this section of the literature review are overwhelmingly positive and should encourage administrators to continue implementing such endeavors.

Finally, the reviewed literature also demonstrates a general readiness for interprofessional learning and collaborative practice (Beebe et al., 2018; Bultas et al., 2016; Clay et al., 2018; Hinyard et al., 2017). In a recent national survey, Clay et al. (2018) presented an upward trend in

institutional readiness for IPE and IPP amongst academic health centers in the United States. Their findings demonstrated improvements in interprofessional courses, opportunities for IPP, and designated IPE faculty and personnel (Clay et al., 2018). While the specific disciplines of the health care education programs represented in this survey were not disclosed, it appears that greater emphasis has been placed on IPE at an institutional level (Clay et al., 2018).

Furthermore, the literature supports IPE readiness amongst students from various disciplines as a result of focused IPE initiatives (Al-Qahtani, 2016; Groessl & Vandenhouten, 2019; Lairamore et al, 2018; Marcussen et al., 2019; Morrell et al., 2019; Milutinović et al., 2018); however, discrepancies have been noted. Morrell et al. (2019) note how the graduate OT students included in their study did not demonstrate significant changes in preparation for IPP following a collaborative simulation. Moreover, Milutinović et al. (2018) revealed how female nursing students demonstrated greater preparedness for IPE relative to their male counterparts in both nursing and medicine. However, these authors recognized the limitations of their studies, such as sample size concerns and the generalizability of their findings (Milutinović et al., 2018; Morrell et al., 2019). Therefore, the differences in attitudes toward and preparedness for IPE implementation across professions, including AT, requires further investigation.

Perceptions of IPE Among AT Programs

Studies that have specifically examined IPE initiatives among AT programs have reported similar outcomes and positive perceptions. After engaging in an interprofessional group project, AT students reported increased knowledge and understanding of the roles of the nursing and health administration professions, among others (Jutte et al., 2016). Additionally, engagement in an interprofessional simulation led to significant changes in AT students' self-reported preparedness for interprofessional practice (Morrell et al., 2019). Furthermore, students

in both of these studies reported an increased awareness of the need to improve communication among interprofessional teams (Jutte et al., 2016; Morrell et al., 2018).

While the outcomes of these studies are positive and encouraging, students in other allied health programs appear to be enjoying a wider-range of benefits of IPE in comparison to students in AT programs. When examining those studies that occurred outside of AT education research, the sample sizes of AT students were very small, especially in comparison to nursing and PT (Bultas et al., 2016; Hinyard et al., 2017; Lairamore et al., 2018; Mishoe et al., 2018; Renschler et al., 2016). Similarly, Mishoe et al. (2018) reported that their sample size of AT students was too small to conduct additional analyses, meaning these students' perceptions of the collaborative experience were not distinguished from others in their results. These disparities reflect the general lack of AT program inclusion in IPE endeavors, suggesting an area of advocacy and improvement for program administrators to consider as the profession continues to make the graduate-degree transition. Thus, the present study aims to assess the current status of IPE implementation among MAT programs to lend insights to this particular gap in the literature.

Interprofessional Collaboration in Professional Practice

Guraya and Barr (2018) suggested that "IPE has the potential of providing a learning forum for practitioners who are not ordinarily offered a structured framework to learn with, from and about one another, and to build professional relationships" (p.163). Simply put, the incorporation of IPE into MAT programs' curriculum would also provide benefits to students as they transition to professional practice. Because IPE helps to lay a foundation for IPP, it is important to evaluate the various benefits that may ultimately stem from collaborative practice, which include patient and provider outcomes and satisfaction, among others. Additionally, this

final section will address barriers to the AT profession's inclusion in IPP to further support the importance of assessing and improving IPE among MAT programs.

Recent investigations have demonstrated the benefits of interprofessional collaboration and practice among various health care professionals. Watters et al. (2015) revealed how interprofessional training and collaboration amongst nurses and doctors enhanced self-efficacy, communication, teamwork, and leadership in clinical situations. In terms of patient outcomes, Guck et al. (2019) examined the benefits of an interprofessional collaborative practice model in treating high-risk patients. At the conclusion of their study, these authors found that implementing the interprofessional collaborative practice model among their high-risk cohort led to notable reductions in emergency room visits, hospitalizations, and total patient charges (Guck et al., 2019). These findings appear to be consistent with the benefits highlighted in the recent scoping review of McCutcheon et al. (2020), who found significant, positive outcomes of cardiovascular and psychiatric conditions as a result of interprofessional collaborative care. Furthermore, these authors noted health care provider satisfaction, treatment adherence, and quality of life measures as significant outcomes stemming from IPP (McCutcheon et al., 2020). Thus, IPP in primary care settings appears to positively impact both humanistic and clinical outcomes in a superior manner to traditional care (McCutcheon et al., 2020).

Furthermore, in a recent meta-analysis, Kaiser et al. (2017) found that nurses who engaged in interprofessional work demonstrated less turnover intention, burnout, and job stress. Additionally, these authors found that interprofessional involvement was "moderately positively associated with autonomy, engagement, job satisfaction, and perceived service quality" (Kaiser et al., 2017, p. 265). Ultimately, Kaiser et al. (2017) suggested that IPP can improve the well-being of health and social care employees, and should be a focus of interventions at both the pre-

and post-licensure levels. Thus, educating students on their future practice roles and creating value for interprofessional collaboration over the course of their education may promote behaviors that have positive, long-term implications for both themselves and their patients (Bultas et al., 2016; Guck et al., 2019; Kaiser et al., 2017; McCutcheon et al., 2020).

As mentioned previously, AT professionals work in a variety of clinical settings, which include both hospitals and emergency rooms (Rizzo et al., 2015). Thus, Rizzo et al. (2015) noted that certified athletic trainers (ATC) have traditionally practiced in an interprofessional manner. Nevertheless, recent investigations have suggested that ATCs encounter barriers to IPP in the same way that AT programs struggle with IPE inclusion. Although ATCs in the collegiate setting report valuing IPP, Hankemeier and Manspeaker (2018) found that participants in their study "reported that only 42% of their patient care was delivered in an interdisciplinary manner" (p. 706). The lack of engagement in IPP by ATCs in this setting may be due to a lack of IPE opportunities, as well as a perceived lack of respect from other health care professionals (Hankemeier & Manspeaker, 2018; Manspeaker & Hankemeier, 2019). Furthermore, the lack of interprofessional team structure and concerns related to continuity of care may also limit IPP (Manspeaker & Hankemeier, 2019). Therefore, improving IPE efforts in AT programs may help mitigate these barriers to IPP, further emphasizing the importance of evaluating the current status of IPE implementation among MAT programs.

Summary

The health care education literature has recognized IPE as a valuable method to instruct students of various health professions on their roles and responsibilities in patient care. Extensive research has demonstrated how the disciplines of medicine, nursing, and pharmacy, among other allied health care programs, have successfully and frequently implemented IPE in their curricula

and clinical education settings. Furthermore, these studies have documented numerous avenues of IPE implementation, such as simulations and collaborative courses. Involvement in IPE has been shown to cultivate mutual respect among various health care professions and improve students' perceptions of the value of collaborative practice, as well as their readiness for IPP. Although IPE initiatives within professional undergraduate AT programs have been observed, little is known about the current status of IPE implementation among MAT programs.

The decision to shift the degree requirement to an entry-level master's was made, in part, to ensure that the AT profession remains a valued member of the greater interprofessional health care team. However, little is known relative to the extent and location of IPE implementation within AT programs following this transition. Thus, comparing the degree of IPE implementation between recently-established and established MAT programs will enable AT, higher education leaders to critically appraise how the profession is keeping pace with comparable health care disciplines. Furthermore, examining whether or not significant differences in IPE implementation exist between programs' didactic curriculum and clinical education will address the gap in the literature relative to the types of IPE experiences in which MAT students commonly engage. Ultimately, the present study will lend insights to the perceptions of MAT program directors and students concerning IPE implementation, which may further delineate barriers that ATCs encounter relative to IPP.

CHAPTER THREE: METHODS

Overview

The recent health care literature suggests a discrepancy in IPE inclusion among AT education programs (Breitbach, 2016; Breitbach et al., 2018; Eliot et al., 2017; Rizzo et al., 2015). However, researchers have begun to acknowledge how the transition to a professional master's degree may ultimately improve IPE engagement and implementation (Eliot et al., 2017; Manspeaker et al., 2020). Thus, there is a gap in the literature relative to how the ongoing transition to the MAT degree has influenced IPE implementation within AT education programs, and whether or not IPE exposures vary between the didactic curriculum and clinical education. Utilizing the experiential learning theory (Kolb, 1984) and theory of self-efficacy (Bandura, 1977) as guiding lenses, this causal-comparative and predictive, correlational design study examined self-reported responses on the 10-item form of the IPE-API self-assessment survey from the Association for Prevention Teaching and Research (2009) to determine whether or not a cause-and-effect relationship (Gall et al., 2007) exists between IPE implementation and the settings in which these exposures occur. Furthermore, this research examined the outcomes of the 10-item form of the IPE-API (Association for Prevention Teaching and Research, 2009) to determine how accurately the success of IPE implementation can be predicted by the number of years an AT program has been at the MAT status. The following chapter outlines the study's design, research questions and associated hypotheses, study participants and setting, instrumentation, procedures, and data analyses.

Design

To address each research question in this non-experimental, quantitative study among MAT programs, both a causal-comparative and a predictive, correlational research design were

utilized. According to Gall et al. (2007), a causal-comparative design is a form of non-experimental investigation where "researchers seek to identify cause-and-effect relationships by forming groups of individuals in whom the independent variable is present or absent – or present at several levels – and then determining whether the groups differ on the dependent variable" (p. 306). A significant feature of this design is the fact that the independent variable is measured on either a nominal or ordinal scale (Gall et al., 2007). Additionally, this research design is often described as *ex post facto*, as the inquiry relies on observations of naturally-occurring variations in the presumed variables after the treatment has occurred, as opposed to manipulating the independent variable (Edmonds & Kennedy, 2017; Gall et al., 2007; Rovai et al., 2013; Warner, 2013). Finally, numerous data collection procedures and statistical analyses, such as *t* tests, may be employed in causal-comparative research (Gall et al., 2007; Warner et al., 2013).

A casual-comparative design framed the first and second research questions, as both questions sought to identify if significant differences in the dependent variable of IPE implementation exist between the settings in which they occur (Gall et al., 2007; Warner, 2013). As defined in Chapter One, IPE implementation are those areas of a MAT program where "students from two or more professions learn about, from and with each other" (World Health Organization, 2010, p. 7). The setting, or independent variable, of RQ1 concerns the status of the MAT program, being recently-transitioned or established. Those programs that have been at the MAT status for three academic years or less were categorized as recently-transitioned, and those programs at the MAT status for greater than three academic years qualified as established (Breitbach et al., 2018). Meanwhile, the location of IPE implementation comprised the independent variable for RQ2, which distinguishes between the didactic curriculum and clinical education components of MAT programs. Whereas the academic material presented through

lectures, assigned readings, and webinars defines didactic curriculum (Welsch et al., 2018), the portion of students' preparation that involves the formal practice of clinical proficiencies, such as laboratory and clinical experiences, encompasses clinical education (Weidner & Henning, 2002).

This research design was appropriate for these questions as they relied on observations of naturally-occurring variations in IPE implementation between the settings, or independent variables, which will be measured on a nominal scale for RQ1 and an ordinal scale for RQ2 (Edmonds & Kennedy, 2017; Gall et al., 2007; Rovai et al., 2013). Furthermore, the independent variables were not be manipulated and random sampling did not occur, aligning with the non-experimental nature of this design (Edmonds & Kennedy, 2017; Gall et al., 2007; Warner, 2013). Finally, the data were collected using the IPE-API self-assessment survey and analyzed via an independent *t* test and a non-parametric equivalent of a paired *t* test, in accordance to causal-comparative research (Gall et al., 2007; Warner, 2013).

Both Breitbach et al. (2018) and Eliot et al. (2017) employed a causal-comparative research design to frame research questions within their recent studies. In their 2018 study, Breitbach et al. (2018) conducted follow-up analyses to determine if significant differences existed between their dependent variables, being IPE availability and readiness, and the independent variables of AT program type and the academic unit in which the AT program was housed. Similarly, Eliot et al. (2017) sought to determine if their particular IPE outcomes demonstrated significant differences between AT and ND programs. Neither study utilized random sampling or manipulated variables, as is expected of this non-experimental research design (Gall et al., 2007; Warner, 2013). Furthermore, both studies measured their independent variables in the form of categories (Gall et al., 2007; Warner, 2013). Thus, a causal-comparative

research design was appropriate for the first and second research questions, as the study mirrored those of Breitbach et al. (2018) and Eliot et al. (2017).

A predictive, correlational research design was utilized to frame the third research question. The purpose of correlational research is "to discover relationships between variables through the use of correlational statistics" (Gall et al., 2007, p. 332). Furthermore, this non-experimental approach examines the magnitude and direction of the relationships between variables, allowing the researcher to determine if changes in one variable (i.e., the predictor variable) lead to predictable and consistent changes in another (i.e., the criterion variable). (Edmonds & Kennedy, 2017; Gall et al., 2007; Rovai et al., 2013). More specifically, prediction study designs seek to identify those variables that may predict future success, mainly through correlational statistics and regression (Edmonds & Kennedy, 2017; Gall et al., 2007). Therefore, the predictor variable is measured before the criterion behavior or outcome occurs, which is assessed via self-report measures and interviews, among other methods (Gall et al., 2007). Finally, prediction studies seek to maximize the correlation between the predictor and criterion variables, rather than simply describing the extent of the relationship (Gall et al., 2007).

The third research question sought to determine if the number of years an AT program has been at the MAT status predicts IPE implementation using bivariate linear regression. Therefore, a predictive, correlational design was also appropriate for this study, as this particular question aimed to determine if a predictor variable can forecast the success of a criterion variable, being IPE implementation (Edmonds & Kennedy, 2017; Gall et al., 2007). Furthermore, the time that programs have been at the MAT status was measured before assessing IPE implementation via the IPE-API self-assessment survey, consistent with this design (Gall et al., 2007). Similar to the variables in the first and second research questions, neither the predictor

nor criterion variables were manipulated, further supporting the suitability of this approach (Edmonds & Kennedy, 2017; Gall et al., 2007).

Both Al-Qahtani (2016) and Milutinović et al. (2018) used a predictive, correlational design framework to determine which predictor variables would produce consistent changes in the RIPLS. Interestingly, both papers demonstrated that healthcare students' year of study was a strong predictor of RIPLS outcomes (Al-Qahtani, 2016; Milutinović et al., 2018). This finding compliments the third research question in the present study, which utilized bivariate linear regression to examine if the number of years at the MAT status predicts IPE implementation success. Thus, the consistency between the final research question of the present study and those of Al-Qahtani (2016) and Milutinović et al. (2018) further lends to the suitability of this design.

Research Questions

The research questions for this study are:

RQ1: Does a significant difference in the extent of IPE implementation exist between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey?

RQ2: Does a significant difference in the extent of IPE implementation exist between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey?

RQ3: How accurately can the success of IPE implementation be predicted by the number of years an AT program has been at the MAT status, as measured by the 10-item IPE-API self-assessment survey?

Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no statistically significant difference in the extent of IPE implementation between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey.

$H_0$2: There is no statistically significant difference in the extent of IPE implementation between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey.

$H_0$3: There is no predictive relationship between the predictor variable, the number of years an AT program has been at the MAT status, and the criterion variable, the success of IPE implementation, as measured by the 10-item IPE-API self-assessment survey.

Participants and Setting

Population

The participants of this quantitative, causal-comparative and predictive, correlational design study included program directors of CAATE-accredited MAT, and MSAT, programs within the United States. A purposive sample was utilized to gather participants following the Spring semester of the 2020-2021 school year. To suit the purposes of this inquiry (Gall et al., 2007), the AT programs that were seeking CAATE accreditation, voluntarily withdrawing CAATE accreditation, or were undergoing a degree transition at the time of the study were excluded from the sample. Thus, this sample was drawn from an eligible population of 209 professional, CAATE-accredited MAT programs (Commission on Accreditation of Athletic Training Education, n.d.). A total of 66 MAT program directors responded to the survey, representing this population of colleges and universities across the United States (Commission on Accreditation of Athletic Training Education, n.d.).

For the causal-comparative study design hypotheses, the number of participants (N = 66) in the sample failed to exceed the Gall et al. (2007) recommended minimum of 100 program directors for an assumed, medium effect size with the statistical power of .7 at the .05 alpha level when conducting an independent samples *t* test. Nevertheless, the study sample did exceed the recommended minimum of 64 participants for a medium effect size with at statistical power of .5 at the .05 alpha level (Gall et al., 2007). An additional *post hoc* power analysis was conducted to determine the observed power of the statistic. Moreover, the number of participants (N = 66) in the sample met the recommended minimum of 66 program directors for a medium effect size with the statistical power of .7 at the .05 alpha level when conducting bivariate linear regression for the predictive, correlational research design hypothesis (Gall et al., 2007). Program directors from both recently-transitioned and established MAT programs were included as participants in the bivariate linear regression analysis.

The sample was drawn from among the 209 MAT programs currently suited for this inquiry. The number of years these participants' programs have been at the MAT status ranged from 1 to 20 years, with an average of 4.5 years. Furthermore, 38 of the sampled programs were classified as recently-transitioned and 28 programs were classified as established. Additional demographic data, which includes the academic unit in which each MAT program is housed and the Carnegie Classification of each institution represented in this study, were collected and are provided in Chapter Four.

Instrumentation

The data for this study were collected through the 10-item form of the IPE-API. The 10-item form of the IPE-API, which is the abbreviated version of a 20-item self-assessment survey, was developed by the Association for Prevention Teaching and Research (2009) and is openly

accessible to the public for research purposes. The original, 20-item survey is divided into two parts, with the first 10-items evaluating IPE and the second 10-items evaluating prevention education (Association for Prevention Teaching and Research, 2009). Because prevention education is outside of the scope of the present study, the 10-item form was utilized to specifically evaluate IPE implementation. Greer et al. (2014) acknowledge how this instrument is focused on measuring the essential components that comprise IPE initiatives, which include programmatic participation, institutional support, educational venues, educational evaluation, and faculty incentive (Association for Prevention Teaching and Research, 2009). Thus, the 10-item form of the IPE-API was utilized in this this study for purposes of measuring MAT programs' IPE implementation, as indicated by total survey scores that range from 0 to 40. Moreover, items 1 and 2 of the 10-item IPE-API provided for an examination of programs' IPE implementation within their didactic curriculum and clinical education, respectively, with a range of scores from 0 to 4.

In their 2010 study, Greer and Clay established face validity of the IPE-API through an expert assessment and content validity via a literature review. Additionally, Greer and Clay (2010) state that internal consistency and reliability were achieved through pilot testing and reviewer feedback; however, reliability statistics were not provided "due to the fact that the items would score differently for each individual institution based on mission and culture" (p. 228). Therefore, this study conducted reliability statistics, using Cronbach's alpha, in an attempt to assess and enhance the reliability of this instrument (Gall et al., 2007; Greer & Clay, 2010; Warner, 2013). Furthermore, numerous studies have utilized the 10-item form of the IPE-API survey to collect only those data related to IPE (Breitbach et al., 2018; Clay et al., 2018; Eliot et al., 2017; Greer et al., 2014). Thus, for purposes of this study, a consent form (Appendix B),

demographic questions (Appendix C), and the 10-item IPE-API survey were embedded in and distributed online via Qualtrics.

The IPE-API utilizes a 5-point scale that ranges from “Level 0” to “Level 4,” with “Level 0” indicating the least desirable outcome and “Level 4” indicating the most desirable outcome (Association for Prevention Teaching and Research, 2009). Although this instrument was primarily developed for purposes of self-assessment (Association for Prevention Teaching and Research, 2009), subsequent studies have scored this instrument according to the established levels (Breitbach et al., 2018; Eliot et al., 2017). Thus, the scores for the independent variables of programs’ didactic curriculum and clinical education range from 0 to 4, with a score of 0 indicating the lowest degree of IPE implementation and a score of 4 indicating the highest degree of IPE implementation (Breitbach et al., 2018; Eliot et al., 2017). Furthermore, the total scores of the 10-item form of the IPE-API, indicating IPE implementation, range from 0 to 40, with a score of 0 indicating the lowest degree of overall IPE implementation, or readiness, and a score of 40 indicating the highest degree of overall IPE implementation (Breitbach et al., 2018; Eliot et al., 2017). The responses that correspond to each level vary with each question of the 10-item form of the IPE-API self-assessment survey.

The Qualtrics survey began with the consent form, as outlined in Appendix B, to ensure the researcher had documented consent prior to the collection of any data. The survey then collected demographic information from each participant, which included the following: the number of years their program has been at the MAT status, the academic unit in which their MAT program is housed, as described by Breitbach et al. (2018), and their institution’s Carnegie Classification. The demographic survey questions are outlined in Appendix C. Upon providing

their demographic information, the participants proceeded to the 10-item form of the IPE-API self-assessment survey.

Procedures

Before data collection occurred, the researcher secured approval from the Liberty University Institutional Review Board (IRB) (Appendix A). Upon obtaining IRB approval, the researcher reviewed the CAATE (n.d.) website to identify those MAT programs that fit the purposes of the study, which stood at 209 programs. Once these programs were identified, the researcher requested a list of MAT program directors from the CAATE to elicit participants. Upon the conclusion of the Spring semester of the 2020-2021 academic year, the MAT program directors of the qualified colleges and universities were contacted via email to request their participation in the study. This email outlined the purpose of the study, as described in the consent form in Appendix B, and provided a link to the Qualtrics survey. Program directors who had questions prior to participating in the study were encouraged to contact the primary investigator.

The participants reviewed and responded to the consent form (Appendix B) within the Qualtrics survey before any data are collected. Upon providing their consent, the participants answered the demographic questions (Appendix C) and completed the 10-item form of the IPE-API survey. Each survey was submitted anonymously. At the conclusion of the data collection period, the researcher gathered the electronic survey data and exported the anonymous responses as a SPSS compatible file. This file was maintained on a password-protected computer, ensuring security of the data. The file was then be imported into IBM® SPSS Statistics (Version 25) software for analysis. The researcher screened the data and conducted assumption testing before initiating the descriptive statistics analysis. Finally, the independent samples *t* test, Wilcoxon

signed rank test, and bivariate linear regression analyses were conducted. All data were stored on a password-protected computer used solely by the researcher.

Data Analysis

This quantitative study utilized three methods for data analysis. An independent samples *t* test was used for RQ1, and a non-parametric test equivalent to the paired sample *t* test (i.e., Wilcoxon signed rank test) was used for RQ2. Moreover, bivariate linear regression was utilized for RQ3. Data were screened before conducting each analysis for missing data points; thus, incomplete responses were excluded from the analyses. Furthermore, in accordance to the recommendation of Greer and Clay (2010), a reliability analysis was conducted to examine the internal consistency of responses on the 10-item IPE-API via Cronbach's alpha (Gall et al., 2007; Warner, 2013). A Cronbach's alpha of 0.7 or higher indicated acceptable internal consistency for IPE-API items (Gall et al., 2007; Warner, 2013).

$H_0$1: Independent Samples *t* Test

The first research question examined whether or not a significant difference in the extent of IPE implementation exists between recently-transitioned and established MAT programs. Thus, an independent samples *t* test was utilized to test the null hypothesis that no statistically significant difference in IPE implementation exists between these categorical groups (Gall et al., 2007; Warner, 2013). An independent samples *t* test compares the mean scores on a continuous outcome, in this case total, ratio scores on the 10-item IPE-API survey, between two categorical groups, such as the recently-transitioned and established MAT programs (Gall et al., 2007; Warner, 2013).

The preliminary data screening involved examining box and whiskers plots to detect any extreme outliers in IPE implementation, as indicated by the scores on the IPE-API survey

(Warner, 2013). The independent samples *t* test requires the following assumptions to be met: independence of the two categorical groups, normal distribution of the dependent variable, no extreme outliers, and homogeneity of variance of the dependent variable (Warner, 2013). The independence assumption was met, as no participants belonged to both a recently-transitioned and an established MAT program. To examine the assumption of normality among the IPE-API scores, a Kolmogorov-Smirnov test was utilized, as the sample was greater than 50 participants (Warner, 2013). As mentioned previously, box and whiskers plots for each group were examined for extreme outliers, and the homogeneity of variance of IPE-API scores was examined with a Levene's Test of Equality of Error Variance (Warner, 2013).

Descriptive statistics of the mean and standard deviation of IPE-API scores were reported for each group, followed by the independent samples *t* test (Warner, 2013). Since this study included three tests of significance, a Bonferroni correction was employed to limit Type I error (Warner, 2013). The standard calculation for a Bonferroni correction begins with an alpha level of .05 and then divides by the number of hypothesis tests being run (Warner, 2013). For that reason, the alpha level for this study was calculated as follows: .05/3 = 0.17, which was rounded to .02 (Warner, 2013). Therefore, the alpha level for the independent samples *t* test, and subsequent analyses, was set at $p < .02$. Furthermore, Cohen's *d*, which "indicates how many (pooled) standard deviations apart the group means were in the sample" (Warner, 2013, p. 206), was utilized to report the effect size of the independent samples *t* test. Cohen's *d* is often presented as a ratio, with a large ratio indicating a favorable effect size (Warner, 2013). The Cohen's *d* yielded from this analysis was then qualitatively interpreted according to Cohen's (1988) verbal labels, with $d = 0.2$ indicating a "small" effect, $d = 0.5$ representing a "medium" effect, and $d = 0.8$ indicating a "large" effect.

$H_0$2: Wilcoxon Signed Rank Test

The second research question examined if a significant difference exists in the extent of IPE implementation between MAT programs' didactic curriculum and clinical education, as indicated on responses to items 1 and 2 of the 10-item IPE-API, respectively. Because all study participants responded to questions regarding IPE implementation in both their didactic curriculum and clinical education, a non-parametric equivalent of the paired sample *t* test (i.e., Wilcoxon signed rank test) was utilized to combat a violation of the assumption of independence that would have otherwise occurred in an independent samples *t* test (Gall et al., 2007; Warner, 2013). A Wilcoxon signed rank test determines if there are significant differences in the distributions of scores among two, correlated samples (Gall et al., 2007; Warner, 2013). This non-parametric test is commonly employed when there is a violation of the assumptions for the paired samples *t* test, as was the case for the present study. Thus, this analysis was used to test the null hypothesis that no statistically significant difference in IPE implementation exists between MAT programs' didactic curriculum and clinical education, as indicated by ratio scores on items 1 and 2 of the 10-item IPE-API, respectively.

Box and whiskers plots were examined as part of the preliminary data screening, as well as to detect any extreme outliers in IPE implementation (Warner, 2013). Initial assumption testing for the paired sample *t* test was carried out to determine if the data were suited to this particular analysis. The paired sample *t* test requires the following assumptions to be met: dependence of the two categorical groups, no extreme outliers in the difference between the two groups, and a normal distribution of the difference between the paired data (Warner, 2013). The assumption of dependence was met, as each participant scored items (i.e., items 1 and 2 of the 10-item IPE-API) related to IPE implementation within their didactic curriculum and clinical

education, and no extreme outliers were detected on the box and whiskers plots. However, the assumption of normality was violated with a Kolmogorov-Smirnov test that yielded a $p = .000$; thus, the non-parametric Wilcoxon signed rank test was employed. According to Gall et al. (2007), the Wilcoxon signed rank test "is not based on any assumptions about the shape of the score distribution or homogeneity of variance between the two sets of scores" (pp. 327-328). Therefore, the data were evaluated chiefly for extreme outliers and dependence of the categorical groups.

Descriptive statistics of the mean and standard deviation of scores on items 1 and 2 of the 10-item IPE-API were reported, followed by the Wilcoxon signed rank test at an alpha level of .02 (Gall et al., 2007; Warner, 2013). As discussed in the analysis section of RQ1, the alpha level was set to $p < .02$ due to a Bonferroni correction (Warner, 2013). Similar to the independent samples *t* test, Cohen's *d* was used to report effect size to demonstrate the amount of overlap "between the distributions of scores in the two groups" (Warner, 2013, p. 206). Thus, the effect size of the Wilcoxon signed rank test was qualitatively interpreted according to Cohen's (1988) verbal labels, as previously described.

$H_0$3: Bivariate Linear Regression

The third and final research question sought to examine if the number of years an AT program has been at the MAT status is predictive of the success of IPE implementation, as measured by total, ratio scores on the 10-item IPE-API self-assessment survey. Thus, a bivariate linear regression analysis was employed to examine whether or not this predictive relationship exists (Gall et al., 2007; Warner, 2013). Utilizing bivariate linear regression yielded an equation to predict the success of IPE implementation from the number of years of an AT program at the MAT status (Warner, 2013). Furthermore, the statistical significance tests and effect size indexes

yielded from this particular analysis provided for an evaluation of the strength of this predictive relationship (Gall et al., 2007; Warner, 2013).

Bivariate linear regression requires the following assumptions to be met: a linear relationship is present between the dependent and independent variables, a bivariate normal distribution exists among the data with no bivariate outliers, there is independence of the residuals, and the residuals have constant variance, or homoscedasticity, at every level of the criterion variable (Warner, 2013). Thus, a scatterplot was visually inspected to determine if a linear relationship existed between IPE implementation, or total scores on the 10-item IPE-API, and the number of years of an AT program at the MAT status (Warner, 2013). Moreover, this scatterplot was examined for bivariate outliers and a "cigar" shape, which would indicate that the assumption of bivariate normal distribution has been met (Warner, 2013). The independence of residuals was satisfied, as the data were collected at a single point in time (Warner, 2013). Finally, a scatterplot of the criterion variable's residuals against its predicted values were examined for the assumption of homoscedasticity (Warner, 2013).

Descriptive statistics of the mean and standard deviation were reported for both the dependent and independent variables. The bivariate linear regression analysis was also conducted at an alpha level of .02, as a Bonferroni correction was utilized to help limit a Type I error (Warner, 2013). Furthermore, Pearson's *r* (or r^2) between the predictor and criterion variables was used to report the effect size (Warner, 2013). Warner (2013) states that Person's *r* can be "interpreted as the proportion of variance in *Y* that is predictable from *X* (or vice versa)" (p. 359). Pearson's *r* ranges from -1 to +1, with -1 indicating a perfect, negative relationship and +1 indicating a perfect, positive relationship (Warner, 2013). Furthermore, Pearson's *r* was qualitatively interpreted according to the verbal labels proposed by Cohen (1988), with $r = 0.1$

indicating a “small” effect, $r = 0.2$ representing a “medium” effect, and $r = 0.4$ indicating a “large” effect.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, causal-comparative and predictive, correlational design study was to determine if a significant difference in the extent of IPE implementation exists between recently-transitioned and established MAT programs, as well as if a significant difference exists in the extent of IPE implementation between MAT programs' didactic curriculum and clinical education. Additionally, this study evaluated if the number of years a program has offered the MAT degree predicts the success of IPE implementation. Utilizing an independent samples *t* test, this study observed the influence of the independent variable of MAT status (i.e., recently-transitioned vs. established) on the dependent variable of IPE implementation. Furthermore, Wilcoxon signed rank test was employed to determine if the independent variable of IPE setting (i.e., didactic curriculum vs. clinical education) demonstrated significant differences in the dependent variable of IPE implementation. Lastly, bivariate linear regression was utilized to observe for a predictive relationship between the independent variable of programs' number of years at the MAT status and the dependent variable of IPE implementation. The researcher utilized the 10-item IPE-API for purposes of data collection, which garnered 66 responses from an eligible population of 209 MAT program directors. Thus, the Findings section details the research questions, null hypotheses, descriptive statistics, assumption testing, and results.

Research Questions

RQ1: Does a significant difference in the extent of *IPE implementation* exist between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey?

RQ2: Does a significant difference in the extent of *IPE implementation* exist between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey?

RQ3: How accurately can the success of *IPE implementation* be predicted by the number of years an AT program has been at the MAT status, as measured by the 10-item IPE-API self-assessment survey?

Null Hypotheses

$H_0$1: There is no statistically significant difference in the extent of *IPE implementation* between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey.

$H_0$2: There is no statistically significant difference in the extent of *IPE implementation* between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey.

$H_0$3: There is no predictive relationship between the predictor variable, the number of years an AT program has been at the MAT status, and the criterion variable, the success of *IPE implementation*, as measured by the 10-item IPE-API self-assessment survey.

Descriptive Statistics

A total of 66 MAT program directors completed the survey. Among those who responded, 38 (57.6%) program directors belonged to recently-transitioned programs and 28 (42.4%) belonged to established programs. Table 1 provides the descriptive statistics of the represented programs relative to their number of academic years at the MAT status. Additionally, the academic units in which these programs are housed, as described by Breitbach et al. (2018), are provided in Table 2. Of those seven programs that identified as "Other," two

(28.6%) programs were housed in departments of Education, one (14.3%) in Applied Sciences, one (14.3%) in Athletic Training, one (14.3%) in Exercise Science and Physical Education, one (14.3%) in Medicine and Health Sciences, and one (14.3%) in Science & Technology.

Table 1

Academic Years at MAT Status

	N	Min	Max	Mean	SD
Academic Years	66	1.00	20.00	4.5455	4.49677
Valid N (listwise)	66				

Table 2

Academic Unit

		Count	Percent
Valid	Allied Health	3	4.5
	Exercise Science	3	4.5
	Heath Professions	18	27.3
	Health & Recreation	4	6.1
	Health Sciences	18	27.3
	Kinesiology	10	15.2
	Medicine	3	4.5
	Other	7	10.6
	Total	66	100.0

A total of 61 program directors provided their institutions' Carnegie Classifications, which are provided in Table 3 below. Furthermore, Table 4 provides the descriptive statistics for the dependent variable of IPE implementation, as measured by the total scores on the 10-item IPE-API survey, disaggregated by the independent variable of MAT status (i.e., recently-transitioned or established). Finally, Table 5 provides the descriptive statistics for the dependent variable of individual item scores for the independent variables of IPE setting (i.e., items 1 and 2 of the 10-item IPE-API).

Table 3

Carnegie Classification

		Count	Percent
Valid	R1: Doctoral University	10	15.2
	R2: Doctoral University	16	24.2
	D/PU: Doctoral / Professional University	11	16.7
	M1: Master's College or University	10	15.2
	M2: Master's College or University	6	9.1
	M3: Master's College or University	8	12.1
	Provided	61	92.4
	Missing	5	7.6
	Total	66	100.0

Table 4

10-Item IPE-API Scores by Program Status

MAT/MSAT Status	N	Min	Max	Mean	SD
Recently-transitioned	38	2.00	35.00	17.2632	7.56480
Established	28	4.00	34.00	21.3929	8.49549
Aggregated Data	66	2.00	35.00	19.0152	8.17217

Table 5

IPE Implementation by Setting

	N	Min	Max	Mean	SD
IPE Courses	66	0	4	2.09	1.286
IPE Clinical Rotations	66	0	4	1.85	1.099

A reliability analysis was conducted for each item of the 10-item IPE-API self-assessment survey to assess the consistency of the instrument for the present data. Cronbach's alpha was utilized for this analysis, as this statistic is well-suited for computing the reliability of

test score-type data (Gall et al., 2007), such as the 10-item IPE-API score data in the present study. Reliability scores for Cronbach's alpha range from .00 (i.e., not reliable) to 1.00 (i.e., completely reliable), with a score of .70 representing the minimal Cronbach alpha value needed for an item to be deemed reliable (Gall et al., 2007; Warner, 2013). Thus, each item of the 10-item IPE-API provided satisfactory reliability, with scores ranging from .80 (i.e., IPE Standardized Assessment or Evaluation) to .82 (i.e., IPE Extra-Curricular Activities), and an overall Cronbach's alpha of .83 for the self-assessment instrument, as seen in Table 6.

Table 6

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.828	.834	10

Results

The researcher utilized an independent samples *t* test, Wilcoxon signed rank test, and bivariate linear regression to test the null hypotheses of the present study. The subsequent sections detail the data screening, assumption testing, and output for each statistical test. Effect sizes are reported, in addition to whether or not the null hypotheses were rejected.

Independent Samples *t* Test

An independent samples *t* test was employed to determine if there is a significant difference in scores on the 10-item IPE-API self-assessment survey between recently-transitioned and established MAT programs. Preliminary data screening of the total scores on this instrument for the independent samples of recently-transitioned and established MAT

programs were conducted using a box and whiskers plot, followed by the assumption testing for the independent samples *t* test.

Assumption Testing

The independent samples *t* test requires the following assumptions to be met: independence of the two categorical groups, normal distribution of the dependent variable, no extreme outliers, and homogeneity of variance of the dependent variable (Warner, 2013). As mentioned in Chapter Three, the independence assumption was met, as the surveyed program directors identified their MAT programs as either recently-transitioned or established. A Kolmogorov-Smirnov test demonstrated that the assumption of normality had been met, as the scores for the 10-item IPE-API were normally distributed (i.e., $p > .05$) for both recently-transitioned and established MAT programs, as seen in Table 7. Furthermore, no extreme outliers were identified for the 10-item IPE-API scores on the box and whiskers plot, provided in Figure 1 below. Lastly, the homogeneity of variance of the 10-item IPE-API scores was met, as the Levene's test produced a $p = .315$ (see Table 8). Thus, the data satisfied each of the assumptions for the independent samples *t* test.

Table 7

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	MAT/MSAT Status	Statistic	df	Sig.	Statistic	df	Sig.
Score	Recently-transitioned	.096	38	.200*	.979	38	.686
	Established	.138	28	.183	.961	28	.363

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

a. Lilliefors Significance Correction

Figure 1

Box and Whiskers Graph for the 10-item IPE-API by Program Status

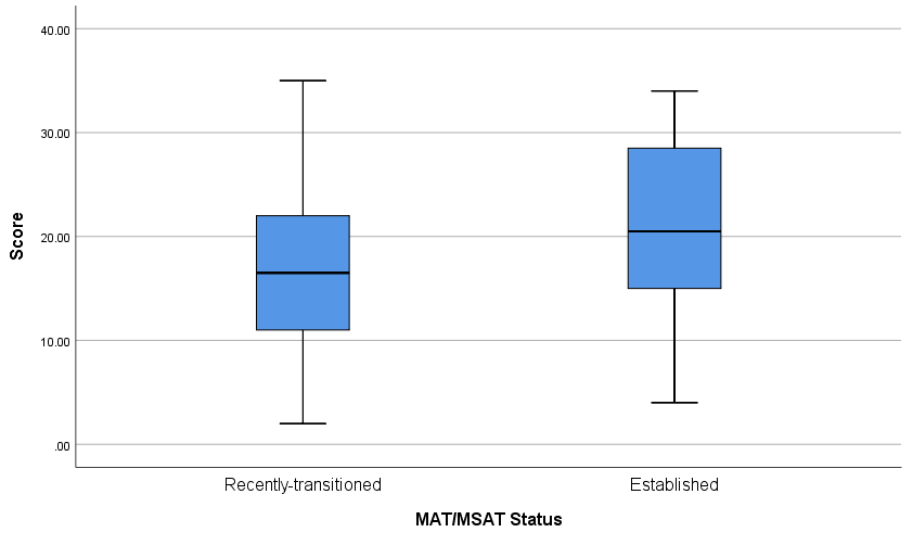


Table 8

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Score	Based on Mean	1.026	1	64	.315
	Based on Median	.957	1	64	.332
	Based on Median and with adjusted df	.957	1	63.993	.332
	Based on trimmed mean	1.071	1	64	.305

Null Hypothesis 1

The first null hypothesis was that there is no statistically significant difference in the extent of *IPE implementation* between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey. The researcher failed to reject the null hypothesis at an alpha level of .02 where $t(64) = -2.080$, $p = .042$; thus, there was no statistically significant difference in IPE-API scores between recently-transitioned

(*M* = 17.26, *SD* = 7.56) and established (*M* = 21.39, *SD* = 8.49) MAT programs. Furthermore, Cohen's *d* was equal to 0.513, indicating a medium effect size (Cohen, 1988). Lastly, a *post hoc* power analysis demonstrated an observed power of .386 at an alpha level of .02. See Table 9 for the results of the independent samples *t* test and Table 10 for the accompanying power analysis.

Table 9

Independent Samples t Test

			Score	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		1.026	
	Sig.		.315	
t-test for Equality of Means	t		-2.080	-2.044
	df		64	54.252
	Sig. (2-tailed)		.042	.046
	Mean Difference		-4.12970	-4.12970
	Std. Error Difference		1.98517	2.02078
	98% Confidence Interval of the Difference	Lower	-8.86638	-8.97366
		Upper	.60699	.71426

Table 10

Independent Samples t Test Power Analysis

	Source					
	Corrected Model	Intercept	Status	Error	Total	Corrected Total
Type III Sum of Squares	274.938[a]	24089.726	274.938	4066.047	28205.000	4340.985
df	1	1	1	64	66	65
Mean Square	274.938	24089.726	274.938	63.532		
F	4.328	379.175	4.328			
Sig.	.042	.000	.042			
Noncent. Parameter	4.328	379.175	4.328			
Observed Power[b]	.386	1.000	.386			

a. R Squared = .063 (Adjusted R Squared = .049)

b. Computed using alpha = .02

Wilcoxon Signed Rank Test

The researcher initially employed a paired sample *t* test to determine if there is a statistically significant difference in the extent of IPE implementation between MAT programs' didactic curriculum versus clinical education, as measured by items 1 and 2 of the 10-item IPE-API self-assessment survey. However, the assumption testing revealed a serious violation of the assumption of normality, producing a Kolmogorov-Smirnov statistic with $p = .000$ for both IPE Courses and IPE Clinical Rotations (see Table 11). Due to this violation, in addition to the small sample size of 66 participants, the non-parametric Wilcoxon signed rank test was employed, per the recommendations of Gall et al. (2007). Preliminary data screening of the scores for items 1 and 2 of the IPE-API were conducted using a box and whiskers plot, followed by this non-parametric test.

Table 11

Tests of Normality for Paired Sample t Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
IPE Courses	.211	66	.000	.880	66	.000
IPE Clinical Rotations	.174	66	.000	.915	66	.000

a. Lilliefors Significance Correction

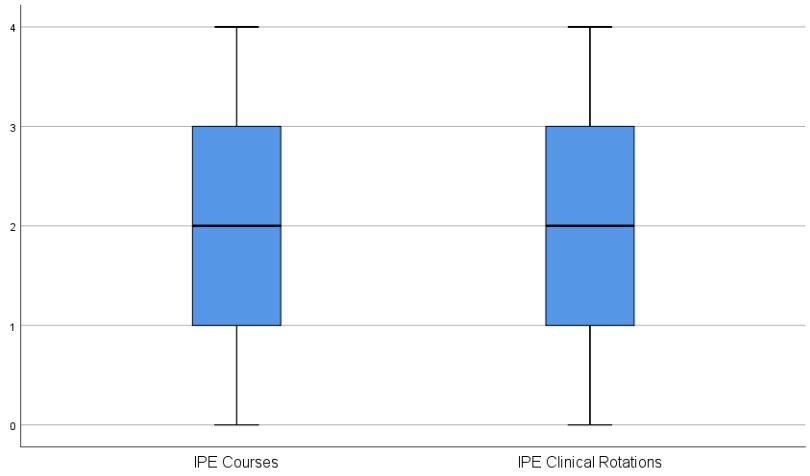
Assumption Testing

As mentioned previously, Gall et al. (2007) note that the Wilcoxon signed rank test is not based upon assumptions of normality or homogeneity of variance. Therefore, the researcher ensured that the data were from related pairs and that no extreme outliers were present. Each program director responded to Items 1 and 2 when completing the IPE-API self-assessment survey; thus, the researcher was able to confirm the presence of related pairs for the independent variable of IPE setting. Moreover, box and whiskers plots demonstrated that no extreme outliers

existed among the data, as shown in Figure 2. Therefore, the Wilcoxon signed rank test was deemed a suitable alternative to the paired samples *t* test, as originally planned.

Figure 2

Box and Whiskers Graph for Items 1 and 2 of the 10-Item IPE-API



Null Hypothesis 2

The second null hypothesis was that there is no statistically significant difference in the extent of *IPE implementation* between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey. The researcher failed to reject the null hypothesis at an alpha level of .02, where Z = -1.498 and p = .134. Thus, there was no statistically significant difference in IPE implementation between IPE Courses (M = 2.09, SD = 1.29), which represents programs' didactic curriculum, and IPE Clinical Rotations (M = 1.85, SD = 1.10), representing programs' clinical education. Furthermore, Cohen's d was equal to 0.201, indicating a small effect size (Cohen, 1988). Lastly, a *post hoc* power analysis demonstrated an observed power of .168 at an alpha level of .02. See Table 12 for the results of the Wilcoxon signed rank test and Table 13 for the accompanying power analysis.

Table 12

Test Statistics[a]

	IPE Clinical Rotations - IPE Courses
Z	-1.498[b]
Asymp. Sig. (2-tailed)	.134

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Table 13

Multivariate Tests[a]

	Effect			
	IPE			
	Pillai's Trace	Wilks' Lambda	Hotelling's Trace	Roy's Largest Root
Value	.029	.971	.030	.030
F	1.938[b]	1.938[b]	1.938[b]	1.938[b]
Hypothesis df	1.000	1.000	1.000	1.000
Error df	65.000	65.000	65.000	65.000
Sig.	.169	.169	.169	.169
Noncent. Parameter	1.938	1.938	1.938	1.938
Observed Power[c]	.168	.168	.168	.168

a. Design: Intercept
Within Subjects Design: IPE
b. Exact statistic
c. Computed using alpha = .02

Bivariate Linear Regression

For the third and final research question, the researcher utilized bivariate linear regression to determine how accurately the success of *IPE implementation* can be predicted by the number of years an AT program has been at the MAT status, as measured by the 10-item IPE-API self-

assessment survey. Scatterplots were visually inspected as part of the assumption testing, followed by the bivariate linear regression analysis.

Assumption Testing

Bivariate linear regression requires the following assumptions to be met: a linear relationship is present between the dependent and independent variables, a bivariate normal distribution exists among the data with no bivariate outliers, there is independence of the residuals, and the residuals have constant variance, or homoscedasticity, at every level of the criterion variable (Warner, 2013). Upon examining the scatterplot (see Figure 3), it was determined that a weak linear relationship existed in a positive direction between the criterion variable, being total scores on the 10-item IPE-API self-assessment survey, and the predictor variable of the number of academic years at the MAT status. Moreover, the assumption of bivariate normal distribution was met, as the scatterplot resembled a cigar shape with no extreme bivariate outliers. As mentioned previously, the data were collected at a single point in time, satisfying the assumption of independence of the residuals. Lastly, a scatterplot of the criterion variable's residuals against its predicted values (see Figure 4) revealed that the assumption of homoscedasticity was met, although the lack of data for more established AT programs (i.e., those with 3 academic years or more at the MAT status) initially brought this assumption into question. Nevertheless, the researcher determined that the raw IPE-API scores followed a more normal distribution when compared to log-transformed IPE-API scores and, thus, were utilized for the bivariate linear regression analysis.

Figure 3

Scatterplot of Academic Years at MAT Status by 10-Item IPE-API Scores

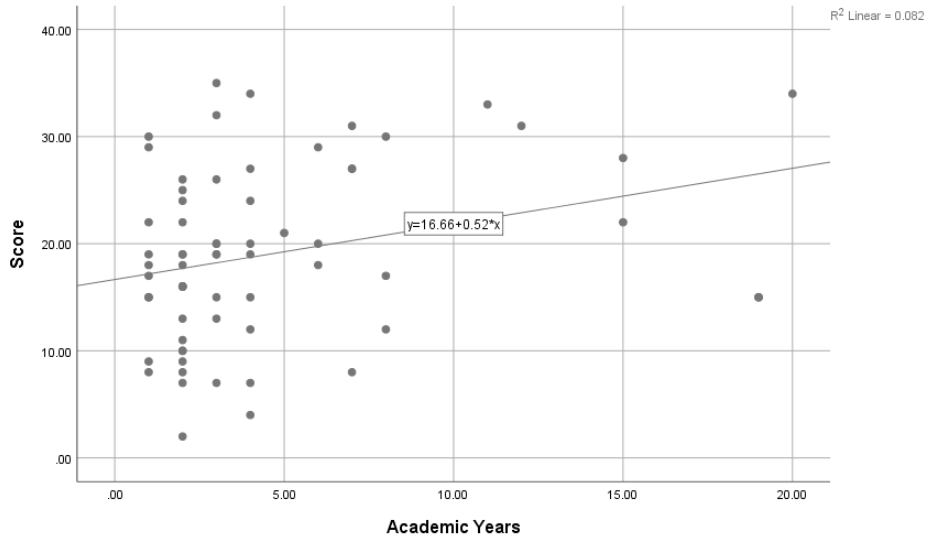
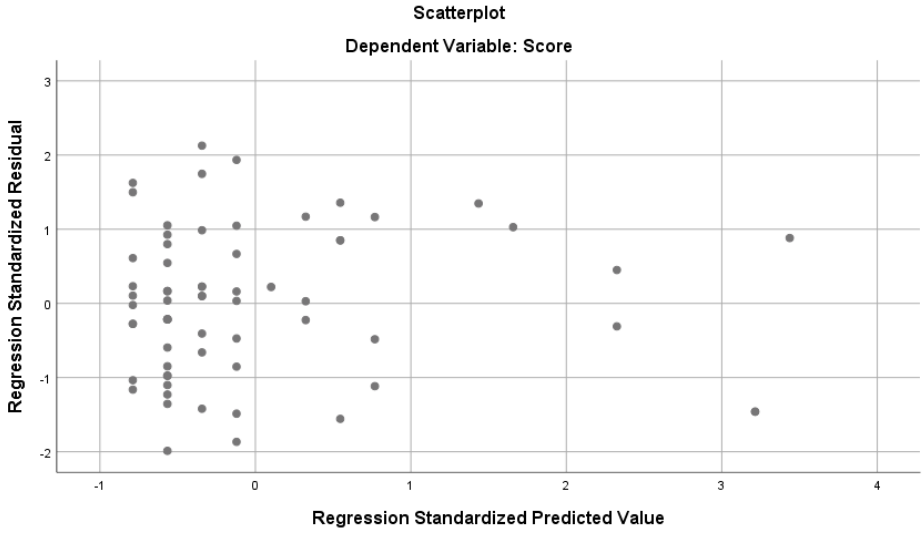


Figure 4

Scatterplot of Residuals Against Predicted Values



Null Hypothesis 3

The third null hypothesis was that there is no predictive relationship between the predictor variable, the number of years an AT program has been at the MAT status, and the criterion variable, the success of *IPE implementation*, as measured by the 10-item IPE-API self-

assessment survey. The researcher failed to reject the null hypothesis at an alpha level of .02 where $r(64) = .286$, $p = .020$. The regression equation for predicting IPE implementation from academic years at the MAT status was found to be Y = 16.655 + .519(Academic Years), with a 98% confidence interval ranging from .000 to 1.039; thus, for each academic year at the MAT status, the predicted 10-item IPE-API total score did not increase or increased by a score of about 1. Furthermore, a Pearson's *r* of .286 indicated that there was a medium effect size; however, r^2 was equal to .082, suggesting that only 8.2% of the variance in IPE implementation was predictable from the number of academic years at the MAT status. Therefore, the bivariate regression analysis demonstrated that the number of academic years at the MAT status is not a strong, statistically significant predictor of IPE implementation, as measured by the 10-item IPE-API instrument. See Table 14 for the model summary, Table 15 for the output of the ANOVA analysis, and Table 16 for the model coefficients.

Table 14

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.286[a]	.082	.067	7.89248	1.800

a. Predictors: (Constant), Academic Years
b. Dependent Variable: Score

Table 15

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	354.350	1	354.350	5.689	.020[b]
	Residual	3986.635	64	62.291		
	Total	4340.985	65			

a. Dependent Variable: Score
b. Predictors: (Constant), Academic Years

Table 16

Coefficients[a]

		Model 1	
		(Constant)	Academic Years
Unstandardized Coefficients	B	16.655	.519
	Std. Error	1.387	.218
Standardized Coefficients	Beta		.286
t		12.010	2.385
Sig.		.000	.020
98.0% Confidence Interval for B	Lower Bound	13.346	.000
	Upper Bound	19.964	1.039

a. Dependent Variable: Score

CHAPTER FIVE: CONCLUSIONS

Overview

In this final section, the researcher discusses the findings of the study, providing an in-depth discussion surrounding each research question and associated hypotheses. Despite the fact that the researcher failed to reject each of the three null hypotheses, the implications of this study are worth noting and suggest various avenues for additional investigation. Accordingly, this section addresses the various limitations of this particular investigation, providing additional support for the necessity of further research. Therefore, Chapter Five concludes with recommendations for future studies based upon the findings yielded from the present investigation.

Discussion

The purpose of this quantitative, causal-comparative and predictive, correlational design study was to determine if a significant difference in the extent of IPE implementation exists between recently-transitioned and established MAT programs, as well as if a significant difference exists in the extent of IPE implementation between MAT programs' didactic curriculum and clinical education. Additionally, this study evaluated if the number of years a program has offered the MAT degree predicts the success of IPE implementation. According to Breitbach et al. (2018), a significant proportion of AT programs have been neglecting to pursue and access IPE opportunities within their respective institutions. Moreover, it has been postulated that the current and ongoing transition to a professional master's degree may benefit the inclusion of AT programs and, thus, students in IPE initiatives (Eliot et al., 2017). Although this study failed to report statistically significant results, the implications of the findings still appear to support an improvement in IPE implementation among recently-transitioned MAT programs,

as will be discussed in detail.

RQ1

To begin, RQ1 posed the following question: Does a significant difference in the extent of *IPE implementation* exist between recently-transitioned MAT programs versus established MAT programs, as measured by the 10-item IPE-API self-assessment survey? An independent samples *t* test determined that there was no statistically significant difference ($p = .042$) in IPE implementation between recently-transitioned and established MAT programs at an alpha level of .02. Although the results of the independent samples *t* test would have been significant at an alpha level of .05, this study employed a Bonferroni correction to limit the occurrence of a Type I error (Warner, 2013). Nevertheless, the *post hoc* power analysis that demonstrated an observed statistical power of .386 suggests that the analysis would have benefitted from a larger sample size. Therefore, the outcome of RQ1 suggests a comparable level of IPE implementation between recently-transitioned and established MAT programs, but must be considered carefully in light of the statistical power yielded from the sample.

The finding of RQ1 lends credence to the gradual increase in inclusion of AT education programs in IPE opportunities, as demonstrated by Breitbach et al. (2018). Furthermore, Breitbach et al. (2018) note how their findings were largely impacted by program type, as they demonstrated that programs at the master's degree level had greater access to IPE when compared to those at the bachelor's degree level. Therefore, the finding of RQ1 lends support to the notion that the transition to a professional master's degree may improve AT programs IPE initiatives (Breitbach et al., 2018; Eliot et al., 2017), as newly-transitioned MAT programs demonstrated similar implementation of and involvement in IPE as the established MAT programs. Additionally, this finding indicates an appropriate responsiveness to the new

accreditation standards from the CAATE (2020), as anticipated by both Breitbach et al. (2018) and Eliot et al. (2017). However, these findings must be considered in light of the possibility of a Type II error.

From a theoretical standpoint, the findings suggest that program directors of both recently-transitioned and established MAT programs recognize the benefits of IPE in terms of providing opportunities for experiential learning (Kolb, 1984) and strengthening perceptions of self-efficacy (Bandura, 1977). The incorporation of the experiential learning theory (Kolb, 1984) in IPE initiatives has demonstrated improvements in health care students' confidence (Baker et al., 2008), communication and collaboration (Poore et al., 2014), and preparedness to transition to professional practice (Fewster-Thuente & Batteson, 2018). Similarly, prior studies that have employed the theory of self-efficacy (Bandura, 1977) as a foundation for IPE have demonstrated improvements in confidence (Durkin & Feinn, 2017), self-esteem (Allen et al., 2018), and communication (Hagemeier et al., 2014). Therefore, the lack of a statistically significant difference in IPE implementation between recently-transitioned and established MAT programs suggests that the benefits of experiential learning (Kolb, 1984) and associated gains in self-efficacy (Bandura, 1977) have been realized and emphasized by AT educators in MAT programs across the country.

Alternatively, this finding appears to contradict that of Breitbach et al. (2018), who noted that 63% of all AT programs examined in their study lacked access to IPE opportunities, including some programs at the master's level. Although the descriptive statistics demonstrated minimum scores of 2 and 4 out of 40 on the 10-item IPE-API self-assessment survey for recently-transitioned and established programs, respectively, no scores of 0 were reported for either of the groups. This suggests that all 66 of the surveyed programs have some form of access

to IPE initiatives. Thus, the high percentage of programs lacking IPE access in the study from Breitbach et al. (2018) may serve as a function of the inclusion of baccalaureate programs; however, the transition to the MAT degree, accompanied by the implementation of the 2020 CAATE accreditation standards, may have also addressed concerns related to readiness and institutional infrastructure for IPE (Breitbach et al., 2018), as demonstrated in the comparable outcomes on the 10-item IPE-API between recently-transitioned and established MAT programs.

RQ2

Next, RQ2 sought to address the following question: Does a significant difference in the extent of *IPE implementation* exist between MAT programs' didactic curriculum versus clinical education, as measured by the 10-item IPE-API self-assessment survey? The non-parametric Wilcoxon signed rank test indicated that IPE implementation did not significantly vary ($p = .134$) between MAT programs' didactic curriculum and clinical education components at an alpha level of .02. This particular research question was likely restricted to a non-parametric test due to the small range of scores, ranging from 0 to 4, for the individual items that were compared for the 66 MAT programs. Thus, a violation of the paired sample *t* test's assumption of normality, resulting in the utilization of this non-parametric test, may have limited the findings of RQ2. Furthermore, the *post hoc* power analysis demonstrated a particularly low power (.168) for this analysis, which may further complicate the interpretation of this finding. Nevertheless, the Wilcoxon signed rank test found that $p = .134$, suggesting a lack of variance in IPE implementation across MAT programs' components of IPE Courses (i.e., didactic curriculum) and IPE Clinical Rotations (i.e., clinical education).

Although a vast majority of the reviewed, health care education studies involved IPE simulations (Allen et al., 2018; Fewster-Thuente & Batteson, 2016; Fewster-Thuente &

Batteson, 2018; House & Wahl, 2021; Lairamore et al., 2019; Livingston et al., 2016; Morrell et al., 2018; Morrell et al., 2019; von der Lancken & Levenhagen, 2014; Ward et al., 2016; Watters et al., 2015; Welsch et al., 2018), which primarily occur in the clinical education setting, the present study indicated similar outcomes for MAT programs' didactic curriculum on the 10-item IPE-API self-assessment survey. Furthermore, the reported mean for IPE courses (2.09) was higher than that of IPE clinical rotations (1.85). Such a finding lends support to the results of Manspeaker et al. (2020), who demonstrated a notable presence of IPE within the majority of their reviewed AT education programs' didactic curriculum. Additionally, this finding compliments those outcomes of Bultas et al. (2016), Hinyard et al. (2017), and Renschler et al. (2016), who noted the inclusion of AT programs in IPE courses. This finding also demonstrates the general increase in interprofessional courses and faculty members dedicated to IPE efforts, as reported by Clay et al. (2018). Thus, one could surmise that AT educators have realized additional opportunities for IPE outside of collaborative simulations (Allen et al., 2018), and are actively implementing principals of IPE within their didactic curriculum in a manner similar to the realm of clinical education.

Considering the theoretical framework for the present study, the finding for RQ2 may somewhat contradict the emphasis that prior IPE-related studies have placed on the experiential learning theory (Kolb, 1984) and theory of self-efficacy (Bandura, 1977) within the health care literature. As mentioned in Chapter Two, Lavoie et al. (2018) discuss the centrality of the experiential learning theory (Kolb, 1984) to IPE simulations, specifically during the concrete experience and active experimentation steps of the learning cycle. Furthermore, Fewster-Thuente & Batteson (2018) note how experiential learning approaches, such as simulations, are a primary means for students to take an active role in their learning, which may ultimately lend to health

care educators emphasizing IPE within the clinical education component of their respective programs. Nevertheless, Lavoie et al. (2018) note how the reflective observations and abstract conceptualizations of the experiential learning cycle (Kolb, 1984) may precede or follow IPE simulations during debriefing sessions. In order for students to anchor their observations in sound theories (Kolb, 1984), they must acquire this information in a manner that may be better delivered through didactic curriculum. Therefore, this mechanism may serve as an explanation for the lack of a statistically significant difference in IPE implementation in favor of MAT programs clinical education when compared to the elements of the didactic curriculum.

Regarding the theoretical framework provided by the theory of self-efficacy (Bandura, 1977), Watters et al. (2015) demonstrated how participation in an IPE simulation led to improvements in health care students perceived self-efficacy in clinical scenarios. Similarly, Allen et al. (2018) found a significant, positive correlation between students' self-efficacy and self-esteem as a result of an IPE simulation, suggesting that the theory of self-efficacy (Bandura, 1977) provides a strong, theoretical underpinning for IPE specifically within health care education programs' clinical education. Thus, through the lens of Bandura's (1977) theory, one could also expect to observe a statistically significant difference between MAT programs' responses for clinical education, where IPE simulations occur, and their didactic curriculum. However, a prior investigation by Hagemeier et al. (2014) demonstrated significant improvements in health care students' self-efficacy beliefs following their involvement in an interprofessional communication course. Therefore, the MAT program directors surveyed in the present study appear to be in agreement with Allen et al. (2018), who suggested the need for additional IPE opportunities to improve self-efficacy outside of interprofessional simulations, as

the IPE components within their programs' didactic curriculum and clinical education appear to be comparable.

Furthermore, the finding for RQ2 appears to contradict previous suggestions related to limited involvement of AT education programs within IPE-related didactic training (Manspeaker et al., 2020; Mishoe et al., 2018). Although the scores reported for Item 1 (i.e., IPE Courses) ranged from 0 to 4, the mean score was 2.09 (see Table 5). According to the description provided by the Association for Prevention Teaching and Research (2009), this suggests that a substantial proportion of the surveyed MAT programs are engaging in "interprofessional collaborative concepts within a single discipline's course for learners from multiple disciplines" (p. 3). This finding suggests that MAT students are benefitting from learning alongside other health care students in IPE-dedicated courses, which is somewhat contrary to the findings of Manspeaker et al. (2020) and Mishoe et al. (2018). Therefore, according to the outcome of the Wilcoxon signed rank test, it would appear that MAT programs rely equally on their didactic curriculum and clinical education opportunities to deliver IPE-related material and experiences.

RQ3

Finally, RQ3 addressed the following scenario: How accurately can the success of *IPE implementation* be predicted by the number of years an AT program has been at the MAT status, as measured by the 10-item IPE-API self-assessment survey? A bivariate linear regression analysis demonstrated that the number of academic years of an AT program at the MAT status is not a statistically significant (p = .020) predictor of IPE implementation at an alpha level of .02. However, these results were marginally significant (p =.020) in a positive direction, suggesting that limiting the study to a single research question and, thus, eliminating the Bonferroni correction may have led to significant findings. Furthermore, a predictive relationship may have

been identified had the study attained a larger sample size to surpass the minimal sample size (N = 66) for a medium effect at a statistical power of 0.7. Nevertheless, the small r^2 (.082) yielded from this analysis suggests that academic years at the MAT status does not provide a great explanation as to the variance observed in IPE implementation.

Similar to the findings of RQ1, the outcome of the bivariate linear regression analysis in RQ3 provides further support to prior suggestions that the transition to the MAT degree may improve IPE involvement (Eliot et al., 2017). Breitbach et al. (2018) demonstrated a 14% growth in IPE initiatives among baccalaureate AT programs over a three-year period. Similarly, the regression equation yielded from the bivariate linear regression analysis suggests a relationship in a positive direction between IPE implementation and the number of years at the MAT status; however, this predictive relationship was not significant enough to reject the null hypothesis. Nevertheless, the marginal growth in IPE implementation with additional academic years at the MAT status noted through this analysis appears to be consistent with that demonstrated by Breitbach et al. (2018), suggesting an avenue for additional investigation, as will be discussed later in this chapter.

Although the outcome of the bivariate linear regression was not statistically significant, one can surmise that MAT program directors and faculty have learned, and will learn, how to better implement IPE in their respective programs with time. The experiential learning theory (Kolb, 1984) suggests that individuals must undergo concrete experiences to provide for reflection and conceptualization to guide future decisions (i.e., active experimentation). By the same token, MAT program directors must engage in concrete experiences with other program directors of related health care fields to determine how their respective programs can engage in IPE at their institution moving forward (Kolb, 1984; Manspeaker et al., 2020). In other words,

the experiential learning theory (Kolb, 1984) may provide a theoretical mechanism for MAT program directors to abide by over time in their continual pursuit to satisfy Standard Eight of the CAATE (2020) accreditation standards, as demonstrated by a marginally significant outcome of the bivariate linear regression analysis.

Implications

Although the present study failed to yield any statistically-significant results, the implications related to IPE among MAT programs are numerous. The studies of Breitbach et al. (2018) and Eliot et al. (2017) have examined IPE implementation among various AT education programs; however, neither of these studies primarily focused on examining IPE implementation specifically within MAT programs, as their samples included programs at the baccalaureate level. Furthermore, while the recent study of Manspeaker et al. (2020) surveyed program faculty solely from MAT programs, this qualitative investigation was centered on addressing participants' perspectives on IPE implementation specifically within their didactic curriculum. Thus, there are currently no known quantitative studies that examine the overall implementation of IPE solely among MAT programs. The outcomes of this study imply that recently-transitioned MAT programs have implemented IPE in a manner similar to established MAT programs, as assessed by total scores on the 10-item IPE-API self-assessment survey. Therefore, AT educational leaders may infer that MAT programs have been responsive to the call for improved IPE implementation following the transition to the master's degree (Breitbach, 2016; Breitbach et al., 2018; Eliot et al., 2017), in accordance with the new accreditation standards from the CAATE (2020).

An additional implication yielded from this study is that IPE implementation does not appear to vary significantly between MAT programs didactic curriculum and clinical education.

Due to the lack of a statistically significant difference in IPE implementation across these settings, AT educators may be encouraged to learn that there appears to be opportunities for IPE within both their didactic curriculum and clinical education, as demonstrated by the outcomes for this study sample. Manspeaker et al. (2020) encouraged AT program faculty to carefully consider the method of delivery for their IPE initiatives based upon the programs available for collaboration, as well as the objectives of the collaboration. Thus, the outcomes of this study suggest that there are IPE opportunities for MAT program faculty to consider in both their didactic curriculum and clinical education. In other words, the outcomes of this investigation should encourage MAT program directors to avoid pigeonholing themselves by relying solely on either their didactic curriculum or clinical education to deliver IPE learning opportunities.

A final implication of this study is that the number of academic years at the MAT status does not serve as a significant predictor of IPE implementation. While MAT program directors may continually expand and refine their IPE initiatives with time (Breitbach et al., 2018; Eliot et al., 2017; Manspeaker et al., 2020), program directors of recently-transitioned programs should not be discouraged or overwhelmed in their efforts to satisfy Standard Eight of the new accreditation standards (Committee on Accreditation of Athletic Training Education, 2020). At the same time, AT program directors whose programs are currently undergoing the MAT transition should recognize the standard set by the programs surveyed in this study relative to the immediate implementation of IPE initiatives, as implied by the outcomes of both the independent samples *t* test and the bivariate linear regression analysis. By continually pursuing collaborative education and practice, educators and professionals in the AT field can continue to advocate for "a seat at the table" (Rizzo et al., p. 257) with individuals from the various other health care

fields (Breitbach, 2016; Breitbach et al., 2018; Eliot et al., 2017; Hankemeier & Manspeaker, 2018; Manspeaker et al., 2020).

Limitations

This study contained several limitations. To begin, the voluntary sampling method employed in this study yielded a sample size of 66 from an eligible population of 209 MAT program directors. Although this sample represented nearly a third (31.58%) of current MAT program directors, the statistical analyses and associated *post hoc* power analyses demonstrated challenges to the study attaining statistical power. More specifically, the low observed power for the Wilcoxon signed rank analysis (.168) limited the generalizability of findings concerning IPE implementation across the settings of didactic curriculum and clinical education. Because a Bonferroni correction was employed, due to the study involving three statistical tests of significance (Warner, 2013), the researcher was not able to increase the alpha level to limit the occurrence of a Type II error. Thus, the whole of the findings could not be generalized beyond the population examined in this study. Providing an incentive for completing the 10-item IPE-API self-assessment survey may have improved recruitment for the study and assisted in addressing this particular limitation.

In addition to the limited sample size, the participants were skewed toward a greater number of recently-transitioned MAT programs as compared to established programs. Thus, the groups for the independent samples *t* test were unequal. Furthermore, the data presented in the bivariate linear regression was relatively limited for MAT programs older than eight years (see Figure 3), potentially influencing the results. However, as the profession is currently undergoing the transition to the professional master's degree, the data presented in this study appears to represent the current population. Furthermore, the assumption of normality for the independent

samples *t* test and the assumption of a bivariate normal distribution for the bivariate regression analysis were met; thus, further action from the researcher was not deemed as necessary.

An additional limitation of this study is participants' potential non-familiarity with the 10-item IPE-API self-assessment survey. There is no way to guarantee that each respondent read each and every descriptor provided in the Qualtrics survey. Furthermore, the 10-item IPE-API does not include examples of IPE activities that may fall under each category, creating areas of concern related to the instrument's reliability and validity. Therefore, a reliability analysis was conducted using Cronbach's alpha to address this concern, yielding an acceptable outcome of .826 (see Table 6). Furthermore, Greer and Clay (2010) demonstrated the face and content validity of the 10-item IPE-API self-assessment survey. Thus, these analyses helped lessen the concerns related to the instrument's reliability and validity.

Potential threats to external validity included the timing and population validity of the study. The data for this study were collected between the end of the Spring semester of the 2020-2021 academic year and the beginning of the Fall semester of the 2021-2022 academic year. With that being said, some AT education programs were likely entering their first year at the MAT status, causing them to question their eligibility for the study. Excluding these particular participants from the study would have caused a threat to the population validity. To combat this threat, the researcher instructed these individuals to respond to the survey based on their plans related to IPE for the upcoming year, ensuring their representation in the study.

Finally, a potential threat to the internal validity of the study involved a lack of history between the researcher and participants. This lack of history, or rapport, may have caused concerns related to data security, potentially limiting responses to those who trusted the anonymity of the survey. In an attempt to combat this potential threat, the researcher provided

explicit details in the consent form (Appendix B) related to the storage and anonymity of the study's data. Additionally, the researcher did not collect any data containing personally identifiable information to further assure potential participants of the anonymity of the study. Lastly, the researcher attempted to build rapport by providing a detailed outline of the purpose, potential benefits, and risks of the study, which was also provided in the consent form embedded at the beginning of the Qualtrics survey (Appendix B).

Recommendations for Future Research

This study illuminated numerous avenues for future research related to IPE implementation, specifically within AT education. Because the outcomes of this study failed to yield statistically significant results, additional investigation concerning IPE implementation among a larger sample of MAT program directors would be beneficial, especially in terms of attaining greater statistical power. Future research should consider soliciting participants at an in-person event, such as the annual CAATE Accreditation Conference, in hopes of achieving a larger sample size. Furthermore, additional guidance from the CAATE in coming years relative to IPE implementation may provide additional comparisons to explore.

Another recommendation for future research would involve a longitudinal study of IPE implementation of AT education programs from the time they make the transition to the MAT degree to the three-year period where they become established. Researchers may collect data on the quantity of IPE initiatives in which these MAT programs participate over the course of the study to determine if the number of IPE exposures increases as a function of time. Additionally, researchers may compare scores on an instrument, such as the 10-item IPE-API self-assessment survey, at the beginning and end of the data collection period to determine if statistically significant differences in IPE implementation exist. Conducting a longitudinal study that

includes repeated measures would likely yield a richer data set that would be more generalizable to the population of MAT programs.

Additional investigation profiling MAT programs' implementation of IPE specifically within the didactic curriculum and clinical education components is needed. Quantifying a specific number of IPE exposures that occurs in both the didactic curriculum and clinical education of MAT programs would provide researchers with continuous data that is well-suited for a paired sample *t* test. Drawing comparisons based on the frequency of IPE exposures within these settings would supplement the outcomes yielded from items 1 and 2 of the 10-item IPE-API self-assessment survey, as these items only address the extent of IPE implementation.

Furthermore, the findings of this study may benefit from an additional qualitative analysis to determine if perceptions of IPE between recently-transitioned and established MAT programs vary. A qualitative investigation may lend insights to the underlying motivation for MAT program directors to engage in IPE, as well as the perceived barriers that are faced between the two groups. Retaining the groupings of recently-transitioned and established programs would help demonstrate the progress, or stagnation, that MAT programs experience regarding IPE opportunities. Furthermore, a qualitative approach would help delineate the language MAT program directors use to describe their IPE initiatives, perhaps providing for interesting comparisons across institutions of various sizes and even other health care disciplines.

Finally, an additional line of investigation as a result of this study includes identifying factors that lend to improvements in IPE implementation over time. This investigation could also be longitudinal in nature, and would provide MAT program directors with ideas for strategic planning specifically related to their IPE efforts. An examination of factors such as the MAT programs' administrative alignment, personnel, available resources for IPE, and institutional

policies regarding IPE would likely provide program directors with significant findings to consider as many programs undergo extensive reviews following the transition to the MAT degree. Thus, researchers would want to consider the timeliness of this line of inquiry.

REFERENCES

Accreditation Commission for Education in Nursing. (2020). *Accreditation manual: Section III – Standards and criteria*. https://www.acenursing.org/Resources-for-Nursing-Programs/sc2017.pdf

Accreditation Council for Education in Nutrition and Dietetics. (2018). *Accreditation Council for Education in Nutrition and Dietetics accreditation standards for nutrition and dietetics didactic programs (DPD).* https://www.eatrightpro.org/-/media/eatrightpro-files/acend/about-program-accreditation/accreditation-standards/2017-standardsfordpdprograms.pdf?la=en&hash=18A1A38F32363415418B9E72E055AC98DD0438C0

Accreditation Council for Occupational Therapy Education. (2020). *2018 Accreditation Council for Occupational Therapy Education standards and interpretive guide.* https://acoteonline.org/download/3332/

Accreditation Council for Pharmacy Education. (2015). *Accreditation standards and key elements for the professional program in primacy leading to the doctor of pharmacy degree*. https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf

Allen, M. L., Emlund, M., Kozdronkiewicz, M., Bayer, K., Groll, M., Slezak, C., Wadhwa, T., Barich, B., Pinc, A. D., Gabarz, K., Heintz, E., Mueller, J., Mathai, R. A., & Bach, J. (2018). Examining self-efficacy and self-esteem in healthcare students participating in an interprofessional critical care simulation. *Global Journal of Health Science, 10*(9), 81. doi:10.5539/gjhs.v10n9p81

Al-Qahtani, M. F. (2016). Measuring healthcare students' attitudes toward interprofessional education. *Journal of Taibah University Medical Sciences, 11*(6), 579-585. doi:10.1016/j.jtumed.2016.09.003

Anderson, O. S., August, E., Goldberg, P. K., Youatt, E., & Beck, A. J. (2019). Developing a framework for population health in interprofessional training: An interprofessional education module. *Frontiers in Public Health, 7*, 58-58. doi:10.3389/fpubh.2019.00058

Association for Prevention Teaching and Research. (2009). Interprofessional education assessment and planning instrument for academic institutions. https://www.aptrweb.org/

Baker, C., Pulling, C., McGraw, R., Dagnone, J. D., Hopkins-Rosseel, D., & Medves, J. (2008). Simulation in interprofessional education for patient-centred collaborative care. *Journal of Advanced Nursing, 64*(4), 372-379. doi:10.1111/j.1365-2648.2008.04798.x

Baldwin, D. C. (2010). The ascent of Mt. Everest. *Journal of Allied Health, 39*(3), 194-195. https://www.asahp.org/journal-of-allied-health

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. doi:10.1037/0033-295X.84.2.191

Barzansky, B., Borasky, S., Wall, J. R., Vlasses, P. H., Zorek, J. A., & Brandt, B. F. (2019). Guidance on developing quality interprofessional education for the health professions. Health Professions Accreditors Collaborative. https://healthprofessionsaccreditors.org/

Batteson, T., & Garber, S. S. (2019). Assessing constructs underlying interprofessional competencies through the design of a new measure of interprofessional education. *Journal of Interprofessional Education & Practice, 16*, 100195-100195. doi:10.1016/j.xjep.2018.08.004

Beebe, L. H., Roman, M., Raynor, H., Thompson, D., & Ray, S. (2018). Transforming health care through interprofessional graduate education. *Perspectives in Psychiatric Care, 54*(1), 19-24. doi:10.1111/ppc.12188

Begley, K., O'Brien, K., Packard, K., Castillo, S., Haddad, A. R., Johnson, K., Coover, K., & Pick, A. (2019). Impact of interprofessional telehealth case activities on students' perceptions of their collaborative care abilities. *American Journal of Pharmaceutical Education, 83*(4), 6880-482. doi:10.5688/ajpe6880

Berger-Estilita, J., Fuchs, A., Hahn, M., Chiang, H., & Greif, R. (2020). Attitudes towards interprofessional education in the medical curriculum: A systematic review of the literature. *BMC Medical Education, 20*(1), 1-254. doi:10.1186/s12909-020-02176-4

Bethea, D. P., Smith, N., Allison, L. K., Bell, C. S., Collins, M. E., Migliarese, S. J., & Darby, R. (2019). Live standardized patient scenario improves attitudes toward and readiness for interprofessional education in occupational therapy and physical therapy students. *Journal of Allied Health, 48*(2), 81-87. https://www.asahp.org/journal-of-allied-health

Bloomfield, J. G., Schneider, C. R., Lane, S., Stehlik, P., & Frotjold, A. (2021). Evaluating a large-scale introductory interprofessional education workshop for developing interprofessional socialisation in medical, nursing and pharmacy students: A quasi-experimental pre-test post-test study. *Nurse Education Today, 99*, 104777-104777. https://doi.org/10.1016/j.nedt.2021.104777

Breitbach, A. P., & Cuppett, M. (2012, October). *Inclusion of athletic training faculty and students can enhance interprofessional education programs* [Conference presentation]. Association of Schools of Allied Health Professions Annual Meeting, Orlando, FL, United States.

Breitbach, A. P., & Richardson, R. (2015). Interprofessional education and practice in athletic training. *Athletic Training Education Journal, 10*(2), 170-182. doi:10.4085/1002170

Breitbach, A. P. (2016). The organic and strategic growth of interprofessionalism in athletic training. *Journal of Interprofessional Care, 30*(2), 138-140. doi:10.3109/13561820.2016.1138676

Breitbach, A. P., Eliot, K., Cuppett, M., Wilson, M., & Chushak, M. (2018). The progress and promise of interprofessional education in athletic training programs. *Athletic Training Education Journal, 13*(1), 57-66. doi:10.4085/130157

Breitbach, A. P., Muchow, J. A., Gallegos, D. F. (2020). Athletic trainers' unique clinical and teamwork skills contribute on the frontlines during the COVID-19 pandemic: A discussion paper. *Journal of Interprofessional Care, 34*(13). doi:10.1080/13561820.2020.1792426

Bultas, M. W., Ruebling, I., Breitbach, A., & Carlson, J. (2016). Views of the United States healthcare system: Findings from documentary analysis of an interprofessional education course. *Journal of Interprofessional Care, 30*(6), 762-768. doi:10.1080/13561820.2016.1206860

Castrèn, M., Mäkinen, M., Nilsson, J., & Lindström, V. (2017). The effects of interprofessional education – self-reported professional competence among prehospital emergency care nursing students on the point of graduation – A cross-sectional study. *International Emergency Nursing, 32*, 50-55. doi:10.1016/j.ienj.2017.02.004

Clay, M. C., Garr, D., Greer, A., Lewis, R., Blue, A., & Evans, C. (2018). An update on the status of interprofessional education and interprofessional prevention education in U.S.

academic health centers. *Journal of Interprofessional Education & Practice, 10*, 61-66. doi:10.1016/j.xjep.2017.12.003

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). L. Erlbaum Associates.

Commission on Accreditation in Physical Therapy Education. (2020). *Standards and required elements for accreditation of physical therapist education programs.* http://www.capteonline.org/uploadedFiles/CAPTEorg/About_CAPTE/Resources/Accreditation_Handbook/CAPTE_PTStandardsEvidence.pdf

Collins, M. E., Bell, C. S., Migliarese, S. J., Smith, N., Allison, L. K., Bethea, D. P., Darby, R., & Conner, T. A. (2020). Student perceptions of a live standardized patient interprofessional education scenario: A multi-year study. *Journal of Allied Health, 49*(1), 8-13. https://www.asahp.org/journal-of-allied-health

Commission on Accreditation of Athletic Training Education. (2020). *2020 standards for accreditation of professional athletic training programs.* https://caate.net/wp-content/uploads/2018/09/2020-Standards-for-Professional-Programs-copyedited-clean.pdf

Commission on Accreditation of Athletic Training Education. (n.d.). *Search for accredited programs.* https://caate.net/search-for-accredited-program/

Commission on Collegiate Nursing Education. (2018). *Standards for accreditation of baccalaureate and graduate nursing programs.* https://www.aacnnursing.org/Portals/42/CCNE/PDF/Standards-Final-2018.pdf

Council for Higher Education Accreditation. (2019). *Commission on Accreditation of Athletic Training Education – (CAATE).* https://www.chea.org/commission-accreditation-athletic-training-education

Dewey, J. (1938). *Experience and Education*. The Macmillan company.

Durkin, A. E., & Feinn, R. S. (2017). Traditional and accelerated baccalaureate nursing students' self-efficacy for interprofessional learning. *Nursing Education Perspectives, 38*(1), 23-28. doi:10.1097/01.NEP.0000000000000101

Ebersole, K. T., & Pfeiffer, R. E. (2018). Athletic training. In T. J. Housh, D. J. Housh, & G. O. Johnson (Eds.), *Introduction to exercise science* (5th ed., pp. 149-166). Routledge. doi:10.4324/9781315177670-7

Edmonds, W. & Kennedy, T. (2017). *An applied guide to research designs: Quantitative, qualitative, and mixed methods* (2nd ed.). SAGE Publications, Inc.

Eliot, K., Breitbach, A., Wilson, M., & Chushak, M. (2017). Institutional readiness for interprofessional education among nutrition and dietetics and athletic training education programs. *Journal of Allied Health, 46*(2), 94-103. Retrieved from http://www.asahp.org/journal-of-allied-health

Executive Committee for Education. (2012). *Future directions in athletic training education*. National Athletic Trainers' Association. https://www.nata.org/sites/default/files/ECE-Recommendations-June-2012.pdf

Fewster-Thuente, L., & Batteson, T. (2016). Teaching collaboration competencies to healthcare provider students through simulation. *Journal of Allied Health, 45*(2), 147–151. Retrieved from http://www.asahp.org/journal-of-allied-health

Fewster-Thuente, L., & Batteson, T. J. (2018). Kolb's experiential learning theory as a theoretical underpinning for interprofessional education. *Journal of Allied Health, 47*(1), 3-8. Retrieved from http://www.asahp.org/journal-of-allied-health

Fransworth, T. J., Seikel, J. A., Hudock, D., & Holst, J. (2015). History and development of interprofessional education. *Journal of Phonetics & Audiology, 1*(1), 1-5. doi:10.4172/2471-9455.1000101

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). Allyn & Bacon.

Greer, A. G., & Clay, M. C. (2010). Interprofessional education assessment and planning instrument for academic institutions. *Journal of Allied Health, 39*(3), 224-231. https://www.asahp.org/journal-of-allied-health

Greer, A. G., Clay, M. C., Blue, A. V., & Evans, C. H. (2014). The status of interprofessional education and interprofessional prevention education in academic health centers: A national baseline study. *Academic Medicine, 89*(5), 799-805.

Groessl, J. M., & Vandenhouten, C. L. (2019). Examining students' attitudes and readiness for interprofessional education and practice. *Education Research International, 2019*, 1-7. doi:10.1155/2019/2153292

Guck, T. P., Potthoff, M. R., Walters, R. W., Doll, J., Greene, M. A., & DeFreece, T. (2019). Improved outcomes associated with interprofessional collaborative practice. *Annals of Family Medicine, 17*(Suppl 1), S82-S82. doi:10.1370/afm.2428

Gunaldo, T. P., Augustus-Wallace, A., Schilling, D., Hicks, M., Goumas, A., & Levitzky, E. (2020). Gaining an understanding of interprofessional roles and responsibilities among

pre-professional health students. *Health, Interprofessional Practice and Education, 4*(1), eP1191. doi:10.7710/2641-1148.1191

Guraya, S. Y., & Barr, H. (2018). The effectiveness of interprofessional education in healthcare: A systematic review and meta-analysis. *The Kaohsiung Journal of Medical Sciences, 34*, 160-165. doi: 10.1016/j.kjms.2017.12.009

Hagemeier, N. E., Hess, J., Rick, Hagen, K. S., & Sorah, E. L. (2014). Impact of an interprofessional communication course on nursing, medical, and pharmacy students' communication skill self-efficacy beliefs. *American Journal of Pharmaceutical Education, 78*(10), 186. doi:10.5688/ajpe7810186

Hankemeier, D., & Manspeaker, S. A. (2018). Perceptions of interprofessional and collaborative practice in collegiate athletic trainers. *Journal of Athletic Training, 53*(7), 703-708. doi:10.4085/1062-6050-308-17

Henning, J., Brown, S., Richardson, R., Herzog, V., Merrick, M., Parsons, J., Thornton, J., Starkey, C., Voll, C., & Yang, V. (2013). *Professional education in athletic training: An examination of the professional degree level* [White paper]. https://www.nata.org/sites/default/files/The_Professional_Degree_in_Athletic_Training.pdf

Herath, C., Zhou, Y., Gan, Y., Nakandawire, N., Gong, Y., & Lu, Z. (2017). A comparative study of interprofessional education in global health care: A systematic review. *Medicine, 96*(38), e7336. doi:10.1097/MD.0000000000007336

Hinyard, L., Pole, D., Toomey, E. C., & Bendaly, N. (2017). Improving students' perceptions of team effectiveness through an interprofessional community practicum course. *Journal of Interprofessional Education & Practice, 9*, 1-4. doi:10.1016/j.xjep.2017.07.007

House, S. K., & Wahl, L. L. (2021). Intercollegiate collaboration to promote interprofessional education (IPE). *Teaching and Learning in Nursing, 16*(3), 281-284. https://doi.org/10.1016/j.teln.2021.04.004

Interprofessional Education Collaborative. (2016). *Core competencies for interprofessional collaborative practice: 2016 update.* https://nebula.wsimg.com/2f68a39520b03336b41038c370497473?AccessKeyId=DC06780E69ED19E2B3A5&disposition=0&alloworigin=1.

Jutte, L. S., Browne, F. R., & Reynolds, M. (2016). Effects of an interprofessional project on students' perspectives on interprofessional education and knowledge of health disciplines. *Athletic Training Education Journal, 11*(4), 189-193. doi:10.4085/1104189

Kaiser, S., Patras, J., & Martinussen, M. (2018). Linking interprofessional work to outcomes for employees: A meta-analysis. *Research in Nursing & Health, 41*, 265-280. doi:10.1002/nur.21858

Kent, F., & Keating, J. L. (2015). Interprofessional education in primary health care for entry level students – A systematic literature review. *Nurse Education Today, 35*, 1221-1231. doi:10.1016/j.nedt.2015.05.005

Kolb, D. A. (1984). The process of experiential learning. In *Experiential learning: Experience as the source of learning and development* (pp. 20-38). Prentice-Hall.

Lairamore, C., Morris, D., Schichtl, R., George-Paschal, L., Martens, H., Maragakis, A., . . . Bruenger, A. (2018). Impact of team composition on student perceptions of interprofessional teamwork: A 6-year cohort study. *Journal of Interprofessional Care, 32*(2), 143-150. doi:10.1080/13561820.2017.1366895

Lairamore, C., Reed, C. C., Damon, Z., Rowe, V., Baker, J., Griffith, K., & VanHoose, L. (2019). A peer-led interprofessional simulation experience improves perceptions of teamwork. *Clinical Simulation in Nursing, 34,* 22-29. doi:10.1016/j.ecns.2019.05.005

Laverentz, D. M., Young, E., & Cramer, E. (2020). Effect of a longitudinal interprofessional education passport program on nursing students' attitudes toward interprofessional practice. *Nursing Education Perspectives, Publish Ahead of Print* doi:10.1097/01.NEP.0000000000000636

Lavoie, P., Michaud, C., Bélisle, M., Boyer, L., Gosselin, É., Grondin, M., . . . Pepin, J. (2018). Learning theories and tools for the assessment of core nursing competencies in simulation: A theoretical review. *Journal of Advanced Nursing, 74*(2), 239-250. doi:10.1111/jan.13416

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues, 2*(4), 34-46. doi:10.1111/j.1540-4560.1946.tb02295.x

Liaison Committee on Medical Education. (2019). *Functions and structure of a medical school: Standards for accreditation of medical education programs leading to the MD degree.* https://lcme.org/wp-content/uploads/filebase/standards/2020-21_Functions-and-Structure_2020-11-2.docx

Liaw, S. Y., Wu, L. T., Wong, L. F., Soh, S. L. H., Chow, Y. L., Ringsted, C., . . . Lim, W. S. (2019). “Getting everyone on the same page”: Interprofessional team training to develop shared mental models on interprofessional rounds. *Journal of General Internal Medicine, 34(*12), 2912-2917. doi:10.1007/s11606-019-05320-z

Lim, D., & Noble-Jones, R. (2018). Interprofessional education (IPE) in clinical practice for pre-registration nursing students: A structured literature review. *Nurse Education Today, 68,* 218-225. doi:10.1016/j.nedt.2018.06.020

Livingston, L. L., West, C. A., Livingston, J. L., Landry, K. A., Watzak, B. C., & Graham, L. L. (2016). Simulated disaster day: Benefit from lessons learned through years of transformation from silos to interprofessional education. *Simulation in Healthcare: Journal of the Society for Medical Simulation, 11*(4), 293-298. doi:10.1097/SIH.0000000000000173

Manspeaker, S. A., & Hankemeier, D. A. (2019). Challenges to and resources for participation in interprofessional collaborative practice: Perceptions of collegiate athletic trainers. *Journal of Athletic Training, 54*(1), 106-114. doi:10.4085/1062-6050-507-17

Manspeaker, S. A., Feld, S. D., Hankemeier, D. A., & Kirby, J. L. (2020). Integration of interprofessional education within the didactic aspect of athletic training programs. *Athletic Training Education Journal, 15*(3), 168-176. doi:10.4085/150120015

Marcussen, M., Nørgaard, B., Borgnakke, K., & Arnfred, S. (2019). Interprofessional clinical training in mental health improves students' readiness for interprofessional collaboration: A non-randomized intervention study. *BMC Medical Education, 19*(1), 27-10. doi:10.1186/s12909-019-1465-6

McCutcheon, L. R. M., Haines, S. T., Valaitis, R., Sturpe, D. A., Russell, G., Saleh, A. A., Clauson, K. A., & Lee, J. K. (2020). Impact of interprofessional primary care practice on patient outcomes: A scoping review. *SAGE Publications*. doi:10.1177/2158244020935899

Miettinen, R. (2000). The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education, 19*(1), 54-72. doi:10.1080/026013700293458

Milutinović, D., Lovrić, R., & Simin, D. (2018). Interprofessional education and collaborative practice: Psychometric analysis of the readiness for interprofessional learning scale in undergraduate Serbian healthcare student context. *Nurse Education Today, 65*, 74-80. doi:10.1016/j.nedt.2018.03.002

Mishoe, S. C., Adams Tufts, K., Diggs, L. A., Blando, J. D., Claiborne, D. M., Hoch, J., & Walker, M. L. (2018). Health professions students' teamwork before and after an interprofessional education co-curricular experience. *Journal of Research in Interprofessional Practice and Education, 8*(1) doi:10.22230/jripe.2018v8n1a264

Morrell, B. L. M., Nichols, A. M., Voll, C. A., Hetzler, K. E., Toon, J., Moore, E. S., ...Carmack, J. N. (2018). Care across campus: Athletic training, nursing, and occupational therapy student experiences in an interprofessional simulation. *Athletic Training Education Journal, 13*(4), 332-339. doi:10.4085/1304332

Morrell, B. L. M., Carmack, J. N., Kemery, S., Moore, E. S., Voll, C. A., Jr., Nichols, A. M., ...Moore, S. M. (2019). Emergency on campus! Quantitative analysis of the effects of an interprofessional simulation on health care students. *Athletic Training Education Journal, 14*(2), 92-98. doi:10.4085/140292

Mozer, C., Gilbertson, J., Robinson, M., Kelemen, L., & Kostas, T. (2021). Understanding the roles of physical therapists on the care team: An interprofessional education experience for first-year medical students. *Journal of Interprofessional Education & Practice, 24*, 100463. https://doi.org/10.1016/j.xjep.2021.100463

National Athletic Trainers' Association. (n.d.). *About*. https://www.nata.org/about

Piaget, J. (1952). *The origins of intelligence in children.* W. W. Norton & Company.

Poore, J. A., Cullen, D. L., & Schaar, G. L. (2014). Simulation-based interprofessional education guided by Kolb's experiential learning theory. *Clinical Simulation in Nursing, 10*(5), e241-e247. doi:10.1016/j.ecns.2014.01.004

Quesnelle, K. M., Bright, D. R., & Salvati, L. A. (2018). Interprofessional education through a telehealth team based learning exercise focused on pharmacogenomics. *Currents in Pharmacy Teaching and Learning, 10*(8), 1062-1069. doi:10.1016/j.cptl.2018.05.015

Renschler, L., Rhodes, D., & Cox, C. (2016). Effect of interprofessional clinical education programme length on students' attitudes towards teamwork. *Journal of Interprofessional Care, 30*(3), 338–346. doi:10.3109/13561820.2016.1144582

Rizzo, C. S., Breitbach, A. P., & Richardson, R. (2015). Athletic trainers have a place in interprofessional education and practice. *Journal of Interprofessional Care, 29*(3), 256–257. doi:10.3109/13561820.2014.942778

Rovai, A. P., Baker, J. D., & Ponton, M. K. (2013). *Social science research design and statistics: A practitioner's guide to research methods and SPSS analysis* (1st ed.). Watertree Press.

Russell, K., Brown, J., Manella, L., Colquitt, J., & Ingram, D. (2020). Interprofessional education: TeamSTEPPS® and simulation with respiratory therapy and nursing students in their final year. *Nursing Education Perspectives, 41*(5), 294-296. doi:10.1097/01.NEP.0000000000000717

Rutledge, C., Hawkins, E. J., Bordelon, M., & Gustin, T. S. (2020). Telehealth education: An interprofessional online immersion experience in response to COVID-19. *The Journal of Nursing Education, 59*(10), 570-576. doi:10.3928/01484834-20200921-06

Scott, A., Dawson, R. M., Mitchell, S., & Catledge, C. (2020). Simulation-based interprofessional education in a rural setting: The development and evaluation of a "remote-in" telehealth scenario. *Nursing Education Perspectives, 41*(3), 187-189. doi:10.1097/01.NEP.0000000000000461

Stocker, M., Burmester, M., & Allen, M. (2014). Optimisation of simulated team training through the application of learning theories: A debate for a conceptual framework. *BMC Medical Education, 14*(1), 69. doi:10.1186/1472-6920-14-69

von der Lancken, S., & Levenhagen, K. (2014). Interprofessional teaching project with nursing and physical therapy students to promote caregiver and patient safety. *Journal of Nursing Education, 53*(12), 704-709. doi:10.3928/01484834-20141118-14

Ward, L. D., Bray, B. S., Odom-Maryon, T. L., Richardson, B., Purath, J., Woodard, L. J., Kobayashi, R., Beary, J., Willson, M. N., Clauser, J. M., & Fitzgerald, C. (2016). Development, implementation and evaluation of a longitudinal interprofessional education project. *Journal of Interprofessional Education & Practice, 3*, 35-41. doi:10.1016/j.xjep.2016.04.003

Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). Sage.

Watters, C., Reedy, G., Ross, A., Morgan, N. J., Handslip, R., & Jaye, P. (2015). Does interprofessional simulation increase self-efficacy: A comparative study. *BMJ Open, 5*(1), e005472-e005472. doi:10.1136/bmjopen-2014-005472

Weidner, T. G., & Henning, J. M. (2002). Historical perspective of athletic training clinical education. *Journal of Athletic Training, 37*(4), 222-228. https://meridian.allenpress.com/jat

Welsch, L. A., Hoch, J., Poston, R. D., Parodi, V. A., & Akpinar-Elci, M. (2018). Interprofessional education involving didactic TeamSTEPPS® and interactive healthcare simulation: A systematic review. *Journal of Interprofessional Care, 32*(6), 657-665. doi:10.1080/13561820.2018.1472069

Whiting, L., Caldwell, C., & Akers, E. (2016). An examination of interprofessional education in a pre-registration children's nursing course. *Nursing Children and Young People, 28*(6), 22-27. doi:10.7748/ncyp.2016.e747

World Health Organization. (1973). *Continuing education for physicians: Report of a WHO expert committee* (WHO Technical Report Series, No. 534). https://apps.who.int/iris/bitstream/handle/10665/41063/WHO_TRS_534.pdf?sequence=1&isAllowed=y

World Health Organization. (1988). *Learning together to work together for health: Report of a WHO study group on multiprofessional education of health personnel: The team approach* (WHO Technical Report Series, No. 769). https://apps.who.int/iris/bitstream/handle/10665/37411/WHO_TRS_769.pdf?sequence=1&isAllowed=y

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice.* https://www.who.int/hrh/resources/framework_action/en/

Wynn, S. T. (2020). Using virtual standardized patients in behavioral health interprofessional education. *The Journal of Nursing Education, 59*(10), 599-600. doi:10.3928/01484834-20200921-14

APPENDIX A

IRB APPROVAL

Date: 7-5-2021

IRB #: IRB-FY20-21-910
Title: The Impact of Master's Level Status on Athletic Training Programs' Planning and Implementation of Interprofessional Education Curricula: A Causal-Comparative, Predictive, Correlational Study
Creation Date: 5-12-2021
End Date:
Status: Approved
Principal Investigator: Zachary Hobson
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type Initial	**Review Type** Exempt	**Decision** Exempt

Key Study Contacts

Member Shanna Akers	**Role** Co-Principal Investigator	**Contact** [redacted]
Member Joseph Fontanella	**Role** Co-Principal Investigator	**Contact** [redacted]
Member Shanna Akers	**Role** Co-Principal Investigator	**Contact** [redacted]
Member Zachary Hobson	**Role** Principal Investigator	**Contact** [redacted]
Member Zachary Hobson	**Role** Primary Contact	**Contact** [redacted]

APPENDIX B

CONSENT FORM

Title of the Project: The Impact of Master's Level Status on Athletic Training Programs' Planning and Implementation of Interprofessional Education Curricula: A Causal-Comparative, Predictive, Correlational Study
Principal Investigator: Zachary R. Hobson, MS, LAT, ATC
Co-investigators: Shanna Akers, Ed.D., RN, CNE, School of Nursing
Joseph Fontanella, Ed.D., School of Education

Invitation to be Part of a Research Study

You are invited to participate in a research study. In order to participate, you must be the program director of a CAATE-accredited, Master of Athletic Training (MAT) or Master of Science in Athletic Training (MSAT) program in the United States. The program that you currently serve must be completely transitioned to the MAT or MSAT degree. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

What is the study about and why is it being done?

The purpose of this study is to determine if a significant difference in the extent of interprofessional education (IPE) implementation exists between recently-transitioned and established MAT/MSAT programs, as well as if a significant difference in the success of IPE implementation exists between MAT/MSAT programs' didactic curricula and clinical education. This study aims to address if MAT/MSAT programs have answered the call to increase IPE efforts, as well as how they are meeting the 2020 Commission on Accreditation of Athletic Training Education (CAATE) standards.

What will happen if you take part in this study?

If you agree to be in this study, I would ask you to do the following things (approximately 15 minutes total):

1. Complete a brief screening survey, embedded within Qualtrics, to ensure that you are eligible for the study.
2. Provide relevant demographic information about both yourself and your institution.
3. Complete the 10-item form of the IPE-API self-assessment survey (Association for Prevention Teaching and Research © 2009) via Qualtrics, which inquires about the extent to which your MAT/MSAT program has implemented IPE.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit by completing the survey. However, the findings of this study could lead to a better understanding of the extent to which their program has implemented IPE, as well as where this implementation could improve (e.g., didactic curriculum, clinical education, etc.). Additional benefits yielded from this study's findings may

include a better understanding of how responsive MAT/MSAT programs have been at applying the 2020 CAATE standards, as well as illuminating new areas for IPE opportunities.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researchers will have access to the records. The following steps will be taken to protect your personal information and data:

- Participant responses will be anonymous.
- Data will be stored on a password-protected computer used solely by the researcher. After three years, all electronic records will be deleted.

Is study participation voluntary?

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

What should you do if you decide to withdraw from the study?

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

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Zach Hobson. You may ask any questions you have now. If you have any questions later, you are encouraged to contact him at [redacted] or [redacted]. You may also contact the researcher's faculty sponsor, Dr. Shanna Akers, at [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher/study team using the information provided above.

APPENDIX C

DEMOGRAPHIC QUESTIONS

1. Are you the program director of a MAT or MSAT program that is currently accredited by the CAATE?

   ___ Yes ___ No

2. Which of the following best describes your current institution's AT program in regards to its time at the MAT/MSAT status?

   ___ Recently-transitioned (≤ 3 academic years) ___ Established (> 3 academic years)

3. How many academic years has your (current) AT program been at the MAT/MSAT status?

   _____ years

4. Which of the following best describes the academic unit in which your MAT/MSAT program is housed?

   _____Allied Health _____Arts & Sciences _____Exercise Science

   _____Health Professions _____Health & Recreation _____Health Sciences

   _____Kinesiology _____Medicine _____Other

5. Which of the following basic Carnegie Classifications best describes your institution?

   ____R1: Doctoral University – Very high research activity

   ____R2: Doctoral University – High research activity

   ____D/PU: Doctoral/Professional University

   ____M1: Master's College or University – Larger program

   ____M2: Master's College or University – Medium program

   ____M3: Master's College or University – Smaller program

   ____None of the above