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Meredith M. Parry

University of St. Augustine for Health Sciences

Jennifer Jordan Utley

University of St. Augustine for Health Sciences, jutley@usa.edu

Sue Shapiro

Barry University

Stefanie Podlog

University of St. Augustine for Health Sciences, spodlog@usa.edu

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Faculty Perceptions of Readiness to Implement Interprofessional Education in Athletic Training

Meredith Parry EdD, LAT, ATC, CSCS *College of Education, University of St. Augustine for Health Sciences*

Jennifer Jordan Utley PhD, LAT, ATC *College of Health Sciences, University of St. Augustine for Health Sciences*

Sue Shapiro EdD, LAT, ATC *College of Nursing & Health Sciences, University of St. Augustine for Health Sciences*

Stefanie Podlog Ph.D., DGKS (German RN) *College of Health Sciences, Eastern Washington University*

Abstract

PURPOSE As the athletic training profession advances, master's degree accreditation standards aim to position athletic trainers as key players on interprofessional healthcare teams. Interprofessional education standards were recently introduced to academic leaders as key elements in the professional healthcare education of athletic trainers. While the current standards reflect essential skills for entry-level clinicians, faculty instructing these elements may require additional development.

METHODS The objective of this study was to explore athletic training educators' perceptions of interprofessional education and to examine perceived barriers related to the implementation of IPE in athletic training curricula. An electronic survey was administered to a stratified, random sample of 1000 athletic training education program faculty from the National Athletic Trainer's Association (NATA) member database. Participating faculty completed the Interdisciplinary Education Perception Scale (IEPS) and a set of additional Likert-scale questions regarding barriers to implementation of IPE in athletic training education.

RESULTS The results indicated that differences exist in faculty readiness to implement IPE based on faculty rank or role, years of teaching experience, prior experience and skill level using IPE, and geographical location of the athletic training program within the institution.

CONCLUSION The results indicated that differences exist in faculty readiness to implement IPE based on faculty rank or role, years of teaching experience, prior experience and skill level using IPE, and geographical location of the athletic training program within the institution. Together, the findings suggest that IPE integration should include initiatives that provide administrative support, delineate leadership roles, offer formal IP development, and aim to create closer physical proximity among healthcare disciplines on campuses.

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Implications for Interprofessional Practice

- The assessment of faculty readiness to deliver IPE is an essential first step to align with recommendations by the WHO to tailor professional healthcare education using professional standards and IPEC competencies.
- Given the fact that over one third of the athletic training faculty in this study rated themselves as having “few” or “no” IPE skills, faculty must take action to gain the essential facilitation skills that enable effective delivery of IPE.
- The current study findings suggest that the following factors influence faculty readiness to implement IPE: faculty rank/role, years of teaching experience, prior experience with IPE, IPE skill level, and geographical location of the athletic training program within the institution.
- A critical area of future research is to assess the effectiveness of faculty development programs aimed at teaching IPE facilitation skills.

Introduction

Athletic training is a healthcare profession recognized by the American Medical Association (AMA) that specializes in prevention, evaluation, treatment, and rehabilitation of emergent, acute, and chronic injuries or medical conditions (NATA, n.d.). Athletic trainers work as part of a collaborative interprofessional healthcare team; they coordinate patient care and possess the knowledge and skills necessary to collaborate with highly functioning medical teams. As a result of the parameters set for contemporary healthcare, the professional education of athletic trainers must evolve to include interprofessional knowledge, skills and, abilities (KSAs, Institute for Health Care Improvement, n.d.). While the Commission on Accreditation of Athletic Training Education (CAATE) has updated professional standards that now include IPE and IPP (which will go into effect in 2020), faculty readiness for the implementation of IPE facilitation in the classroom or interprofessional practice (IPP) in the clinical space is yet to be determined.

Literature Review

The World Health Organization (WHO) recognizes a need for healthcare and health professions education systems to work together to create workforce strategies that best serve the public in an interprofessional manner (WHO, 2010). Research on health professions

education shows that students trained using an IPE approach are more likely to develop into team members who possess a willingness to work collaboratively, maintain positive attitudes toward members of other healthcare professions, and strive to work toward an integrated approach to producing positive patient outcomes (Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011; Jutte, Browne, & Reynolds, 2016). The WHO recognizes the benefits of IPP and suggests that collaboration between health professions education and clinical practice can help address issues within the healthcare delivery system (WHO, 2010).

Despite the benefits of IPP and IPE, and although licensed athletic trainers are healthcare professionals who work as members of a healthcare team, there is a lack of evidence demonstrating the effective use of interprofessional learning opportunities in current athletic training education programs (Breitbach & Richardson, 2015). To support the effective use of IPE opportunities in athletic training education, the Commission on Accreditation of Athletic Training Education (CAATE) has pronounced a reform for athletic training education to transition all professional degree programs to the master's degree level by the year 2022 (CAATE, 2018). This transformation of athletic training education is paired with new CAATE operational standards that emphasize an interprofessional team approach to professional practice behaviors. In particular, section II of the CAATE accreditation standards for 2020 re-

quires the incorporation of planned interprofessional education on a continuous basis across the curriculum: “Varying methods can be used to incorporate interprofessional education. To meet this standard, each student in the program must have multiple exposures to interprofessional education” (CAATE, 2018, p. 2).

In addition, a core competency of athletic training education titled “Interprofessional Practice and Interprofessional Education” has been added to the dossier of graduating athletic training students, with Standard 61 requiring “practice in collaboration with other health care and wellness professionals” (CAATE, 2018, p. 11). Accordingly, it is clear that CAATE has embraced the WHO’s call for graduates who will be equipped to become change-agents in the healthcare system, acting as team-ready care providers. However, accountability for implementing educational strategies that afford opportunities for students to master competencies has been placed on program faculty, without accompanying best-practice guidelines.

As described above, the new directives set forth by the CAATE present faculty with the challenge of redesigning existing curriculum to reflect newly imposed standards and the KSAs associated with IPE facilitation (CAATE, 2018; Peer, 2017). To address these challenges, the Interprofessional Education Collaborative (IPEC; 2016) established a set of core competencies to be used across healthcare disciplines to facilitate effective development of IPE.

Despite the availability of resources such as the set of identified core competencies as defined by the IPEC Expert Panel, faculty still may face challenges with the implementation of IPE (Abu-Rish et al., 2012; Bridges et al., 2011; Sanborn, 2016). Prior research reported that faculty have expressed perceived barriers to IPE such as scheduling restrictions, insufficient personnel, lack of technological resources, already crowded curricula, inadequate physical space, difficulty bringing students from varied disciplines together, and insufficient time for curricular planning (Becker & Godwin, 2005; Breitbach & Richardson, 2015; Bridges et al., 2011; Lapkin, Levett-Jones, & Gilligan, 2013). Other health professions education programs were faced with the challenge of completely overhauling individual courses and program matrices to effectively implement IPE (Loversidge & Demb, 2015).

To overcome perceived barriers to IPE, Kraemer and Kahanov (2014) recognized that appropriate faculty development correlates to the success of IPE programs. However, despite the abundance of literature addressing IPE in healthcare, literature that explores IPE in athletic training is scarce (Tivener & Gloe, 2015). Existing research on the use of IPE in athletic training found that IPE concepts are often misunderstood by athletic training educators. Although it is acknowledged that athletic trainers have a place on the interprofessional healthcare team, their education currently lacks a systematic approach to IPE (Breitbach & Richardson, 2015). In addition, AT faculty roles and responsibilities for implementing IPE have not been clearly defined (Rizzo, Breitbach, & Richardson, 2015). Recent research in the field has determined that although athletic training programs within colleges of health science offer more IPE, still less than 50% of the programs engage in it (Breitbach, Eliot, Cuppett, Wilson, & Chushak, 2018). This study also revealed a significant change in IPE participation from 2012 to 2015, with the number of IPE occurrences increasing over time. However, a set of common barriers hindering the implementation of IPE for athletic training educators has yet to be determined.

As faculty are central to the implementation of IPE, an understanding of AT faculty’s knowledge and perceptions of IPE is critical to success (Kraemer & Kahanov, 2014; Loversidge & Demb, 2015). This study sought to gain insight into the perceived level of readiness of AT faculty and assess the barriers to implementing IPE in the professional education of athletic trainers. More specifically, this study aimed to identify differences in perceived readiness as it relates to faculty demographics such as rank, role, and years of experience. In this effort, the study explored AT faculty’s perceived levels of readiness, perceived knowledge, perceived roles and responsibilities, perceptions of teamwork and collaboration, and barriers to implementing IPE.

Methods

This study used an electronic survey via SurveyMonkey to explore AT faculty perceptions of knowledge, readiness, roles, responsibilities, teamwork, collaboration, and barriers to implementing IPE. SurveyMonkey was selected for its HIPAA-compliant features (SurveyMonkey 2019). The data analysis examined readiness of AT faculty to implement IPE and examined for dif-

ference in perception of IPE based on faculty demographics. Demographics included rank or role, years of teaching experience, previous experience with using IPE in curriculum, perceived skill level with using IPE, and geographical location of athletic training education programs in relation to other healthcare disciplines within the institution.

Participants

A total of 189 faculty (18.9% response rate) submitted their responses to the Interdisciplinary Education Perception Scale (IEPS) survey. To be included in the study, participants had to qualify as an educator in an athletic training education program (ATP) and be a member of NATA. All AT faculty were welcome to participate regardless of their status at the institution, including but not limited to, tenure-track, full-time/part-time, clinical instructor, adjunct, clinical coordinator, and program director roles. Excluded participants included retired faculty, professors emeriti, and NATA members whose only role as an educator in an ATP is as a clinical preceptor. Clinical preceptors were included if they also had a teaching role in the ATP as adjunct or clinical instructors, and identified with this status on their NATA membership profile. Exclusion criteria was indicated in the cover letter to participants and identified by means of demographic questions preceding the main content of the survey. Table 1 displays demographic information for all participants. In some cases, participants did not provide a response for all demographic data. Incomplete surveys were still included in the study, as the partial responses were still considered valuable. Missing responses to demographic survey responses are listed in the table under *Missing Responses*.

Procedure

All study procedures were approved by the University of St. Augustine for Health Sciences Institutional Review Board (Approval# EDD-0215-255). The survey link was emailed to 1000 potential participants selected via a stratified, random sampling from a database of NATA members from all ten districts across the United States who indicated their primary role was "Education." The email introduced participants to the study, explaining that participation in the study was anonymous and voluntary, and that clicking on the link to ac-

cess the survey indicated that they provided informed consent.

Instrumentation

The Interdisciplinary Education Perception Scale (IEPS) was utilized to gather perceptions on readiness to implement IPE. The IEPS is a validated, reliable instrument that is free and readily available for public use (McFadyen, Maclaren, & Webster, 2007). The phrasing of the survey items derived from the IEPS was adopted from the original authors, Luecht, Madsen, Taugher, and Peterson (1990). Participants were asked to rate each survey item based on their level of agreement, utilizing a 6-point Likert Scale from 1 (Strongly Disagree) to 6 (Strongly Agree). Racine, Bilinski, and Spriggs (2016) confirmed the face validity, content validity, and internal consistency by use of a Cronbach's alpha of .943. The original IEPS consists of four subscales: Competency and Autonomy, Perceived Need for Cooperation, Perception of Actual Cooperation, and Understanding Others' Value. Using a Cronbach's Alpha the IEPS in its entirety earned an alpha value of 0.872 subscale with each subscale receiving individual values of 0.823, 0.563, 0.543 and 0.518, respectively (Luecht et al., 1990).

The complete survey for this study comprised 53 items: 9 on demographics, 18 from the IEPS on faculty knowledge, 10 on perceptions of IPE (Table 2), and 16 referencing perceived barriers to IPE (Table 3). The 10 questions on perceptions of IPE and the list of 16 perceived barriers were included at the end of the survey as adopted from Racine et al. (2016).

Data Analysis

The participants' demographics were collected and served as categorical variables that were used for comparison when examining the dependent variables. A one-way between subjects' ANOVA was conducted to compare the impact of the independent variables of faculty rank or role, years of teaching experience, previous experience with IPE, perceived skill level with using IPE, and location of their ATP at the institution on faculty perceptions of IPE. Faculty perceptions measured by the IEPS included level of perceived readiness, role and responsibility, knowledge, colleague cooperation, and barriers to implementing IPE.

Characteristic	n (%)
Rank or Role	
Program Director	23 (12.2)
Clinical Coordinator	31 (16.4)
Professor	27 (14.3)
Associate Professor	8 (4.2)
Assistant Professor	36 (19.0)
Adjunct	34 (18.0)
Visiting Instructor	13 (6.9)
Clinical Instructor	9 (4.8)
Assistant Instructor	5 (2.6)
Missing Responses	3 (1.6)
Years of Teaching Experience	
0–5 Years	40 (21.2)
6–10 Years	42 (22.2)
11–15 Years	25 (13.2)
16–20 Years	34 (18.0)
21–25 Years	12 (6.3)
26–30 Years	17 (9.0)
31+ Years	19 (10.1)
Previous Experience with IPE	
NO previous experience of IPE teaching	85 (45.0)
YES previous experience of IPE teaching	82 (43.4)
Missing Responses	22 (11.6)
Perceived Skill Level Using IPE	
No IPE Skills	18 (9.5)
Few IPE Skills	54 (28.6)
Moderate Amount of IPE Skills	70 (37.0)
Quite a bit of IPE Skills	21 (11.1)
My skills are proficient in IPE	5 (2.6)
Missing Responses	21 (11.1)
Geographical Location of ATP within the Institution	
NO My ATP is not housed in Allied Health	108 (57.1)
YES My ATP is housed in Allied Health	74 (39.2)
Missing Responses	7 (3.7)

Table 1. Demographics of sample (frequency distribution) $n = 189$

Note: IPE = Interprofessional Education, ATP = Athletic Training Program

Individuals in my profession are well trained.
Individuals in my profession are able to work closely with individuals in other professions.
Individuals in my profession demonstrate a great deal of autonomy.
Individuals in other professions respect the work done by my profession.
Individuals in my profession are very positive about their goals and objectives.
Individuals in my profession need to cooperate with other professions.
Individuals in my profession are very positive about their contributions and accomplishments.
Individuals in my profession must depend upon the work of people in other professions.
Individuals in other professions think highly of my profession.
Individuals in my profession trust each other’s professional judgment.
Individuals in my profession have a higher status than individuals in other professions.
Individuals in my profession make every effort to understand the capabilities and contributions of other professions.
Individuals in my profession are extremely competent.
Individuals in my profession are willing to share information and resources with other professionals.
Individuals in my profession have good relations with people in other professions.
Individuals in my profession think highly of other related professions
Individuals in my profession work well with each other.
Individuals in other professions often seek the advice of people in my profession.
I would welcome the opportunity to work on curriculums with faculty from other colleges.
I must acquire more knowledge of IPE than faculty from other colleges.
Individuals in my college need to cooperate with other colleges.
I believe IPE has positive outcomes for practice.
I believe that IPE will promote health outcomes among patients.
I am unsure of my role in IPE.
Individuals in my college need to cooperate with other colleges.
Communication skills should be taught with faculty from other colleges.
Students will ultimately benefit if faculty from different colleges teach collaboratively.
To teach IPE effectively, team-working skills are essential for all health care faculty.

Table 2. Survey questions

Note: Participants ranked each item on a Scale of 1–6; 1 = Strongly Disagree, 6 = Strongly Agree. The phrasing of survey questions was preserved as written in the Interdisciplinary Education Perception Scale (IEPS).

Lack of leadership
Political tension
Resistance to change
Timetable
Class sizes
Curriculum
Accreditation
Workload
Lack of knowledge
Lack of time with existing IPE activities
Lack of time to develop new IPE activities
Lack of interest
Lack of pedagogical support
Lack of technological support
Consuming logistics to coordinate

Table 3. Survey Question 41: I view the following item as a barrier to implementing IPE in my teaching.

Note: Participants ranked each item as a barrier to implementing IPE in their teaching on a scale of 1–6; 1 = Strongly Disagree, 6 = Strongly Agree. The 16 barrier items were derived with permission directly from Racine et al. (2016).

Results

The specific aim of this study was to provide insight about faculty knowledge and skills regarding IPE and to understand faculty's perceived barriers to implementing IPE in athletic training didactic curriculum. Overall, this research study aimed to provide insight about faculty knowledge and skills regarding IPE and to understand faculty's perceived barriers to implementing IPE in athletic training didactic curriculum. Ultimately it aimed to answer the main research question "Are AT faculty ready to implement IPE in their programs?" In an effort to answer this question, this research study addressed four subsequent research questions:

- What are AT faculty's perceived roles and responsibilities in regard to interprofessional learning?
- What are AT faculty's perceptions of knowledge of IPE?
- What are AT faculty's perceptions of teamwork and collaboration as it pertains to education?
- What are AT faculty's perceived barriers to implementing IPE?

Perceived Level of Readiness

The first research question addressed faculty perceptions of level of readiness as it pertains to IPE implementation through all survey subcategories (See Table 4). Faculty reported their perceived level of readiness on a Likert scale ranging from 1 (Not Ready at All) to 6 (Extremely Ready). In the analysis of the perceived level of readiness the Levene's test for homogeneity was not met, $F(2, 144) = 3.97, p = .02$. Therefore, Welch's ANOVA was examined for significance, revealing a significant effect of previous experience on perceived readiness for IPE, $F(2, 144) = 19.92, p = .05$. To explain further, faculty who had previous experience with IPE perceived their level of readiness to implement IPE as significantly higher (4.01 ± 0.80) than those without previous experience with IPE (3.01 ± 1.14). These results suggest that faculty with previous IPE experience feel they are ready to implement IPE, while those without previous experience feel they are only somewhat ready.

Perceived Roles and Responsibilities

The second research question addressed faculty perceptions of roles and responsibilities as it pertains to IPE through the survey subcategory *Understanding Others' Value*. Faculty perceptions of skill level as it relates to their perceived roles and responsibilities for implementing IPE revealed a significant difference between skill levels, $F(4, 155) = 31.63, p = .001$. Levene's test for homogeneity was not met, $F(4, 155) = 3.83, p = .001$. Therefore, Welch's ANOVA was used to determine significance. The Games-Howell post-hoc revealed that faculty who reported having no skills in IPE (5.33 ± 1.11) expressed significantly greater uncertainty of their roles and responsibilities concerning IPE than faculty who identified with having few IPE skills (3.56 ± 1.09), moderate IPE skills (2.48 ± 1.06), and a high level of IPE skills (1.76 ± 0.76).

Perceived Knowledge of IPE

The third research question addressed faculty perceptions of knowledge as it pertains to IPE through the survey subcategory, *Competency and Autonomy*. There was a significant effect of perceived level of IPE skills on competency and autonomy, ($F(4, 154) = 4.70, p = .001$). The post-hoc analysis revealed that a mean score for faculty who identified as having proficient skills for using IPE (3.37 ± 0.86) was significantly different than the groups who identified with having a moderate amount of IPE skills (4.43 ± 0.59), a few IPE skills (4.26 ± 0.63), and no IPE skills (4.69 ± 0.95 ; Tukey HSD, $p < .05$).

Teamwork and Collaboration

The fourth research question addressed faculty perceptions of teamwork and collaboration as it pertains to IPE through the survey subcategories *Actual Cooperation* and *Need for Cooperation*. There was a significant effect of geographical location of the ATP within the institution on the need for cooperation, $F(2, 149) = 3.27, p = 0.04$. With all assumptions met, the ANOVA indicated that ATPs not housed in the School of Allied Health rated the need for cooperation as significantly greater (4.62 ± 0.58) than faculty in ATPs housed within the School of Allied Health (4.37 ± 0.64).

Subcategories	M	S
Competency and Autonomy	4.45	0.962
Perceived Need for Cooperation	5.33	0.864
Actual Cooperation	4.81	0.939
Understanding Other's Values ^a	2.48	1.113

Table 4. Overall means for four subcategories of IEPS

Note: Participants ranked each item on a scale of 1-6; 1 = Strongly Disagree, 6 = Strongly Agree.

^a As per the original author, this subcategory only consisted of survey question #11

Perceived Barriers to IPE

The analysis of perceived barriers to IPE was fruitful in that it informed the field of potential roadblocks to the execution of IPE. Table 5 illustrates the results of perceived barriers to IPE, while Table 6 illustrates where significant differences exist. Faculty rank had a significant impact on the perceived barriers to IPE; these

include leadership, political tension, and resistance to change. In addition, there was a significant effect of faculty rank or role on lack of leadership as a perceived barrier. To that point, the mean score for lack of leadership as a barrier to IPE was rated significantly lower for the rank of professor (2.65 ± 1.43) than the rank of clinical instructor (4.50 ± 1.41).

Barrier	Strongly disagree	Mod. disagree	Somewhat disagree	Somewhat agree	Mod. agree	Strongly agree	Wt. Avg. ^a
Lack of Leadership	12.41%	11.03%	22.76%	30.34%	15.17%	8.28%	3.5
Political tension	12.41%	8.97%	20.69%	27.59%	21.38%	8.97%	3.63
Resistance to change	4.14%	7.59%	11.03%	29.66%	22.76%	24.83%	4.34
Timetable	6.25%	7.64%	13.19%	40.97%	22.92%	9.03%	3.94
Class sizes	12.41%	17.93%	20.69%	25.52%	17.24%	6.21%	3.36
Curriculum	8.33%	13.19%	13.89%	25.00%	28.47%	11.11%	3.85
Accreditation	22.76%	15.17%	21.38%	16.55%	15.17%	8.97%	3.13
Workload	2.76%	4.83%	8.97%	16.55%	29.66%	26.90%	4.57
Lack of knowledge	5.56%	9.72%	16.67%	36.81%	22.22%	9.03%	3.88
Lack of time with existing IPE activities	8.33%	6.25%	19.44%	34.03%	20.83%	11.11%	3.86
Lack of time to develop new IPE activities	3.45%	4.83%	7.59%	28.97%	33.10%	22.07%	4.5
Lack of interest	17.93%	15.86%	23.45%	28.97%	9.66%	4.14%	3.09
Lack of pedagogical support	8.97%	11.72%	20.00%	28.28%	23.45%	7.59%	3.68
Lack of technological support	14.48%	17.93%	19.31%	26.21%	13.79%	8.28%	3.32
Consuming logistics to coordinate	4.86%	5.56%	11.81%	31.25%	36.11%	10.42%	4.19
Lack of other allied health disciplines at my institution	34.51%	13.38%	8.45%	16.20%	15.49%	11.97%	3.01

Table 5. Perceived barriers to IPE rated on Likert scale 1–6 (1 = Strongly Disagree, 6 = Strongly Agree)

Note: Participants were asked to rate each barrier based on the following statement: “I view the following item as a barrier to implementing IPE in my teaching.”

^a Weighted average

Barrier	Rank / Role	M	SD	Years ^a	M	SD
Lack of Leadership	Clinical instructors	4.50	1.41	21-25	4.70	0.94
	Professors	2.65	1.43	11-15	3.05	1.39
Political Tension ^b	Clinical instructors	5.25	0.70			
	Program directors	3.52	1.43			
	Clinical coordinator	3.08	1.38			
	Professors	3.70	1.52			
	Assistant professors	3.54	1.44			
Resistance to Change	Assistant professors	3.81	1.55	0-5	4.93	1.38
	Clinical instructors	5.63	5.18	31 +	3.54	1.56

Table 6. Overall means for four subcategories of IEPS

Note: Athletic training faculty who participated in this study ranked lack of leadership, political tension and resistance to change as significant barriers to implementing interprofessional education. The other 13 items were not reported as significant barriers to IPE. The significance of these barriers was further evaluated based on differences in faculty rank or role and years of teaching experience. Rank and Role and Years of Experience were separate variables and were not compared in relation to each other.

^a Years of teaching experience

^b No significance between groups

In regard to political tension, there was a significant effect of faculty rank or role on political tension as a perceived barrier ($p < .05$). Since Levene's test of homogeneity was not met, $F(8,134) = 2.06$, $p = .04$, the Games-Howell results were reported. The Games-Howell post-hoc test indicated that clinical instructors (5.25 ± 0.70) rated political tension significantly higher than program directors (3.52 ± 1.43), clinical coordinators (3.08 ± 1.38), professors (3.70 ± 1.52), and assistant professors (3.54 ± 1.44).

There was also a significant effect of faculty rank or role on resistance to change as a perceived barrier ($p < .05$). Post-hoc comparisons using the Tukey HSD indicated that assistant professors rated resistance to change significantly lower (3.81 ± 1.55) than clinical instructors (5.63 ± 5.18).

Discussion

Interprofessional education is being refined within athletic training education (Breitbach & Richardson, 2015; Utley, 2018). As interprofessional communication continues to become an emerging topic in athletic training education, research in IPE is abundant in student perceptions and programmatic and institutional barriers. Prior to this study, an extensive literature search on faculty readiness for IPE in athletic training came

up empty. Although there was a very low response rate (18.9%) and generalizations about the AT population as a whole should be made with caution, the results of this study help illuminate faculty perceptions of IPE and the effects that rank or role, years of teaching experience, previous IPE experience and/or skill, and geographical location can have on faculty implementing IPE.

Perceived Readiness for IPE

Faculty who participated in the study reported a wide range of perceived knowledge and readiness for implementing IPE in their curriculum. This range of preparedness resulted from a range of variables such as perceived skill level, faculty rank, and the geographical location of a faculty member's ATP within their institution.

Skill Level and Knowledge

The results of our study demonstrated an inverse relationship between faculty's IPE skill level and their perceptions of their peers' knowledge of IPE. The faculty participants of this study who perceived themselves having fewer IPE skills think highly of the knowledge level of their peers, while faculty who reported themselves as proficient in using IPE did not feel that their

peers possessed as much knowledge. Negative attitudes toward other disciplines, or discipline elitism, has been a commonly reported barrier to IPE among health professions faculty; however, data from our study represents mixed perceptions among AT faculty (Olenick, Flowers, Muñecas, & Maltseva, 2019; Shagrir, 2017). Skewed attitudes among team members can inhibit cooperation and collaboration, ultimately preventing faculty willingness to engage in IPE activities (Olenick et al., 2019). Accordingly, the varied perceptions of IPE skill level could be affecting AT faculty willingness to engage in IPE activities, even within their own programs.

Skill Level and Roles

Perceived skill level also influenced faculty's perceptions of their roles and responsibilities for implementing IPE. Overall, the findings suggest that with increasing IPE skill level, faculty levels of uncertainty decreased. This result is similar to other study results showing that as faculty gain IPE experience, they are concurrently gaining an understanding of their roles in IPE. Accordingly, formalized faculty development programs aimed at improving IPE skills can have a positive impact on the faculty's understanding of their roles and responsibilities (Abu-Rish et al., 2012; Barrett, Mazerolle, & Nottingham, 2017; Breitbach & Richardson, 2015; Loversidge & Demb, 2015).

Skill Level and Readiness

The participants in this study represented varying degrees of skill levels for IPE implementation, ranging from having no skills in IPE to self-reporting as proficient in IPE. Other comparisons of perceived skill level with perceived level of readiness for IPE revealed that faculty who lacked knowledge and firsthand experience using IPE yielded lower levels of perceived readiness for implementing IPE in the classroom and clinical education (Racine et al., 2016). Interestingly, research by Abu-Rish et al. (2012) disclosed that most faculty in health professions education cannot report how they obtained their IPE skills. Enhancing faculty skills related to IPE is likely to impact their level of readiness (Health Professions Accreditors Collaborative, 2019). As IPE becomes more common across AT curriculums, programs would benefit from further exploration of the effects of faculty development on IPE success, as well as its effect on perceived level of readiness.

Limitations to Collaboration

Teamwork and cooperation are important aspects of effective IPC and effective patient care (Hamson-Utley, Oshikoya, & Kamphoff, 2019). However, there remains a lack of consensus among ATs in their efforts to understand other healthcare professions (Rizzo et al., 2015). Faculty in this study expressed preference for the autonomy that ATs have in the workplace, but also expressed a need for cooperation across disciplines to foster IPE. Additionally, ATs have expressed concerns that other disciplines appear to lack of understanding regarding the educational background and qualifications of athletic trainers. Accordingly, ATs continue to articulate a desire for greater recognition as members of a healthcare team (Rizzo et al., 2015). To support this professional recognition, contemporary literature highlights how interprofessional case-based teaming supports the inclusion of athletic trainers on patient care teams (Hamson-Utley, Arvinen-Barrow, & Clement, 2017). However, expressing (and preferring) autonomy of practice inhibits closer relationships between ATs and healthcare peers. Being reluctant to incorporate other healthcare professions into the care of the athlete (a patient who is commonly seen in school-based care settings) creates a barrier to IPC (Olenick et al., 2019; Rizzo et al., 2015).

The Barrier of Physical Proximity

According to the findings of this study and evidence from previous IPE studies, physical proximity plays a major role in the perceived access and levels of cooperation for interdisciplinary learning (Breitbach et al., 2018; Eliot, Breitbach, Wilson, & Chushak, 2017; Rafter et al., 2006). Based on the survey results, AT faculty whose ATP is housed within the School of Allied Health at their institution impacted their perceptions of other health professions. Athletic training faculty working within schools of Allied Health felt that athletic training professionals think highly of other health professions and believe that AT professionals are capable of working closely with individuals in other professions. These perceptions were significantly ($p < .05$) more positive than those faculty whose ATP was not located within the School of Allied Health at their institution.

Moreover, faculty who do not have their ATP housed in the School of Allied Health encountered barriers that

were considerably different from those experienced by faculty who reside within health science–related academic units. Most prominently, a lack of access to healthcare disciplines was a notably greater barrier ($p < .05$) compared to faculty who have their ATP housed in a health science unit. Based on the small population of this study, a few ATPs are not operating within their School of Allied Health. According to existing evidence on IPE, collaborating across disciplines can be inhibited by the physical roadblock of geographical location (Eliot et al., 2017; Rafter et al., 2006). When programs are housed within the same school on campus, they tend to fall under the same administrative umbrella; this can help alleviate the barrier of scheduling IPE.

It is noted that having an ATP housed within the School of Allied Health can foster ease of access to other health profession education programs within one's institution. However, despite the elimination of the barrier of physical proximity, less than 50% of those ATPs participated in IPE (Breitbach et al., 2018). Studies of faculty perceptions of IPE in healthcare education indicate that it takes a great deal of cooperation to schedule classes in conjunction with other disciplines within the same college. It is not uncommon for different disciplines to operate under different term systems and be governed by various accreditation bodies. These factors have imposed barriers on faculty attempting to construct IPE activities (Rafter et al., 2006). It is hoped that barriers surrounding geographical location will be alleviated as ATPs implement the CAATE standards to better align with other healthcare education programs within their institution (CAATE, 2018); however, it is important to note that IPE integration relies on factors beyond physical proximity.

Organizational and Institutional Barriers to IPE Implementation

Faculty in healthcare have expressed major constraints to successful IEP such as scheduling restrictions, insufficient personnel, lack of technological resources, already crowded curricula, inadequate physical space, difficulty bringing students from varied disciplines together, and insufficient time for curricular planning (Becker & Godwin, 2005; Breitbach & Richardson, 2015; Bridges et al., 2011; Lapkin et al., 2013). The AT

faculty who participated in this study expressed barriers similar to those experienced other health professions faculty; however, they also face issues of adversity such as political tension, lack of leadership, and resistance to change. According to the results of this study, lower-ranked faculty—such as adjuncts and clinical instructors—rated lack of leadership, political tension, and resistance to change as substantial barriers to implementing IPE compared to higher-rank faculty such as full and assistant professors. Based on the small sample of this study, it is important to recognize that higher-ranked faculty did not disagree with political tension as a potential barrier to IPE; however, their level of agreement was significantly lower than that of the clinical instructors.

The results suggest that junior faculty may perceive a resistance to change, accompanied by political tension and a lack of leadership within their institutions. Previous IPE research discloses resistance to change from senior faculty members as a consistent barrier across disciplines. Grassroots efforts for IPE implementation have been effective at eliminating inclusion barriers among faculty (Loversidge & Demb, 2015). It may be worth further investigating the effects of developing leadership frameworks for IPE implementation that have a scaffold that originates from the bottom, with junior faculty mentoring senior faculty. Mentor relations that incorporate active engagement from all entities can positively affect faculty success (Barrett et al., 2017). The inclusion of junior faculty in curricular and programmatic planning has been recommended to neutralize the barriers of resistance and political tension among faculty (Loversidge & Demb, 2015).

Future Directions

Administrative Support

The results of this study indicate that further exploration is needed of the need for leadership and formalized faculty training within institutions to help support the development and implementation of IPE programs in athletic training. Other disciplines that have successfully integrated IPE into their health professions education programs attribute their success to administrative support. This support included active collaboration with deans, curriculum committees, and educational administrators (Bridges et al., 2011; Loversidge

& Demb, 2015). Moreover, this administrative support was imperative during the initial stages of IPE development, while the vitality of IPE as a component of programmatic infrastructure was highly dependent on leadership from program directors and veteran faculty (World Health Organization, 2010).

IPE Coordinator

In some cases, it was highly recommended to designate an individual to take on the role of IPE coordinator (Rafter et al., 2006; Thistlethwaite & Nisbet, 2011). This individual was responsible for taking charge of the promotion and coordination of all IPE activities, acting as the interdisciplinary faculty liaison and ensuring that faculty IP mentorships are readily available (Thistlethwaite & Nisbet, 2011). The designation of a single faculty member for the role of IPE liaison might provide more financial feasibility for programs. It can be costly to send multiple faculty members to conferences to learn about IPE; however, it may be more cost effective to appoint one member of the faculty to attend IPE conferences and be responsible for sharing their knowledge acquired with the rest of the faculty. Overall, evidence suggests that committed and experienced faculty are necessary to provide adequate IPE leadership (Bridges et al., 2011). The creation of IPE leadership frameworks within programs and institutions is encouraged. Research demonstrates that IPE barriers can be overcome with persistence and commitment from faculty and administration (Breitbach et al., 2018; Bridges et al., 2011).

IPE Faculty Development

There exists a need for further exploration of how to acquire appropriate mentoring and leadership for faculty involved in the implementation of IPE in athletic training curriculums. Existing research on interprofessional practices within health science education recognizes faculty development as an essential component of facilitating IPE competencies (Abu-Rish et al., 2012; Loversidge & Demb, 2015; Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013; Schack-Dugré & Utley, in press). Formal training for faculty that addresses their roles, responsibilities, and strategies for implementing IPE is recommended (Utley, 2018). As it stands, faculty report feeling underprepared to facilitate IPE activities, especially when multiple health professions are involved

(Abu-Rish et al., 2012; Rafter et al., 2006; Reeves et al., 2013; Silver & Leslie, 2009; Steinert, Cruess, Cruess, & Snell, 2005; Thistlethwaite & Nisbet, 2011). Faculty can seek development opportunities individually; however, university-sponsored offerings are more convenient and cost effective when travel budgets are tight. While offerings will vary in type and kind, commonly used IPE faculty development frameworks include IPE retreats (Pien, Stiber, Prelosky, & Colbert, 2018), year- or semester-long workshops (Pien et al., 2018), institutes or mini-conferences (Shrader, Mauldin, Hammad, Mitcham, & Blue, 2015), and IPE teaching fellowships (Shrader et al., 2015). A scoping review on the effectiveness of IPE also reported on the effectiveness of these frameworks (Schack-Dugré & Utley, in press). Contemporary literature has compared and contrasted these models alongside the suggested use of IPEC Core Competencies to guide the development of IPE facilitator skills (Utley, in press).

Related to this study, it is important to consider the impact of rank and role on faculty perceptions of readiness to IPE. When planning faculty development, the inclusion of adjuncts, clinical faculty members, and clinical preceptors should be considered. These faculty members often serve essential roles in athletic training education and are necessary for closing the outcome loops in IPE for clinical practice (Chen, Rivera, Rotter, Green, & Kools, 2016; Loversidge & Demb, 2015). Previous research has identified a lack of formal training for preceptors and their mentors in the role of preceptors in IPE (Chen et al., 2016). Clinical preceptors have a distinctive role in the socialization of students into the clinical environment and the development of their dual identity as a clinical professional and a team member (HPAC, 2019). Furthermore, research including preceptors' perceptions of IPE could help to provide insight into the needs for extending IPE into clinical education.

Limitations

This study aimed to identify faculty perceptions of readiness to implement IPE in AT education. With a response rate of less than 30%, generalizations about the overall population of athletic training faculty should be made with caution (Fincham, 2008). While the sample size was small, this study demonstrates the strengths of

a stratified random sample. The groups represented in the sample population comparatively covered the diverse demographics of athletic training faculty.

Conclusions

As IPE emerges into athletic training education, outcomes should be continuously measured to determine the effectiveness of IP experiences. This assessment should include an exploration of the benefits of IP learning for athletic training students, as well as the ramifications of IPP on patient outcomes with the inclusion of the athletic training professional. Research of this nature can help provide feedback to create better guidelines and training for faculty directing IPE.

Additionally, and despite the small sample size, the results of this study add to the body of literature regarding faculty perceptions of IPE, an area where evidence is scarce. The results of this study suggest that IPE integration should include initiatives that provide administrative support, delineate leadership roles, and aim to bring healthcare disciplines in closer physical proximity on their campuses. Faculty throughout health professions education are progressively experimenting with new IPE tactics; however, they still articulate concerns regarding readiness for implementing IPE interventions. As the profession of athletic training progresses to an improved level of healthcare delivery with the 2020 CAATE competencies and the transition to the professional master's degree, continued research on the assimilation of IPE is recommended.

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Corresponding Author

Meredith Parry EdD, LAT, ATC, CSCS

53 Manchester Rd. Apt. 4
Brookline, MA 02446

mparry@usa.edu