Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association

Volume 9 | Issue 3 Article 3

February 2024

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Breaking Barriers and Building Confidence: Interprofessional Education's Impact on Allied Health Students' Competence and Self-Efficacy in Addressing Exercise Accessibility for People with Disabilities

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Purpose: The researchers' objective was to evaluate the effectiveness of an interprofessional educational (IPE) program on student learning while addressing exercise accessibility barriers experienced by people living with disabilities (PLWD), including allied health professionals' lack of practical experience, knowledge, and perceived competence and comfort working with PLWD in a fitness setting. Method: A qualitative explanatory single case study approach utilizing individual interviews was used. The individual interviews that explored how a collaboration between allied health students influenced learning, perceived comfort, and perceived competence working with PLWD were audio-recorded, transcribed verbatim and thematically analyzed. Results: Four major themes emerged: collaboration, comfort, competence, and experience. During the IPE experience, the subjects entered a cycle of increased or decreased comfort, perceived competence, and reciprocal learning that ultimately led to an impact on their self-efficacy. Conclusion: The results of this study suggest that the inclusion of IPE practices improved student learning through fostering the development of self-efficacy. With improved self-efficacy, the subjects were and are better able to work with PLWD, improving equity and access to services provided in fitness settings. The findings of this research have the potential to inform curriculum development to include IPE experiences and to be intentional about purposeful inclusion of all persons, groups, and populations in fitness settings. ***Key Words:*** *disability, interprofessional education, people living with disabilities, self-efficacy*

INTRODUCTION

The United States is home to an estimated 61 million people living with disabilities (PLWD), including 21 million with physical disabilities.[1,2] Despite recognizing the manifold physical, psychological, and social benefits of exercise for individuals regardless of their health status, 38% of those with physical disabilities meet recommended aerobic guidelines, and merely 14% adhere to strength guidelines stipulated by the CDC.[2] Regular exercise correlates with improved secondary health conditions, and given the prevalence of conditions such as obesity, diabetes, depression, anxiety, and cardiovascular issues among PLWD, barriers to exercise can further exacerbate health disparities and hinder psychological well-being and social engagement.[3]

Limited academic preparation serves as just one of the barriers impeding accessible fitness.[4] Fitness professionals and healthcare providers alike lack comprehensive education and experience in working with PLWD within fitness contexts.[4] This scarcity of knowledge, skills, and positive attitudes among healthcare providers and fitness practitioners directly influences the quality of services provided to PLWD within the fitness industry.[5] To address these deficiencies, Martin Ginis et al. highlighted the necessity for healthcare and fitness professionals to engage in communication, collaboration, and strategic planning, aimed at enhancing the competence and knowledge of current and future professionals who are tasked with prescribing and adapting exercises for PLWD.[4] Additionally, the World Health Organization advocates for the integration of

interprofessional education and interdisciplinary collaboration to equip future allied health professionals with the skills and knowledge necessary to achieve optimal health outcomes.[6]

In 2010, the World Health Organization (WHO) issued a call for interprofessional collaborative practice to be woven into all health-related settings, recognizing its positive impact on healthcare systems and client outcomes.[6] However, professionals in the fitness sector often report limited time and opportunities for interprofessional collaboration.[7] To foster greater collaboration, the WHO recommended the integration of interprofessional education (IPE) experiences into health-related curricula, thus preparing future healthcare and fitness professionals to be "collaborative practice-ready" upon graduation.[6(p7)] IPE occurs when individuals from multiple disciplines learn together, from one another, and about one another, with the aim of enhancing collaboration and care quality.[6]

This study sought to examine whether participation in a community-based adapted exercise IPE program could bolster the perceived competence and comfort levels of graduate allied health students when interacting with PLWD in a fitness setting. The aims of the study were to evaluate the IPE program's efficacy in enhancing student learning while addressing the exercise accessibility barriers confronted by PLWD. These challenges encompassed the scarcity of practical experience, knowledge, self-assurance, and perceived comfort that allied health professionals often face when working with PLWD in fitness environments.[4] By integrating an IPE experience with a community-based adapted exercise program, the study aimed to enrich educational opportunities for future healthcare and fitness professionals while concurrently creating accessible exercise avenues for PLWD. Moreover, a deeper comprehension of the impact of IPE experiences involving PLWD could potentially contribute to alleviating exercise-related obstacles for this population, thereby influencing health disparities experienced by them.

Theoretical Framework

The incorporation of an adapted fitness IPE experience was devised based on Vygotsky's constructivist theory of learning, integrating his notion of the zone of proximal development (ZPD) alongside cooperative-based learning as guiding principles.[11,12] Vygotsky's ZPD refers to the range of tasks that a learner cannot perform independently but can accomplish with the guidance and support of a more knowledgeable other, such as an educator, peer, or mentor.[11-13] Cooperative-based learning involves collaborating in small groups with other students within or outside one's discipline, facilitating an opportunity for reciprocal learning and teaching of discipline specific skills.[12]

When students face new challenges, they may experience a state of disequilibrium despite having an existing frame of reference. In such situations, educators or peers must provide guidance to help them internalize this new knowledge.[12] This scaffolded support enables students to assimilate their pre-existing knowledge and integrate it with new learning through accommodation, leading to a greater sense of comfort and proficiency within the ZPD. As the student becomes more independent with the skill, the support or assistance can gradually be withdrawn.[13]

Peer teaching opportunities are critical benefits of IPE.[14] The ZPD theory promotes peer teaching, where more experienced students, mentors, or educators assist those with less experience by explaining and demonstrating new concepts. Through this peer teaching, students then can consolidate the new knowledge they had gained with their existing discipline specific knowledge. As the

students become more proficient within their collaborative teams, they become able to take on more complex tasks, and the supportive scaffolding (assistance) provided by peers, mentors, and educators can be gradually reduced. By integrating the ZPD and cooperative learning into an IPE activity, educators can create a dynamic and engaging learning environment that encourages cooperation, mutual support, and continuous growth.[11,12] This not only enhances the students' knowledge and skills but also may prepare them for effective interprofessional collaboration in their future careers.

METHODS

Design

An explanatory single case study approach was used to investigate how and why participation in an adapted exercise IPE experience may influence exercise science and occupational therapy students' perceived competence and comfort working with PLWD in a fitness setting.[15] An explanatory single case study approach is a qualitative research design that aims to provide an in-depth understanding of a particular case or phenomenon and explain the underlying mechanisms and reasons behind observed behaviors or outcomes. This approach allows researchers to gain insights into complex issues and explore the relationships between variables in a real-life context.[15] By using triangulation and multiple data sources, this method enhances the validity and credibility of the findings, making it particularly useful for exploring rare or unique cases and generating rich, context-specific knowledge.[16]

Adapted Fitness Program and IPE Integration

To address the gaps in academic curricula and fulfill a community need, an IPE experience was developed in collaboration with an urban adapted exercise program serving PLWD in northwestern Pennsylvania. The adapted exercise program's mission is to improve access to inclusive group fitness classes for PLWD and foster future fitness professionals' knowledge and comfort working with adapted populations through education, exposure, and hands-on experiences.[4,8,9] An interdisciplinary group of professionals planned and executed a collaborative service-learning opportunity for occupational therapy and applied exercise science students. The professionals included the co-founders of the adapted program, occupational therapy faculty, applied exercise science faculty, and health behavior researchers.

The purpose of this IPE experience was for (1) students to apply didactic content learned in class to a practical experience, (2) address the exercise accessibility gap experienced by PLWD through education and training for future healthcare and fitness professionals on adaptive exercise and disabilities, and (3) facilitate student learning through interdisciplinary collaboration between occupational therapy (a discipline with disability expertise) and applied exercise science students (a discipline with exercise expertise).[4,6,7,10] In the interprofessional collaboration, occupational therapy students led by sharing insights about disability characteristics, diagnosis-based physical limitations, and assisting in client mobility with various aids, such as wheelchairs, walkers, and slide board transfers. On the other hand, exercise science students were at the forefront in guiding exercise prescription, modifications, grading of exercises, maintaining proper form, and evaluating fitness outcomes. In this collaboration, the central goal was to encourage students to engage in interdisciplinary learning and gain insights from peers in different health-related fields.

Graduate occupational therapy and applied exercise science students from a private northwestern Pennsylvania university participated in an 8-week adapted exercise IPE program. This IPE experience began with a hands-on student orientation consisting of meeting the adapted athletes (PLWD

participating in the community exercise program); learning the different types of disabilities experienced by the adapted athletes (spinal cord injury, cerebral palsy, intellectual disability, osteogenesis imperfecta, stroke, brain injury, and others); observing each athlete's varying ability levels ranging from ambulatory to requiring a power wheelchair for mobility; learning and practicing how to safely transfer athletes using walkers, slide boards, gait belts, and other durable medical equipment; and observing and learning how to adapt basic exercises per each adapted athlete's ability. Following orientation, students attended at least one adapted exercise class a week with assistance and supervision provided by experienced adapted fitness coaches, exercise science and occupational therapy faculty, and occupational therapists. As the IPE experience progressed, assistance and guidance from coaches, faculty, peers, and occupational therapists was gradually reduced. The reduced assistance led to increased collaboration between students of different disciplines, and they progressively became more independent with transfers, adapting and grading exercises based on the athlete's ability, assisting the athlete with the exercises as needed, and monitoring athlete safety.

Participants

To address the guiding research question, we conducted in-depth interviews with 11 graduate students in exercise science and occupational therapy. For confidentiality, each participant was assigned a pseudonym before recording the interviews. Table 1 presents details about the participants, including their gender, age, current degree program, and future career aspirations. Identifiers, including the participants degree program and a random number, will be used for identification purposes throughout the study.

Identifier	Sex	Age (years)	Degree Program	Career Aspirations
ES1	Female	22	Exercise Science	Professor
ES2	Male	23	Exercise Science	Strength & Conditioning
ES3	Male	23	Exercise Science	Cardiopulmonary Rehabilitation
ES4	Male	24	Exercise Science	Strength & Conditioning
ES5	Female	22	Exercise Science	Cardiopulmonary Rehabilitation
ES6	Male	22	Exercise Science	Undetermined/Alternative Medicine
OT1	Female	21	Occupational Therapy (OT)	Pediatric OT
OT2	Female	21	Occupational Therapy	Traumatic Brain Injury OT
OT3	Female	22	Occupational Therapy	Hand OT
OT4	Female	21	Occupational Therapy	Cancer Rehabilitation (OT)
OT5	Male	21	Occupational Therapy	Pediatric OT

Table 1. Demographic information of participant

Data Collection

For this study, semi-structured interviews were the primary data collection method. Semi-structured interviews involve predetermined yet open-ended questions, and an interview script and plan were utilized to ensure coverage of specific topics while allowing participants to provide unrestricted responses.[17] Additionally, probing questions were employed to clarify participant responses and enhance the interview data. In crafting the interview questionnaire, collaboration among exercise science, occupational therapy, and health-behavior researchers led to the formulation of a comprehensive set of questions, encompassing seven demographic inquiries and fifteen questions focused on content.

The interview questions gathered information about participants' past experiences with adaptive populations, their overall recent experiences working with adapted athletes at the local adapted fitness program, and their perceptions of how the practical experience has impacted their learning and competence (see Table 2). Additionally, the questions inquired about participant level of interest, perceived comfort, and perceived competence in facilitating exercise with adapted populations before and after the experience, as well as whether they see this experience as beneficial for their future clients/patients. Furthermore, participants were asked if they would work with the adapted population again.

1. What past experience do you have with adaptive populations?
2. Is there anything you wish to share about the overall experience (IPE) before we proceed into further questions?
3. What did you enjoy most about your experience working hands-on with adapted athletes?
4. What did you enjoy least about your experience working hands-on with adapted athletes?
5. How would you compare this learning experience to the traditional classroom experience?
6. Did you find the practical experience beneficial to your learning?
7. Do you feel the collaboration with another discipline, such as Occupational Therapy or Exercise Science, enhanced your learning?
8. What was your level of interest in working with adapted athletes prior to this experience?
9. What was your comfort and confidence facilitating exercise with adapted populations before your experience?
10. What do you feel your capability was facilitating exercise with adapted populations before your experience?
11. Discuss your level of interest working with adapted athletes now, after this experience.
12. What is your comfort and confidence facilitating exercise with adapted populations after your experience/now?
13. What do you feel your capability facilitating exercise with adapted populations is after your experience/now?
14. Do you feel your experience with adapted populations is important for the success of your future clients/patients?
15. Would you work with the adapted population again?

Table 2. Semi-structured interview questions

Prior to data collection, the interview script was created by an experienced qualitative researcher and allied health professional. The interview script was then reviewed for clarity, logical flow, specificity and bias by three other allied health professionals. A pilot study was also conducted, and after analyzing its results and receiving feedback from a peer reviewer, we made necessary adjustments to the wording and order of the questions to improve clarity and flow. We received approval from the Institutional Review Board of the Pennsylvania university attended by the participants prior to data collection.

Procedure

The target population for this study comprised exercise science and occupational therapy students who took part in the adapted exercise IPE program. Students were invited via email to participate in either an in-person or remote semi-structured interview. Out of the invited participants, five occupational therapy students and six exercise science students provided written consent and took part in interviews lasting 30-45 minutes. Each interview was audio recorded, transcribed, and assigned pseudonyms to protect participant identities throughout data collection and analysis. If any identifying information was mentioned during the interview, it was altered in the transcription and throughout the analysis. The de-identified transcripts were then shared with the participants for verification, and none of them requested any additional changes or additions.

Data Analysis

The data analysis for this study followed a multi-disciplinary, qualitative analysis framework, with analysis conducted by investigators from occupational therapy and exercise science.[18] The first step in the analysis involved the independent categorical aggregation of each transcript, where data was broken down into meaningful categories or segments based on key concepts and

themes present in the transcripts. These categories were established without imposing preconceived notions or biases and served as the foundation for subsequent theme development and analysis.[16] Following this, themes were developed, leading to the formulation of broad generalizations and, finally, naturalistic generalizations.

To ensure the validity of the findings, multiple methods of triangulation were employed during data analysis, including the use of semi-structured interviews, interview memos, and involving multiple coders.[19] Additionally, to assess inter-rater reliability, the consistency of codes between the three investigators was logged, resulting in a high intercoder agreement of 98.12% and a Cohen's kappa coefficient value of $\kappa = 0.60$.[20,21]

RESULTS

Upon analysis, four main themes emerged as factors for impacting future professionals' comfort and competence working with PLWD, including collaboration, comfort, competence, and experience (see Table 3). Subthemes for each theme are discussed within the sections below.

Theme	Subtheme
Collaboration	
Comfort	· Lack of Comfort · Improved with Experience
Perceived Competence	
Experience	· Application of Knowledge · Learning · Fun and Enjoyment

Table 3. Factors impacting future professionals' comfort and competence working with PLWD

Collaboration

Each of the 11 participants mentioned their involvement in collaborating with students from various professional programs. The participants described the benefits of the diverse skills and knowledge possessed by individuals. As OT4 said, "It was really cool to see what he [the exercise science student] has learned in his program and how it compared to what we [occupational therapy students] have learned, and how it all came together in this one instance." OT2 mentioned, "When you consult with someone who knows something different than you, it's helpful." OT4 further elaborated on the same thought process as OT2 by stating, "...they [exercise science students] had learned different things in their programs that I didn't learn."

However, the differences in learning were not always viewed positively. OT3 described her superior knowledge compared to her counterparts, stating, "the exercise science kids definitely weren't as far along in their education as we [occupational therapy students] were." She admitted that this compelled her to take on more of a leadership and mentoring role while working with the adapted athletes.

Although the interprofessional collaboration brought participants from different educational backgrounds together, it was generally perceived positively. ES6 summed up the positive collaborative experience by saying, "we...fit well together to figure out what was best for the athlete [PLWD]."

Comfort

The theme of comfort was thoroughly explored by all 11 participants. When comfort was brought up, it centered around the emotions experienced by the participants while working with PLWD. This comfort theme was further divided into two subthemes: lack of comfort and comfort enhanced through experience.

Lack of Comfort

The participants highlighted two primary forms of discomfort, encompassing their lack of comfort with 1.) the required physical tasks and 2.) direct engagement with PLWD. Regarding their unease with the necessary physical tasks, ES2 noted, "I wasn't really

comfortable with the hands-on stuff [exercises] (at) first." At the initiation of his IPE experience, OT4 remarked, "I felt like I was thrown into it." Expressing his initial discomfort while working directly with PLWD, OT4 mentioned, "I was scared to be hands-on with them [PLWD] right away because I wasn't sure how to do certain things." OT5 summed it up succinctly: "There are uncomfortable situations, obviously, with participating (with) adaptive athletes."

Comfort Improved with Experience

While discussing their initial discomforts at the commencement of their IPE experiences, all 11 participants conveyed an improvement in their comfort levels following these experiences. As OT3 articulated about her own journey, "It was almost like you didn't know you could do it." Offering a specific instance of her growing comfort, OT1 highlighted her initial nervousness when transferring PLWD, stating, "…but I think that goes away the more and more you practice it." In response to the question about his comfort level in working with adapted populations after undergoing the IPE experience, ES3 remarked, "Much higher than it was. It's improved a lot." ES6 expressed his readiness to engage with adaptive populations again due to the impact of the IPE experience, stating, "Just having that experience, I know I'd be more comfortable doing it again. It served as a valuable learning experience for me."

Perceived Competence

The participants extensively discussed their heightened sense of competence in facilitating exercises for PLWD, attributed to their participation in the IPE program. This competence, defined as the ability and knowledge to accomplish tasks, was a sentiment shared by several participants due to the classroom learning they had acquired prior to the IPE experience[22]. However, OT2 emphasized, "I feel like having that practical knowledge is so much stronger than just being in a classroom," referring to the enhanced competence she gained from the IPE experience. Before engaging in her IPE program, OT3 had doubts about her ability to work with PLWD. Yet, after the experience, she stated, "I did have the skills. I did have the education to do it."

Regarding her improved competence in working with PLWD post-IPE experience, ES5 concisely stated, "a lot better now." She also remarked, "I know more of what to expect and what to do," reflecting on the impact of the IPE experience. Summing up the transformation in his competence through the IPE experience, OT5 articulated, "I've definitely gone from not very capable to capable."

Experience

The overarching theme of "experience" encompassed the knowledge gained and emotions felt through the participants' IPE encounters. All participants engaged in discussions about their involvement and identified the following subthemes within their experiences: application of knowledge, learning, and fun and enjoyment.

Application of Knowledge

The application of knowledge was discussed by participants in two dimensions: 1.) the application and enhancement of classroom-acquired knowledge during their IPE engagement, and 2.) the utilization of knowledge gained through the IPE experience in their forthcoming professional pursuits and interactions.

Reflecting on the application of classroom knowledge to the IPE experience, ES5 remarked, "that was the first time I really ever had to apply it [classroom knowledge]." OT1 pinpointed a specific piece of knowledge she applied, referring to learning how to transfer individuals in a laboratory course. She noted, "the transfers that we do with these athletes [PLWD] are more authentic than the ones we learn in the lab." This hands-on application of classroom learning was echoed by ES4, who

stated that the IPE experience was a "practical application (of) what you learn in the classroom." OT2 summed up the significance of practical knowledge by stating, "having that practical knowledge is so much stronger than just being in the classroom."

The participants also deliberated on the relevance of their experiences for their futures. Some mentioned how the IPE experience would be beneficial for their success in future academic clinical undertakings. OT1 expressed, "I think this experience will be most useful once I go on fieldwork, having already done a lot of this [adapted exercise]." Others contemplated the influence of the IPE experience on their upcoming careers, like OT3 who stated, "it was a really good learning experience for us too because it's a lot of things that we will be doing when we graduate."

Learning

In addition to applying pre-existing knowledge, the participants explored the learning they underwent during their IPE engagement. As succinctly put by ES6, "I think you learn more through experiences."

Each participant spoke about the learning acquired through their IPE experience. ES6 noted, "that experience has definitely taught me to realize that, okay, just because you can't do something this way doesn't mean you can't get the same outcome and just change the approach." ES3 acknowledged, "it [IPE experience] teaches you a lot about yourself and how you have to really have patience and understanding." OT5 discussed learning about relationships, emphasizing, "It's more than just being able to provide a good intervention. You need to be able to provide that intervention and build a relationship with each client and understand what they want to do, not what we want them to do." He also mentioned, "it's important to be able to talk to the adaptive athletes there, and then they want to do more work for you."

The participants also highlighted learning through the application of classroom knowledge. OT3 explained, "I'm a really hands-on learner, so this [IPE experience] definitely helped me a lot. I don't do great when it's just lecture and reading and trying to visualize… It was a lot of repetition of things we learned about in the classroom… I do learn really well when it's hands-on." OT3's perspective supports the idea of learning through experience and the concurrent blend of experience subthemes.

Fun and Enjoyment

When asked about working with adaptive populations in her professional life after graduation, ES1 stated she would "because I enjoyed it." OT4 also expressed enjoyment, saying "I enjoyed it a lot." All participants mentioned having fun or enjoying the IPE experience. OT2 described smiling when a PLWD performed well during a workout. She shared, "You cannot leave without a smile on your face after you see someone excel in a workout." ES4 likewise found enjoyment in witnessing others succeed, saying, "What I enjoyed the most was seeing all of them [PLWD] push themselves in the different ways they could." Some participants connected their learning experiences with their enjoyment. ES5 affirmed, "I really enjoyed the experience and everything that I learned there [IPE experience]." Lastly, OT3 expressed pleasure in feeling needed, stating, "They really appreciated us being there because if it wasn't for us, they wouldn't be able to do the exercises…They made me really happy every time I came, and it was really enjoyable."

Collectively, the participants' experiences contributed to the subthemes of applying knowledge, learning, and fun and enjoyment. This combination of subthemes contributed to enhanced self-efficacy, and the participants' improved perceptions of comfort and competence in working with PLWD.

DISCUSSION

The research underlines the paramount significance of interprofessional collaboration and reciprocal learning within the IPE framework. Students from diverse backgrounds converged to support the fitness aspirations of PLWD, and the observed cycle of perceived comfort, competence, and reciprocal learning underscores the dynamic nature of the learning process (see Figure 1). This cycle contributes to the enhancement of self-efficacy among future professionals. This IPE learning experience shows promise in preparing students to become more knowledgeable and comfortable working with PLWD, a potential path to greater inclusivity in fitness environments.[4]

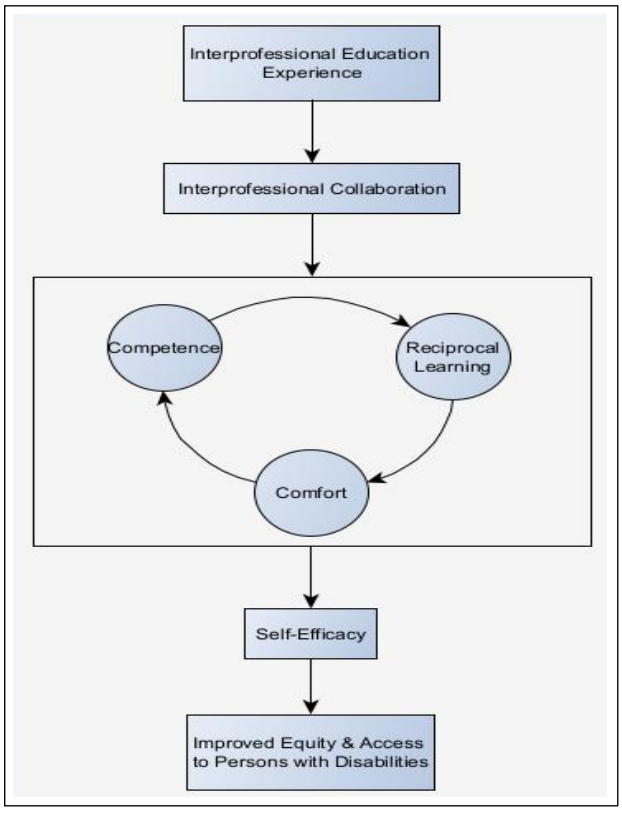

Figure 1. Influence of interprofessional education experiences on students' perceived competence and comfort working with PLWD

The pivotal role of Vygotsky's ZPD theory becomes evident when comprehending the observed cycle of comfort, competence, and reciprocal learning.[11] This theory provides insight into how initial challenges and discomfort encountered when working with PLWD facilitate the development of perceived competence and comfort through collaborative learning experiences. Overall, participants reported feeling uncomfortable initially, but overtime with exposure and having faculty and other student support (scaffolding), perceived comfort and competence improved overtime, requiring less faculty guidance. Reciprocal learning was reported by participants, who identified the distinct knowledge bases of the two disciplines and explained that by combining their expertise, they could provide the most effective approaches for supporting the adapted athlete they were working with. The findings of this study accentuate the importance of cultivating environments that foster interprofessional collaboration and peer learning, effectively enhancing students' self-efficacy when addressing diverse populations like PLWD.[11,13]

Several factors emerge from the research that should be taken into consideration by allied Health faculty when designing their teaching frameworks. Primarily, integrating IPE experiences into the curriculum emerges as a potent strategy for elevating future professionals' perceived competence and comfort in working with PLWD. By providing avenues for cross-disciplinary collaboration, cooperative learning, and real-world engagement, faculty can facilitate the development of skills essential for effective interaction with diverse populations.[11,13]

To foster the cycle of comfort, perceived competence, and reciprocal learning evident in the research, faculty can adopt pedagogical approaches that nurture active engagement and peer interaction. By integrating interdisciplinary learning activities—drawing students from multiple disciplines and emphasizing peer teaching, group exercises, case studies, and problem-solving sessions—students can enhance their collaboration skills and deepen their comprehension of each

other's roles in patient care. This approach aligns with Vygotsky's ZPD, emphasizing collaborative learning and scaffolding from peers to advance understanding. [11,13] Encouraging students to confront initial challenges and discomforts facilitates the cultivation of resilience and self-efficacy, critical attributes for cultivating perceived competence when working with PLWD.[11,18]

Additionally, integrating Vygotsky's ZPD concept into teaching practices can offer faculty valuable guidance in supporting students' learning and growth. Faculty can design learning experiences that challenge students' existing knowledge and skills while providing appropriate scaffolding and support. This might entail structured collaboration opportunities, guided discussions, and constructive feedback, fostering reciprocal learning and skill enhancement.[11,13] Each element, from shared responsibilities to guided reflection, contributes to molding students into professionals who are not just knowledgeable but also confident and comfortable in collaborative environments. The synergy of varied expertise and shared knowledge within these collaborations underscores the essence of IPE in fostering an environment where enhanced client outcomes are a collective achievement.[6]

By engaging allied health students in IPE experiences that balance challenges, encourage shared responsibilities, offer observational learning opportunities, incorporate reflection periods, and include faculty support, they are better prepared for collaborative roles in the allied health field. [6,11,13] The maturation into professionals ready for collaborative practice can be attributed partially to the increased perceived competence and comfort derived from IPE experiences, as demonstrated in this study. Interactions and collaborations among allied health professionals are instrumental in amplifying the quality of patient care, often leading to better health outcomes.[6]

By embracing these implications, allied health faculty can establish a more inclusive and nurturing learning environment for students preparing to engage with PLWD in fitness settings. Emphasizing interprofessional collaboration, hands-on experiences, and the cultivation of self-efficacy can empower future professionals to make meaningful contributions to fitness inclusivity and health outcomes of PLWD in their future careers.[11,18]

Implications

Practicum experiences are highly regarded as they provide the student with an opportunity to put theoretical knowledge into practice.[10] Although IPE experiences are like practicum experiences, the IPE experience focuses on enhancing learning through collaboration between disciplines. Understanding the implications of IPE provides directional focus for academy leaders developing and revising academic curriculums. The results of this study suggest that the inclusion of IPE practices improves student learning through fostering the development of self-efficacy. Self-efficacy can be cultivated through a positive, cooperative learning experience.[23] In turn, self-efficacy can have a positive impact on.students' academic performance.[23]

Furthermore, despite one in four adults in the United States living with a disability, educational practices have not shifted to routinely include PLWD into the learning experiences of students.[24,25] IPE opportunities including PLWD could address the gap in practical knowledge by increasing allied health students' perceived competence and comfort in working with this population. The findings of this research have the potential to inform curriculum development to include IPE experiences and to be intentional about purposeful inclusion of all persons, groups, and population.

Limitations

Some limitations warrant consideration. The researchers employed an explanatory single case study approach, which focuses on providing in-depth insights into a specific case or phenomenon.[15] While this approach offers rich qualitative data, its generalizability to larger populations may be limited. The study's participant pool consisted of graduate students in exercise science and occupational therapy, potentially restricting the applicability of the findings to other allied health disciplines or educational levels. Additionally, the study's reliance on self-reported data from interviews might introduce biases or inaccuracies in participants' responses, as perceptions of perceived comfort and competence could be influenced by social desirability or recall bias. In addition, one's perceived improvement in competence does not necessarily reflect actual improvements in skill or ability.

Future Research

Future research opportunities could focus on expanding the scope of participants beyond graduate students in exercise science and occupational therapy, providing a broader understanding of how IPE experiences impact various healthcare disciplines' perceived competence and comfort with PLWDs. Including participants from fields such as nursing, physical therapy, athletic training, and psychology could offer a more comprehensive view.

Other research opportunities could include the perspectives of PLWDs themselves. Incorporating the viewpoints and experiences of these individuals in the IPE programs could provide insights into their perceptions of the training received by future healthcare professionals and how it influences their interactions and experiences in fitness settings. This could ultimately contribute to designing more inclusive and effective IPE programs tailored to the needs of PLWD.

CONCLUSION

In conclusion, this study employed an explanatory single case study approach to investigate the influence of an adapted exercise IPE experience on exercise science and occupational therapy students' perceived competence and comfort in working with PLWD in fitness settings. The findings revealed a dynamic cycle of perceived comfort, competence, and reciprocal learning, aligning with Vygotsky's ZPD concept. Interprofessional collaboration emerged as a vital factor, fostering diverse skill utilization and knowledge exchange. The participants reported increased perceptions of comfort and competence after the IPE experience, enhancing their self-efficacy and readiness to work with PLWD. This study underscores the significance of IPE experiences in promoting collaborative learning and preparing future professionals for effective engagement with PLWD in fitness settings. By embracing interprofessional collaboration, active learning strategies, and the principles of ZPD, allied health educators can design inclusive curricula that empower students to contribute positively to the well-being of PLWD in their future careers. Future research could expand participant diversity and incorporate the perspectives of PLWDs to further refine and enhance interprofessional education programs.

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