

Article

The Impact of Interprofessional Education on Health Profession Students' Professional Identity

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Abstract: Establishing interprofessional identity is critical in preparing health care teams to work in collaborative environments and enhance efficacy of patient care. Accreditation standards for health profession programs have been implemented to include interprofessional education (IPE), yet there remains obfuscation regarding occupational therapy's (OT) professional identity. The purpose of this prospective pre-post test study was to assess an experiential IPE event for health profession students (n = 170 from ten health profession programs) to: (1) determine the effectiveness of role playing and team-based case discussions on students' knowledge and perceptions toward each other's professions, and (2) specifically assess the impact of the IPE event on students' perceptions toward OT roles and responsibilities. Health profession students were asked to complete a survey prior to and at the conclusion of the IPE event, which included the validated Interdisciplinary Education Perception Scale (IEPS) and non-standardized closed and open-ended questions. Quantitative analysis of responses showed a significant improvement in interdisciplinary perceptions after the experience as evidenced by higher IEPS scores. Post-test open-ended responses confirmed this finding. Health profession programs were stratified, revealing positive significant differences regarding OT. These findings suggest role-playing and team-based case discussions for IPE can have a positive impact on students' interprofessional perceptions and understanding of OT.

Keywords: interprofessional education; professional identity; role-playing; team-based case discussion; occupational therapy



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1. Introduction

Today's rapidly evolving health care systems require clinical practitioners to be capable of interprofessional collaboration (IPC) to improve the delivery of care for their patients [1–3]. IPC is defined as multiple health workers from different professional backgrounds collaborating with patients, families, carers, and communities to deliver the highest quality of care [4]. For IPC to be effective and provide the best outcomes for patients, health care practitioners need to learn appropriate knowledge and skills both of their own and of other health care team members; however, health care professionals often enter clinical practice lacking this training [5]. These skills can best be learned through participating in interprofessional education (IPE), in which students from various health professions learn together [6,7]. The American Occupational Therapy Association (AOTA) has rigorously promoted the inclusion of interprofessional education (IPE) in OT curricula [8].

Interprofessional education, which focuses on allowing students to learn “about, from, and with each other to enable effective collaboration and improve health outcomes” [4] has been recognized globally [9]. In the United States, educational curricular standards such as the Accreditation Council for Occupational Therapy Education (ACOTE), Liaison Committee of Medical Education (LCME), Accreditation Commission for Education in Nursing (ACEN), Commission on Accreditation of Athletic Training Education (CAATE),

Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA), Accreditation Council for Pharmacy Education (ACPE), and Commission on Accreditation in Physical Therapy Education (CAPTE) include IPE-related objectives which have given rise to IPE activities within health professional programs [10–16]. While collective efforts to integrate IPE into curricula have been implemented, issues exist regarding variability in learners' preparation, limited scope of understanding of the roles and responsibilities of other health care practitioners and understanding one's own professional role [17,18]. A growing body of literature has found this especially true with OT professional identity, with both students and faculty perceiving opacity regarding the profession [19–22]. Within this study the authors define professional identity as *"the attitudes, values, knowledge, beliefs and skills shared with others within a professional group"* [23].

Recent efforts have continued to enumerate OT skills and competencies in relation to their roles and responsibilities in the team dynamic. However, with a documented need to clarify OT professional identity, combined with limited data to accurately evaluate the impact necessary to develop a constructively relevant approach [24], the misperception lingers. To bridge this gap, the current study describes designing, implementing, and evaluating an innovative pedagogical approach that amalgamates two supported teaching exercises: role playing [25,26] and team-based case discussion [27,28] to enhance collaborative competency. Furthermore, this study examines the effectiveness of this IPE event in preparing health profession students to enter the workforce with a clearer understanding of the OT professional identity. Using such an approach, the potential exists to formulate changes in education that could bolster role identification and clarification, which in turn can maximize the efficiency and effectiveness of the inter-professional team approach and benefit patient care.

As part of the health profession curriculum, students are immersed in an array of pedagogical approaches to enhance their learning. Passive learning, such as listening to a lecture, has provided the lowest level of retention and academic success [29–32]. Conversely, active learning methods are effective at developing problem-solving and critical thinking skills and provide a higher level of cognitive functions as opposed to passive lectures [33,34]. Two active learning approaches which have been shown to be effective are role-playing and team-based case discussion [35,36].

Low-fidelity simulation, such as role playing, can enhance realism, granting students the ability to mirror patient scenarios. Role-play exercises have been an effective method for delivering IPE among health care profession students [25,37,38]. Concomitantly, role play has been effective in OT education [39–41]. Incorporating role play with simulations into OT education appeared to mimic real time decision making and application of academic knowledge [40].

Team-based case study discussion provides an active learning experience. Team-based case discussions have been beneficial as they increase clinical reasoning skills in that they utilize professional scenarios for students to build their knowledge base. This form of learning can take the form of text, video, simulation, or standardized patients [42]. Patient-centered case studies can help develop and strengthen interprofessional competencies among different health professionals [43]. The use of case studies has been effective in connecting didactic and experiential learning; facilitating increased confidence, reducing anxiety, and increasing critical thinking skills necessary for fieldwork or clinical experiences. The development of these skills helped add to the student's flexibility, creativity, and open-mindedness used in clinical practice, thus supporting client-centered practice [5,44]. Occupational therapy students benefit through increased self-awareness, improvement of knowledge in both clinical and interpersonal skills, and therapeutic use of self [42]. Although the literature suggests many benefits for occupational therapy, the question remains if team-based case discussions can promote and delineate the role of occupational therapy to other health profession students.

2. Materials and Methods

2.1. Purpose

The aim of this study was to determine the effectiveness of an IPE event utilizing role-playing and team-based case discussions on increasing health profession students' knowledge and perceptions toward other's professions and assessing the impact on students' perceptions toward OT. This study was approved by the University's Internal Review Board. Participation was voluntary, informed consent was obtained from all participants, and confidentiality and anonymity were assured as along with the right to withdraw from the study at any time.

2.2. Study Design

This study utilized a quasi-experimental pre-test–post-test mixed method design. Using a mixed method design allowed us to yield additional insight beyond a single approach captured by qualitative and quantitative data [45].

2.3. Research Instruments (*The Interdisciplinary Education Perception Scale, IEPS*)

The IEPS was used to measure whether participation in the IPE event had an impact on the participant's perceptions of their own profession and other health professions. The IEPS is a validated quantitative metric which is comprised of 18 items that are measured using a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The IEPS has exhibited acceptable internal consistency ($\alpha = 0.87$) and test/re-test reliability [46]. In order to score the IEPS, the ratings obtained for each individual item are totaled with higher scores indicating increased positive perceptions and understanding of their own profession in relation to others.

Subscales within the IEPS allowed us to further refine the data based on (1) "Competency and Autonomy", assessing how highly students respect their profession and believe other professions respect their profession; (2) "Perceived Need for Cooperation", assessing students' perceptions of the need for teamwork and the dependence on other professions; (3) "Perception of Actual Cooperation", assessing students' perception of working well with other professions; and (4) "Understanding Others' Values", assessing the degree of respect for capabilities and contributions from other professions.

2.4. Post-IPE Event Survey Questions

A combination of open-ended and closed-ended questions were developed to allow for a greater understanding of the students' experiences after having attended the IPE event. Participants were asked to respond to three closed-ended questions aimed at evaluating program outcomes and one closed-ended question asking participants to rate the extent of learning about occupational therapy. In addition, participants were asked to respond to three open-ended questions as follows: (1) Please use the space below to tell us what sort of knowledge and experience you may have gained from participating in this IPE event. (2) Do you think that this IPE event will benefit you as a future healthcare profession? If yes, how? If no, why not? (3) Please use the space below to provide feedback (negative and/or positive) regarding this IPE event.

2.5. Intervention

The IPE committee consisting of faculty members from each program met biweekly for a period of 1 year preceding the event to develop the framework for the IPE experience. Topic discussions focused on content, format, and logistics of the event, preparation material, development of the case study, and pre- and post-test surveys. The IPE event consisted of a single 2 h event (Table 1). Prior to the event students were given required reading material which included the background and rationale for the IPE event, the scope of practice of each health profession, the IPE case, and the pre-test survey. Additionally, students were placed into small groups and randomly assigned to a health care practitioners' role other than their own. Students were tasked with exploring their assigned profession to prepare

them to role play for the case discussion during the IPE event. Finally, each group was led by faculty members who participated in pre-event facilitator training. Training material included structured guidelines on the aims and expectations of the module with prompts to facilitate discussion and ensure learning objectives were met.

Table 1. Overview of Framework for participating students for IPE Event.

Activities (Minutes)	Outline	Format
Welcome (10)	All students and faculty are briefed on an overview of IPE, the purpose of team-based role-playing discussions, and schools and programs involved in the event	Large student group (n = 226)
Break Out (5)	All students break out into pre-assigned groups	
Group Introduction and Icebreaker Activity (15)	Each student and facilitator provide their name, area of study, hometown, designated role, and something unique about themselves	
Role Play and Team-Based Case Discussion		
Pre-hospital/First point of Care (20)	What initial information is gathered? By whom and how? What communication barriers/challenges may occur?	Co-facilitated small student groups (n = 7–9 per group)
Initial Admission (20)	Who is involved in receiving and treating? What are their roles? Why is early intervention key? How to conceive and implement a quality improvement project?	
Additional Testing (5)	How to communicate additional results with the medical team?	
Transfer (15)	SMART aims for hospital quality improvement? How do different members determine what needs are needed for discharge?	
Post Discharge (to Outpatient Rehab) (15)	What are the roles in providing outpatient care? What are challenges patients may face?	
Reflection/Debrief (15)	Discuss one thing learned from another profession that will apply to IP healthcare teams What benefits does IPE bring to patient care management?	Large student group (n = 226)

This case revolved around a referee at a sporting event. During the event the referee experienced a cerebrovascular accident. The case followed the health care of the referee from the rapid transport from the sports arena to the emergency department, to the stroke unit inpatient floor, to discharge home, and through outpatient rehabilitation. All represented professions were involved at one stage or another regarding the care of the referee.

2.6. Data Collection

The researchers conducted pre- and post-data collection 1–2 weeks prior and 1–2 weeks post IPE event. Data obtained from both surveys were submitted anonymously, with students assigning themselves a unique identifier to match pre- and post-surveys. Surveys were collected and stored using Qualtrics, a survey software program.

2.7. Data/Statistical Analysis

Survey data was exported and uploaded from Qualtrics to SPSS version 25.0 [47,48]. Descriptive statistics (mean and frequency distributions) were used to describe demographic data as described earlier in this paper. Using a paired sample *t*-test, a quantitative analysis of the IPE experience was conducted to determine if there was a statistically significant change in student perceptions for each of the subsections of the IEPS after having participated in the IPE event. In addition, Cohen's *d* was calculated to quantify the treatment effect size.

3. Results

3.1. Participants and Setting

Two hundred and twenty-six students who were enrolled in 10 different undergraduate and graduate health profession programs in the northeast United States participated in this IPE event. The health profession programs included Athletic Training, Exercise Science, Health Administration, Medicine/Physician, Nurse Practitioner, Physician Assistant Studies, Rehabilitation Counseling in Mental Health (RCMH), Speech Language Pathology, Occupational Therapy, and Pharmacy. The number of students enrolled in each program varied (Figure 1). Participation in this event was voluntary for students in some programs and mandatory for students in other programs.

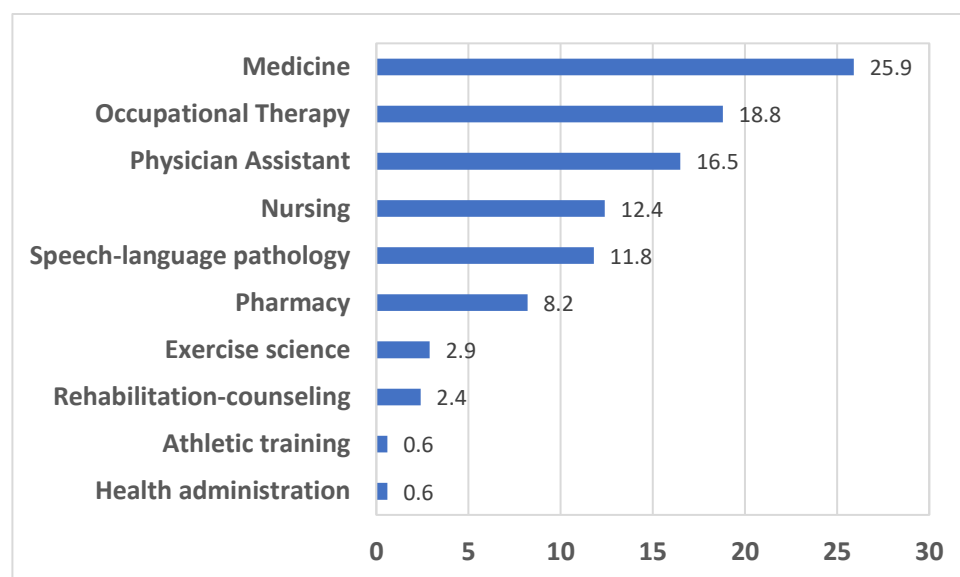


Figure 1. Distribution of participants by program. Numbers indicate percent.

This study utilized a convenience sample of those students who participated in the IPE event. Prior to the IPE event, informational emails were sent to all the health profession students inviting them to participate in the study. Emails contained a link to the survey including a consent form explaining voluntary participation, as well as a description of the research.

Two hundred and nineteen students consented to participate in this study. One hundred and seventy participants completed both the pre-test and post-test surveys (22.4% drop out rate). Fifty-three participants were male (31.2%) and 117 participants were female (68.8%). Most participants were between the ages of 21–24 years old (61.2%), with 90.4% enrolled in graduate programs. The breakdown of participants per program is represented in Figure 1.

3.2. Interdisciplinary Education Perception Scale (IEPS)

Results from the IEPS (Table 2) revealed that the students' mean perception ratings in all subscales were statistically significant; having improved following their participation in the IPE event. There was a significant difference between the IEPS Competency and Autonomy subscale perceptions for the pre-test ($M = 48.02$, $SD = 7.03$) and post-test ($M = 50.99$, $SD = 4.25$) ratings; $t(169) = 5.66$, $p < 0.0001$. There was a significant difference between the IEPS Perceived Need for Cooperation subscale perception ratings for the pre-test ($M = 12.80$, $SD = 1.82$) and post-test ($M = 13.46$, $SD = 0.94$) ratings; $t(169) = 4.39$, $p < 0.0001$. There was a significant difference between the IEPS Perception of Actual Cooperation subscale perceptions for the pre-test ($M = 30.39$, $SD = 5.07$) and post-test ($M = 32.15$, $SD = 3.15$) ratings; $t(169) = 5.10$, $p < 0.0001$. Lastly, there was a significant difference between the IEPS Understanding Others' Values subscale perceptions for the pre-test

($M = 15.82$, $SD = 3.11$) and post-test ($M = 16.92$, $SD = 2.72$) ratings; $t(169) = 4.07$, $p < 0.0001$. Competency and Autonomy (Cohen's $d = 0.511$), Perceived Need for Cooperation (Cohen's $d = 0.455$), Perception of Actual Cooperation (Cohen's $d = 0.417$) and Understanding Others' Value (Cohen's $d = 0.377$).

Table 2. Mean IEPS Subscale Results ($n = 170$).

IEPS Subscales	Pre: Mean (SD)	Post: Mean (SD)	T-Value	p-Value	Effect Size (Cohen's D)	Percent Increase
competency and autonomy	48.02 (7.03)	50.99 (4.25)	5.66	<0.0001	0.511	6.18
perceived need for cooperation	12.80 (1.82)	13.46 (0.94)	4.39	<0.0001	0.455	5.15
perception of actual cooperation	30.39 (5.07)	32.15 (3.15)	5.10	<0.0001	0.417	5.79
understanding others' values	15.82 (3.11)	16.92 (2.72)	4.07	<0.0001	0.377	6.95

Note. SD = standard deviation; Effect size interpretation <0.2 = trivial effect; 0.2–0.5 = small effect; 0.5–0.8 = moderate effect; >0.8 = large effect [48].

3.3. Post-Survey Questions

Program outcome question scores indicated positive responses overall. Sixty percent of students responded that participating in this IPE event would benefit them in their future as a health care professional. Taking part in team-based discussions was very effective in increasing the understanding of other health profession roles for 75.9% of participants. 47.6% of participants found that role-playing another health care profession was somewhat effective in increasing understanding of that role (Table 3).

Table 3. Post IPE Event Closed-Ended Questions.

Questions/Responses	n (%)
Do you think that participation in the IPE event will benefit you as a future healthcare practitioner?	
Yes, definitely	103 (60.3)
Yes, probably	55 (32.5)
Might/Might not	8 (4.8)
No, probably	3 (1.8)
No, definitely	1 (0.59)
How effective was participating in the team discussion on increasing your understanding of other professional roles/identities?	
Very effective	129 (75.9)
Somewhat effective	36 (21.2)
Not effective at all	5 (2.9)
How effective was role-playing another health care professional in increasing your understanding of that professional role/identity?	
Very effective	66 (38.9)
Somewhat effective	81 (47.6)
Not effective at all	23 (13.5)

3.4. Responses to Learning about Occupational Therapy

Participants were asked to rate the extent of their learning about each profession as a result of their participation in the IPE event. Responses from different professions learning about OT were relatively high (Figure 2), with an average of 43.5% stating they learned “A LOT more”. Pharmacy students learned the most (78.6%) followed by RCMH (75%), and Exercise Science students (60%). The remaining participants ranged between 40–57% in their understanding of OT.

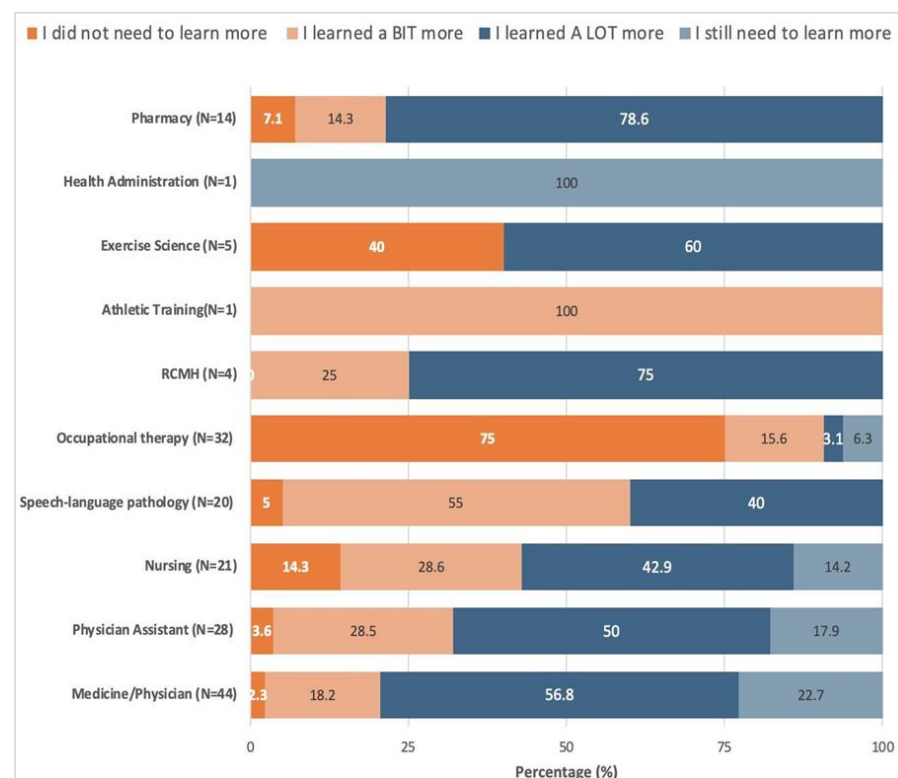


Figure 2. Results from the “Extent of your Learning about Occupational Therapy” stratified by professional study. Caution should be used when interpreting the results for the Health Administration and Athletic Training groups due to the small sample sizes.

Additionally, participants were asked to rate their perception of occupational therapy as part of a health care team as a result of this IPE experience by choosing “more positive”, “less positive”, or “no change”. No participants choose “less positive”. A total of 74.5% of the students reported having a more positive perception of OT after having participated in the IPE event (Figure 3). It is of note that 52.4% of occupational therapy students rated that their own perception of occupational therapy was “more positive” after participating in this IPE event. Caution should be used when interpreting the results for the Health Administration and Athletic Training groups due to the small sample sizes.

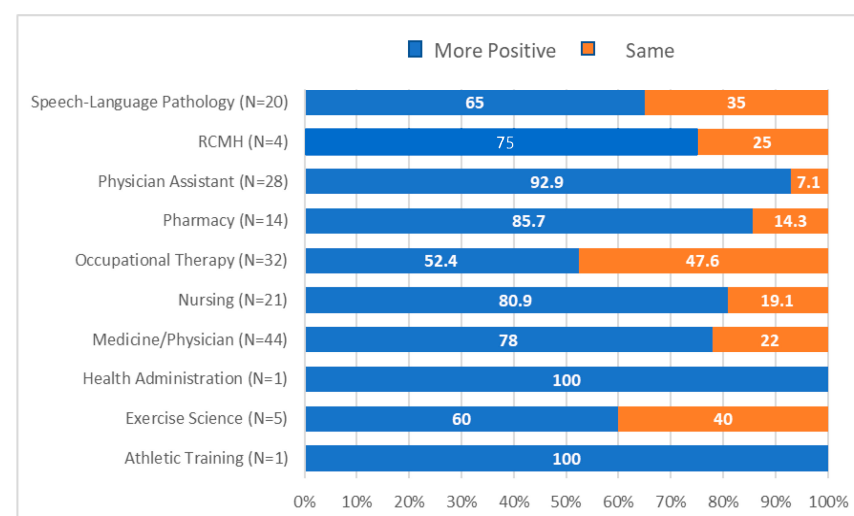


Figure 3. Results from “Rate how your perception of occupational therapy may have changed as a result of this IPE event” stratified by professional study.

3.5. Knowledge Gained from Participating in This IPE Event

Responses identified common themes with patient care mentioned by 46 participants (27.1%) as something that was beneficial during the event. The exact statement was:

"I definitely feel the IPE event will benefit me as a future practitioner because it reinforced the importance of patient-centered multidisciplinary approach to health care which will lead to high-quality patient care."

However, the most common benefit of the IPE event was stated to be communication and teamwork, which was mentioned by 82 participants (48.2%). Some examples include:

"The IPE event uses a useful way of interacting with other professionals and allowed for exposure to different fields. It was useful because it helped us get comfortable working with and with consulting experts of other fields";

"I learned the benefit of understanding the scope of practice of various health professions and the importance of communicating with other professionals so that we can get better outcomes for our patients";

"I had a chance to listen to other health care students and what they had to say about their role in working with a patient. This was helpful because instead of me just assuming what other professionals do and clumping some of the roles together, everything became clearer";

"Helped me better understand the benefits of working with other professionals and their resources that can help patients to a greater extent than just my own"; and

"I have a greater understanding just how important communication is throughout all forms of healthcare"

Overall, 47 participants (27.7%) specifically mentioned OT in their comments, and some are:

"I learned a lot about occupational therapy and their role in patient care. I think this will benefit me greatly as I am now aware of the skills and expertise of different professionals and will be able to leverage them to provide my patients with the best care possible";

"I learned more of the role of an OT which was my assigned role, following things said from the two OT students in my session";

"I learned a lot of people do not know about the profession which I am a part of (OT) and there are a lot of things which people assume we cannot do".

4. Discussion

Interprofessional education is critical in preparing health profession students to become effective health care practitioners [6,7]. IPE is a critical pedagogical approach utilized globally [49]. However, with clarity regarding the professional roles and responsibilities of OT still obfuscated, it is imperative to explicate what these roles and responsibilities are [22,50], thereby enhancing IPC [51]. Furthermore, development of professional identity by integrating role-playing and team-based case discussion, as described in this study, has the potential to facilitate this.

Various pedagogical approaches for IPE have been used in health care education [52]. In this study, an IPE event on professional identity for health professions was designed using role-playing in conjunction with team-based learning. Researchers then set out to investigate if this pedagogical approach resulted in significant perception changes on topics and to test if it was an effective teaching method for this purpose. Our results indicate that the IPE event was perceived to be both effective in increasing students' knowledge and understanding of team member's roles. Knowledge acquisition was significantly higher post hoc. Additionally, the students highly valued this educational experience. Central to this were the notable levels of interaction during the event and the direct application of content to the practice setting. The qualitative data also suggests that the IPE event was effective in teaching.

Overall, the findings of this study revealed health profession students developed positive perceptions and understanding of their own and other professionals' roles and responsibilities through case discussions and role playing. This was validated by the resulting IEPS quantitative findings which were supported by the qualitative analysis, in which students talked about the growth in mutual trust and respect among the various professions. In this study, the researchers hypothesized that role playing and team-based case discussion, within an IPE event, would enhance students' perceptions about professional roles and responsibilities. Additionally, the results showed that participation in this event helped health profession students, as well as OT students, better understand the role of occupational therapy as part of a health care team.

4.1. Limitations

Despite having obtained interesting and statistically significant findings, this research is subject to several limitations. Results were based on a convenient sample of students from one geographical location. Additionally, sample size from each participating health profession program was limited and varied in the number of students, ranging from 1–44 (see Figure 3). Specifically, Athletic Training, Health Administration, Rehabilitation Counseling in Mental Health all had an N of less than 10. The other health profession programs all had a greater number of participants, ranging from 14 to 44.

Inherent to this sampling method was selection bias and a potential lack of generalizability of the results, both serving as a possible threat to the validity of the study. Additionally, the convenient sample did not include a randomized control group, which limited the inferences of causation associated with the IPE program. Using a random sample and a larger sample of participants who are drawn from broader geographic locations are methods that can be used to address these threats to the validity of this study. Having a larger sample size may also have an impact on the effect size, potentially increasing the effect size of the IPE experience.

The number of occupational therapy facilitators assigned to each small group varied; some small groups were not assigned a facilitator with knowledge of occupational therapy. The lack of sufficient numbers of seasoned, experienced occupational therapy facilitators' input within these small groups may have affected the overall discussions regarding the role of the occupational therapist on a health care team. Finally, while results reflected an immediate effect, the researchers were unable to determine if there was either a sustained or long-term impact on students' practice in the field.

4.2. Implication for Occupational Therapy Education

This study demonstrates that utilizing team-based case discussions and role-playing can have a significant impact on changing the perception and understanding of health care profession students regarding their and other professions' professional identity, and specifically, the perception and understanding of occupational therapy. Increased IPE experiences that utilize a self-directed approach provided other health care professional students with the opportunity to understand the professional identity of OT within a working healthcare team.

Role play and team-based case discussion were used to simulate a clinical experience. Using this pedagogical approach, health profession students developed a deeper understanding of their own and other's professional identity.

Literature supports using single-event IPE experiences to support learning, but perception understanding in other's value was stagnant [53,54]. To create impactful learning programs, it is imperative to discuss how different health care professions fit the contextual case discussion; this is most beneficial for the students and the faculty of institutions involved. This can help develop guided questions used to help students deal with unknown solutions and possibly unknown problems. The questions go beyond disciplines as we know them and ask varying levels of integration in conceptual understanding of the questions addressed. Students need not only to learn fundamental principles, irre-

spective of their health professional disciple, but IPC skills, team-based learning, and professional identification.

Future research should include examining ways to improve health profession students and OT students' self-perception and understanding of OT. Facilitating a solid professional identity among health profession students is not only crucial to enhancing interprofessional collaboration, but it is also crucial to advancing occupational therapy on its journey to becoming a powerful, widely recognized, preeminent, and sought out health care profession.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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Conflicts of Interest: The authors declare no conflict of interest.

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