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Abstract

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Keywords

Intraprofessional collaboration, clinical skills, teamwork

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ABSTRACT

This study investigated the impact of pairing 112 occupational therapy (OT) and 66 occupational therapy assistant (OTA) students in small groups over a 13-week clinical skills class. Students worked together in the weekly 2-hour class to practice various clinical skills and had the option to attend an additional weekly 2-hour open lab. A repeated measures design was used to evaluate students' perceived importance and ability to engage in intraprofessional collaboration based on the Kirkpatrick model. The Intraprofessional Collaborative Practice Survey (ICPS) was administered at three time points: the beginning (T1), the middle (T2), and the end of the trimester (T3) for four intraprofessional collaboration competencies: Teamwork, Roles/Responsibilities, Communication, and Values/Ethics. Friedman's ANOVA and Wilcoxon signed-rank tests revealed that both OT and OTA students maintained a high perceived importance of intraprofessional collaboration from T1 through T3. The OT and OTA students demonstrated different learning curves in perceived ability. Significant improvements were observed from T1 to T2 for OT students, and from T2 to T3 for both OT and OTA students, with moderate and small effect sizes across different intraprofessional collaboration competencies. Overall, the paired learning provided a valuable experience and enhanced both OT and OTA students' perceived ability of intraprofessional partnership possibilities. The findings emphasized the value of collaborative learning in OT education and offered insights for future intraprofessional collaboration curriculum development. This study highlighted the benefits of structured, paired learning experiences in fostering professional growth and effective teamwork.

Introduction

The Accreditation Council for Occupational Therapy Education (ACOTE) 2023 standards mandate the inclusion of intraprofessional collaboration in occupational therapy (OT) and occupational therapy assistant (OTA) educational programs. These standards emphasize the need for understanding the roles of both OT and OTA professionals in relationship to collaboration and supervision. ACOTE (2023) posits that a strong academic foundation in intraprofessional collaboration prepares occupational therapy practitioners for successful professional partnerships throughout their careers. Integrating collaborative educational experiences into both didactic and clinical fieldwork curricula can enhance students' understanding of role delineation and establish positive professional relationships (Carson et al., 2018; Fan et al., 2021). Effective didactic courses should encompass a comprehensive understanding of the diverse scope of occupational therapy practice. They should provide continuous opportunities for students to learn key aspects of intraprofessional collaboration, ensuring that they can support, respect, and collaborate effectively to enhance patient care (Alsharif, 2013).

Intraprofessional education refers to collaborative educational activities where professionals from the same discipline work together and participate in mutual learning (Jung et al., 2010; Truong et al., 2022). This approach has been recognized for its potential to enhance professional skills and teamwork within disciplines. Various studies have underscored the benefits of intraprofessional education in health care. For example, Scheerer (2002) introduced the Partnering Model, which facilitated interaction between OT and OTA students. This model aimed to strengthen the students' existing knowledge and experiences through teamwork and collaboration, fostering lifelong professional partnerships. Scheerer (2002) concluded that the interactions during educational experiences encouraged habits of partnering that persisted into professional practice. The results were consistent with Teheux and colleagues' (2021) scoping review of 37 articles. They explored the potential factors that affected intraprofessional workplace learning and the results showed that embedding intraprofessional learning in training curricula was a key influencing factor (Teheux et al., 2021) which enhanced mutual knowledge and understanding of the roles and responsibilities (Griffin et al., 2019; Meijer et al., 2016), and facilitated intraprofessional communication (Meijer et al., 2016).

Competencies essential for effective intraprofessional collaboration have been identified in various studies. For example, Jelley et al. (2013) surveyed physiotherapists and physiotherapy assistants, revealing that communication—defined as effectively conveying information to coordinate services—was rated as the most important competency. Diamant et al. (2018) explored the competencies valued by OT and OTA practitioners for intraprofessional collaboration. Notable differences were found between the two groups: OT practitioners rated encouraging team partners to share ideas and providing timely feedback as more important, while OTA practitioners emphasized the importance of seeking support, demonstrating flexibility, and ongoing professional development. These findings underscored the diverse perspectives and competencies valued by different professional groups within the same field; in addition, it highlighted the importance of tailored educational approaches to foster effective intraprofessional

collaboration. Building on this understanding, recent studies have explored various educational interventions designed to enhance collaboration between OT and OTA students. For example, Gentile et al. (2023) conducted a pilot 2-hour joint class for the first-year OT students and the final-year OTA students over the Zoom platform. The results showed that participating students preferred dyadic teaching and small group discussion over traditional teacher-centered lectures. Fan and colleagues (2021) examined the impact of intraprofessional collaboration on OT and OTA students' ability to comprehend scientific articles. They implemented a two-phase module where students shared and reviewed peer-reviewed journal articles. The results demonstrated significant improvements in both groups' perceived importance and ability to collaborate, highlighting the value of such educational interventions in promoting evidence-based practice, as well as increased intraprofessional partnership experience.

Despite ACOTE's mandate, implementing intraprofessional collaboration in educational programs faces challenges. Watford and colleagues (2022) surveyed 183 OT and OTA programs across the United States, finding that only 79% of the programs incorporated intraprofessional collaboration. Among these, only 66% had a nearby OT/OTA program within a 30-mile radius, highlighting significant geographical isolation as a potential barrier to collaboration. Furthermore, the majority of intraprofessional activities (51%) lasted less than one week, and 43% were based on a single case study format. This brief and limited exposure underscores a significant gap in the literature, as there is a clear lack of evidence supporting the long-term effects of intraprofessional collaboration. The absence of extended, longitudinal studies raises concerns about the sustained impact and effectiveness of such collaborative educational efforts over time.

The Kirkpatrick model is one of the most popular models to evaluate the effectiveness of educational training outcomes (Kirkpatrick, 1996; Kirkpatrick & Kirkpatrick, 2006). It has been used in academic training courses across different disciplines, such as medical science (Alhassan, 2022; Koohestani et al., 2018), physical therapy (Keogh et al., 2018), nursing (Lee & Song, 2021; Shinohara et al., 2020) and pharmacy (El Nsouli et al., 2023). This model assesses educational learning activities in four levels: reaction, learning, behavior, and results. In the current study, we measured the first two levels of the intraprofessional paired learning. In the reaction level, it measures how participants respond to the paired learning and their initial impressions and overall satisfaction with the intraprofessional collaborative experience. In the learning level, it evaluates what participants have learned from the experience; specifically, it measures the increase in confidence or skills as a result of the paired intraprofessional collaborative experience. Levels 3 and 4 were not used as they examine how the training influences their performance, and the impact on organizational performance, such as increased productivity, and improved quality of care, among other outcomes (Kirkpatrick & Kirkpatrick, 2006).

Therefore, the current study aimed to examine the effectiveness of pairing OT and OTA students in a joint clinical skills class over a 13-week period. By investigating the impact of the extended intraprofessional collaboration, this study sought to provide valuable insights into how the structured, long-term collaborative learning experiences can foster

professional growth and effective teamwork within occupational therapy education. Two research hypotheses based on the Kirkpatrick model guided this study:

1. OT and OTA students will express satisfaction with the 13-week paired learning experience (Level 1: Reaction).
2. OT and OTA students will demonstrate improvement in their perceived importance and perceived ability of intraprofessional collaboration after participating in the 13-week paired learning (Level 2: Learning).

Methods

Study Design

A repeated measures design was used to collect data; students were surveyed with a standardized self-reported assessment at three time points: the beginning of the trimester (T1), the middle of the trimester (T2), and the end of the trimester (T3). Data was collected across four student cohorts from Spring 2021 to Spring 2024.

Participants

Students in the Master of OT and OTA programs who enrolled in a joint clinical skills course were invited to take part in this study. The study's purpose and voluntary nature were explained to all participants. No exclusion criteria were applied. The study was approved by the AdventHealth Institutional Review Board (IRB approval number: 1785005-1).

Measurements

The Intraprofessional Collaborative Practice Survey (ICPS) OT version (Fan et al., 2024a) and OTA version (Fan et al., 2024b) was used to evaluate students' perceived importance and perceived ability over time. Originally developed based on the Core Competencies for Interprofessional Education Collaborative (IPEC, 2016), this survey initially measured perceived importance (Diamant et al., 2018) and was later modified by Fan et al. (2021) to include a perceived ability subscale. The survey is comprised of 20 competency items across four domains: Intraprofessional Teamwork (7 items), which focuses on applying relationship-building knowledge, skills, and team dynamics to deliver safe and effective care; Roles/Responsibilities for Collaborative Practice (4 items), which involves understanding and using knowledge of one's own and partners' roles in delivering occupational therapy service; Communication for Intraprofessional Practice (5 items), which emphasizes responsive and responsible communication to support a team approach to health maintenance and treatment; and Values/Ethics for Intraprofessional Practice (4 items), which involves maintaining mutual respect and shared values that are essential for effective collaboration. Each competency was self-rated on a 3-point Likert scale (1 = less important, 2 = important, 3 = very important) for *perceived importance* subscale, and (1 = less able, 2 = able, 3 = very able) for *perceived ability* subscale. This survey was previously validated with satisfactory face validity and content validity (Diamant et al., 2018). Additionally, it showed the feasibility to be used as an outcome measurement to detect changes for OT and OTA students (Fan et al., 2021).

In addition to the survey, a separate dichotomous question, “Would you recommend this collaboration to future OT/OTA students?” was asked at T3 to assess students’ overall satisfaction.

Course Structure and Implementation

The joint course featured in this study focused on fundamental clinical skills essential for patient care, which promote optimal occupational performance. The course lasted 13 weeks and the weekly structure consisted of asynchronous didactic coursework, which included pre-class assigned textbook readings, pre-recorded lecture presentations, and pre-class quizzes, to prepare students for the on-campus, hands-on sessions held once a week. The 2-hour on-campus class portion emphasized case-based scenarios and practical application that facilitated students’ understanding of asynchronous lecture, and integration of learned knowledge and techniques.

Students enrolled in the Applied Clinical Skills course (for OT students) and the Patient Care Skills in Occupational Therapy course (for OTA students) were grouped into pairs or triads, each comprising both OT and OTA students. These courses were taught by the same instructor, utilizing identical teaching approaches for both groups. The groupings collaborated on the 2-hour on-campus class portion weekly, with pairs and triads remaining consistent throughout the 13-week trimester. Additionally, an optional 2-hour open lab was offered weekly, providing students with an extra opportunity to practice clinical skills. During these open labs, students had the flexibility to practice with other OT/OTA students in attendance, rather than being limited to their assigned partners.

The clinical skills curriculum encompassed a comprehensive range of topics, including infection control, Health Insurance Portability and Accountability Act (HIPAA) compliance, wheelchair usage and repair, assistive devices, environmental management, vital signs assessment, body mechanics, patient transfers, bed mobility, interview techniques, draping and positioning, and special equipment usage. Competency in these clinical skills was assessed through lab skills checkoffs. Furthermore, all students participated in individual simulations focusing on interview skills, transfers, and vital signs. An additional individual assignment required both OT and OTA students to spend twenty-four hours in a wheelchair, promoting empathy and understanding of patient experiences. Occupational therapy students had an extra assignment related to evidence-based practice to reflect the additional credit hour of their course.

This integrative course design aimed to enhance collaborative learning and skill acquisition among OT and OTA students, fostering a comprehensive understanding of clinical skills essential for professional practice.

Data Collection and Preparation

Quantitative data were collected with the self-reported ICPS in paper forms at three time points. Two trained research assistants and the first author entered all the data into an Excel database. The first author then randomly selected 20% of all entered data (Excel

database) and compared them with the original paper records to ensure accuracy. Due to the repeated measures design, three participants (two OT students and one OTA student) with missing values were excluded from the final analysis. Then the data was imported into IBM SPSS Statistics software (Version 28, IBM Corp) for analysis.

Data Analysis

For the demographic information, means and standard deviations were calculated for continuous variables; frequencies and percentages were calculated for categorical variables. Baseline analyses indicated that there were significant differences between the OT and OTA student populations in age ($t = 3.06$, $p = .003$), educational level ($X^2 = 136.54$, $p < .001$) and work status ($X^2 = 18.59$, $p < .001$; please refer to Table 1). Therefore, in the following analysis, the OT and OTA students were analyzed separately.

Due to the ordinal nature of the survey data, Friedman's test (Simpson, 2015) was initially employed to examine differences in the *perceived importance* and *perceived ability* across three time points with $p < .05$. Then, the Wilcoxon signed rank test was used to further investigate the pairwise comparison with Bonferroni adjustment of $p \leq .017$ (.05/3).

Additionally, effect size was calculated to examine how well the paired learning (independent variable) predicted students' perceptions of the importance and their ability to engage in intraprofessional collaboration (dependent variables). A strong effect size suggests that the independent variable is a strong predictor of the dependent variables. Cohen's ω was calculated with the following thresholds: .10 = small effect, .3 = medium effect, and .50 = large effect (Serdar et al., 2021).

Results

Initially, 181 participants consented to participate in the study. However, three participants with missing values across different time points were excluded from the final analysis. Therefore, the final sample consisted of 178 first-year students, including 112 OT students and 66 OTA students, which were from four distinct cohorts from 2021 to 2024. The majority of participants in both programs were female (88% in OT students and 91% in OTA students). All OT students had at least a bachelor's degree (100%), whereas the majority of OTA students possessed a high school degree (58%). Additionally, 70% of the OTA students were employed either part-time or full-time, compared to approximately 55% of the OT students. Further demographic details can be found in Table 1. Among the enrolled participants, an overwhelming majority (n=174, 97.8%) indicated they would recommend this intraprofessional collaboration for future students.

In line with the Kirkpatrick model's first level (Reaction), the high recommendation rate indicated strong positive reactions from participants toward the paired intraprofessional collaborative learning. Moreover, the results also aligned with the second level (Learning), as improvements in perceived ability across multiple domains suggested the positive effectiveness of this 13-week paired learning.

Table 1

Demographics (N = 178)

	OT students (n = 112)	OTA students (n = 66)	*t* or X^2
Age [M (S.D.)]	24.63 (3.5)	22.70 (4.8)	3.06 (*p* = .003*)
Gender [n (%)]			.28 (*p* = .60)
Male	13 (11.6)	6 (9.1)	
Female	99 (88.4)	60 (90.9)	
Highest Educational Degree			136.54 (*p* < .001*)
High school or equivalent	0 (0)	38 (57.5)	
Associate or technical degree	0 (0)	17 (25.8)	
Bachelor's degree	111 (99.1)	10 (15.2)	
Post-graduate degree	1 (.9)	1 (1.5)	
Work Status			18.59 (*p* < .001*)
Employed full-time	5 (4.5)	17 (25.8)	
Employed part-time	55 (49.1)	30 (45.5)	
Currently is not working	52 (46.4)	19 (28.8)	

Note. M = Mean; S.D. = Standard Deviation. **p* < .05

Table 2 presents the results of Friedman's test for repeated measures across three time points. Notably, all four domains of perceived ability among both OT and OTA students showed significant differences over time. Additionally, OT students exhibited a significant difference in perceived importance in the Intraprofessional Teamwork domain.

Table 2

Friedman's Test of the Intraprofessional Collaborative Practice Survey (ICPS) Across Three Time Points

			Time 1	Time 2	Time 3	Friedman Chi-square (*p*)
			Mean (SD)	Mean (SD)	Mean (SD)	
OT	Importance	T	19.91 (1.78)	20.21 (1.42)	20.27 (2.26)	13.21 (<.001)**
		R/R	11.60 (.88)	11.68 (.85)	11.66 (1.24)	3.95 (.14)
		C	14.32 (1.25)	14.53 (1.09)	14.38 (1.68)	6.25 (.04)
		V/E	11.77 (.74)	11.83 (.58)	11.67 (1.28)	.20 (.91)
	Ability	T	17.61 (3.40)	18.46 (2.99)	19.17 (2.86)	23.18 (<.001)**
		R/R	9.83 (2.13)	10.45 (1.83)	11.01 (1.70)	34.48 (<.001)**
		C	12.94 (2.34)	13.52 (1.94)	14.04 (1.92)	32.05 (<.001)**
		V/E	10.68 (1.58)	10.96 (2.23)	11.23 (1.67)	14.62 (<.001)**
OTA	Importance	T	19.38 (3.19)	19.32 (3.55)	19.11 (3.78)	2.59 (.27)
		R/R	10.94 (1.89)	10.79 (2.14)	10.70 (2.32)	.44 (.80)
		C	13.77 (2.34)	13.35 (2.71)	13.52 (2.84)	2.44 (.30)
		V/E	11.08 (1.96)	10.88 (2.23)	11.02 (2.24)	.93 (.63)
	Ability	T	16.26 (4.18)	17.11 (3.86)	17.80 (4.17)	16.89 (<.001)**
		R/R	9.15 (2.37)	9.64 (2.35)	10.39 (2.52)	19.99 (<.001)**
		C	11.92 (2.86)	12.18 (2.83)	13.02 (3.04)	15.31 (<.001)**
		V/E	9.77 (2.42)	10.00 (2.41)	10.62 (2.50)	16.32 (<.001)**

Note. T=Intraprofessional Teamwork; R/R=Roles & Responsibilities for Collaborative Practice; C=Communication for Intraprofessional Practice; V/E=Values & Ethics for Intraprofessional Practice. ** $p < .001$.

Perceived Importance Changes

Detailed results of the below pairwise comparison can be found in Table 3.

OT Students

The pairwise post-hoc comparison failed to reveal a statistically significant difference. However, the increase in *perceived importance* for Intraprofessional Teamwork among OT students from T1 to T3 exhibited a small effect size with a borderline significance ($Z = -2.35$, $p = .019$, $\omega = .157$).

OTA Students

No significant differences were found in the four domains of perceived importance in the OTA students.

Perceived Ability Changes

OT Students

Post-hoc analyses revealed significant improvements in *perceived ability* among OT students across multiple domains (refer to Table 3). From T1 to T2, there were notable enhancements in Intraprofessional Teamwork, Roles & Responsibilities for Collaborative Practice, and Communication for Intraprofessional Practice. These improvements continued from T2 to T3. Specifically, when comparing T1 to T3, moderate effect sizes were observed in Intraprofessional Teamwork ($Z = -4.55$, $p < .001$, $\omega = .304$), Roles & Responsibilities for Collaborative Practice ($Z = -4.72$, $p < .001$, $\omega = .315$), and Communication for Intraprofessional Practice ($Z = -4.89$, $p < .001$, $\omega = .327$). In addition, a small effect size was found in Values & Ethics for Intraprofessional Practice ($Z = -3.45$, $p < .001$, $\omega = .231$) from T1 to T3.

OTA Students

For OTA students, no significant improvements in perceived ability were observed from T1 to T2 (see Table 3). However, significant enhancements were evident in all four domains from T2 to T3. Comparing T1 to T3, a moderate effect size was identified in Roles & Responsibilities for Collaborative Practice ($Z = -3.55$, $p < .001$, $\omega = .309$). Small effect sizes were observed in Intraprofessional Teamwork ($Z = -3.07$, $p = .002$, $\omega = .267$), Communication for Intraprofessional Practice ($Z = -2.64$, $p = .008$, $\omega = .230$), and Values & Ethics for Intraprofessional Practice ($Z = -2.51$, $p = .012$, $\omega = .218$).

Table 3

Pairwise Comparisons and Effect Sizes for Perceived Importance and Perceived Ability

			Pairwise Comparison								
			T1 - T2			T2 – T3			T1 – T3		
			Z	*p*	ω	*Z*	*p*	ω	*Z*	*p*	ω
OT	Importance	T	-1.78	.074	.119	-1.18	.237	.079	-2.35	.019	.157
		R/R	-.67	.501	.045	-.64	.526	.043	-1.43	.154	.096
		C	-1.49	.137	.100	-.28	.779	.019	-1.42	.156	.095
		V/E	-.69	.491	.046	-.86	.389	.057	-.46	.644	.031
	Ability	T	-2.42	.015*	.162^{+}	-2.85	.004*	.190^{+}	-4.55	<.001*	.304^{++}
		R/R	-3.05	.002*	.204^{+}	-3.13	.002*	.209^{+}	-4.72	<.001*	.315^{++}
		C	-3.04	.002*	.203^{+}	-3.20	.001*	.214^{+}	-4.89	<.001*	.327^{++}
		V/E	-1.57	.117	.105	-2.16	.031	.144	-3.45	<.001*	.231^{+}
OTA	Importance	T	-.22	.828	.019	-.72	.474	.063	-.16	.871	.014
		R/R	-.20	.841	.017	-.32	.749	.028	-.52	.605	.045
		C	-1.29	.198	.112	-.71	.478	.062	-.50	.620	.044
		V/E	-.63	.528	.055	-.89	.371	.077	-.16	.874	.014
	Ability	T	-1.58	.115	.138	-2.38	.017*	.207^{+}	-3.07	.002*	.267^{+}
		R/R	-1.30	.195	.113	-2.82	.005*	.245^{+}	-3.55	<.001*	.309^{++}
		C	-.65	.513	.057	-2.63	.009*	.229^{+}	-2.64	.008*	.230^{+}
		V/E	-.77	.440	.067	-2.62	.009*	.228^{+}	-2.51	.012*	.218^{+}

Note 1. T=Intraprofessional Teamwork; R/R=Roles & Responsibilities for Collaborative Practice; C=Communication for Intraprofessional Practice; V/E=Values & Ethics for Intraprofessional Practice. * $p \leq .017$.
Note 2. $^{+}$ Small Effect (ω > .10); $^{++}$ Medium Effect (ω > .30) (Serdar et al., 2021).

Discussion

To the best of the authors' knowledge, this is the first study to investigate the intraprofessional collaboration experience between OT and OTA students over an extended duration of 13 weeks. Most prior studies have focused on collaboration lasting less than a week (Watford et al., 2022) or even limited to a single event experience (Johnston et al., 2013). The current study findings confirmed the hypotheses that the majority of OT and OTA students valued and were satisfied with the extended intraprofessional paired learning; in addition, this study validated significant improvements in both OT and OTA students' perceived abilities to engage in intraprofessional collaboration over time. These results align with the first two levels of the Kirkpatrick model: participants reacted positively to the learning experience (Level 1: Reaction), as evidenced by high satisfaction rates, and showed significant gains in skills and confidence related to intraprofessional collaboration (Level 2: Learning).

Multiple studies have indicated that paired learning can lead to positive outcomes, such as improved understanding and changed attitudes (Houston & Morgan, 2018; Yu et al., 2022). Additionally, paired learning offered students the chance to enhance their communication and interaction skills, which are essential for effective intraprofessional teamwork (Dunleavy et al., 2017). In the current study, a differential progression was observed between OT and OTA students. The OT students demonstrated notable improvements in their perceived abilities from the beginning (T1) to the middle (T2) of the trimester, with continued improvements from T2 to the end (T3). In contrast, the OTA students showed significant improvements primarily from T2 to T3, highlighting a different learning curve. These results align with findings from a recent review by Membrive et al. (2022), which examined the concept of learning trajectories across 58 articles. The review described personal learning trajectories as a multidimensional and dynamic process that operates on two levels. First, individuals connect what they learn across various contexts and activities. In this study, for example, students integrated knowledge from on-campus hands-on practice, pre-recorded lectures, and assigned readings, contributing to their perceived ability in intraprofessional collaboration. Second, individuals process and reconstruct their learning experiences through interactions with others, such as small group discussions and case scenario analyses within their intraprofessional pairs or triads, further enhancing their perceived teamwork and collaboration skills.

In this study, the steady progression of OT students from T1 to T3 reflected their ability to integrate and connect learning experiences across different contexts early in the trimester, improving their perceived collaborative abilities. In contrast, the significant improvement in OTA students from T2 to T3 suggested a more gradual accumulation of experiences, which eventually led to a meaningful improvement later in the trimester. This finding underscores the importance of designing educational interventions that consider these multidimensional aspects of learning to optimize outcomes for both OT and OTA students (Cusack et al., 2018; Hermann, 2018). Furthermore, it suggested that OT students might benefit from early and consistent exposure to collaborative activities and paired learning, which can progressively build up their intraprofessional

collaborative confidence and skills. For OTA students, the delayed yet substantial improvement emphasized the need for sustained and repeated exposure to paired learning environments to foster collaborative competency development.

Despite the significant advancements in perceived abilities, changes in perceived importance did not achieve statistical significance. The students enrolled in the current study were in their second trimester, so they had a one-time meeting via Zoom to help them become familiarized with the distinct roles of the OT and OTA. This initial collaborative opportunity might have already provided the foundation of their perceived importance of the OT/OTA partnership. Therefore, when looking closer at the data, it was obvious that students' valuation of intraprofessional collaboration importance was already high at the T1, leaving limited room for noticeable increases. This plateau in perceived importance is consistent with findings from educational interventions using the Kirkpatrick model, where early high levels of importance or understanding can limit observable gains at later stages (Kirkpatrick & Kirkpatrick, 2006). This phenomenon was also common in educational settings where students already recognized the importance of collaboration with high and positive baseline attitudes (Reeves et al., 2015).

Limitations and Future Research Suggestions

One limitation of this study was the use of a convenience sample from a single educational institution, which would limit the generalizability of the findings. Future research should involve diverse educational environments and larger sample sizes to validate and extend these results. Additionally, this study only examined levels 1 and 2 of the Kirkpatrick model using self-reported measures. Future studies should explore higher levels of the Kirkpatrick model, such as how intraprofessional paired learning influences students' objective performance (level 3) and the impact on organizational outcomes, including increased productivity and improved quality of patient care (level 4). Investigating the long-term effects of such collaborative educational interventions, along with follow-up assessments during fieldwork, is essential for gaining deeper insights into the sustained benefits of intraprofessional collaborative education.

Moreover, it is important to recognize that students at different stages of their educational journey may have distinct experiences that influence the development of their perceptions of teamwork and partnerships. In the current study, only first-year OT and OTA students were included, which may have limited the ability to capture the full range of learning dynamics across different stages of professional development. For example, Gentile et al. (2023) paired first-year OT students with final-year OTA students in a joint class, hypothesizing that final-year OTA students, with their greater clinical skills and fieldwork experience, would feel more empowered to share their knowledge during case scenario discussions. This approach suggested that pairing OT and OTA students at different educational stages could further enhance the collaborative learning experience and should be considered in future research.

Implications for Occupational Therapy Education

The results of this study have important implications for curriculum development in occupational therapy programs. The significant improvements observed in students' perceived abilities suggested that incorporating structured, extended collaborative learning experiences can effectively enhance perceived intraprofessional collaboration abilities and confidence. Educational programs should consider integrating similar paired learning modules to foster teamwork, communication, and mutual understanding between OT and OTA students.

Additionally, given the different learning curves observed in the current study, educators might need to design adaptive learning experiences that cater to the specific needs and progress of OT and OTA students. Based on the results, educators should incorporate intraprofessional collaboration opportunities for OT students early in the curriculum, with progressively complex tasks to build confidence and competence over time. For OTA students, the findings suggested a need for more consistent and ongoing collaborative opportunities throughout their education to better support their learning trajectory.

Conclusion

This research built on existing literature suggested that structured and paired learning experiences can significantly enhance the perceived abilities of intraprofessional collaboration within occupational therapy education. The study highlighted the importance of incorporating extended intraprofessional collaboration into didactic courses. By fostering these collaborative skills through targeted educational curricula, students actively engage with intraprofessional team members, better preparing them for effective teamwork in their future professional practice. The insights gained from this research can guide the development of curricula that more effectively support the professional growth and collaborative capabilities of both OT and OTA students.

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