Interprofessional Collaboration with Occupational Therapy Assistant and Physical Therapist Assistant Students Through a Simulated Academic Setting

Brooke Gentry  
*South College Nashville*

Samantha Harris  
*South College Nashville*

Cindy Hayden  
*Eastern Kentucky University*

Allen Keener  
*Eastern Kentucky University*

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Introduction

Interprofessional collaboration is found throughout many allied health professions. In the practice setting, interprofessional collaboration is an important element in the delivery of health care that begins in the educational environment (IPE, 2016). The World Health Organization (WHO) (2010) defines interprofessional education as the following: “when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes”. Interprofessional collaborative practice occurs when multiple healthcare workers from different professions work together with patients, families, and communities to deliver the highest quality of care (WHO, 2010).

Occupational Therapy Assistant (OTA) is an allied health paraprofessional who delivers occupational therapy services only under the supervision of and in partnership with the occupational therapist (OT) (O’Brien, 2018, p.59; AOTA, 2020). A Physical Therapy Assistant is similar to and OTA, but requires supervision by a physical therapist (PT) to provide physical therapy services to patients (American Physical Therapy Association, 2021).

The American Occupational Therapy Association (AOTA) and the Accreditation Council for Occupational Therapy Education (ACOTE) identify interprofessional education as an important element in learning. The 2018 ACOTE standards emphasized the areas of interprofessional importance for occupational therapy assistant students. AOTA is also a member of the Inter-Professional Education Collaborative (IPEC), a national organization that has led interprofessional education (IPE) initiatives across the country (IPE, 2016).

This study aims to answer the following research question: Do OTA and PTA students demonstrate increased perceived confidence and communication skills from interprofessional interactions in the academic setting in a simulated lab-based case?

Review of Literature

There are many published studies related to interprofessional practice at the master and doctoral level of education, but none include associate level OTA or PTA health science students. In higher education, interprofessional practice has been added to curricula and gained more attention within professional accreditation councils and associations for health science programs.

Clinically, it is important for OTA and PTA students to understand the role of other professions to “appropriately assess and address the health care need of the patient and promote the health of populations” (IPEC, 2016). Communication in a responsive and responsible manner, “supports a team approach to the promotion and maintenance of health with patients, families, and communities” (IPEC, 2016). There are several studies that identify the inclusion of IPE in higher education health care programs (Smithburger et al., 2013; Namazi et al., 2019; Stubbs et al., 2017; Kim et al., 2018, Morrell et al., 2018, Jacobs et al., 2017, Hughes et al., 2019; Chau et al., 2010) but no studies revealed how to equip OTA or PTA students while they are in the academic setting, to be effective health care providers in the ever-changing healthcare system. From the literature, some of the identified methods of delivery of IPE in the academic setting with master and doctorate level health science students have included the following:
• Grand round events
• Simulated mannequin used with patient base cases
• Computer based virtual learning
• One day peer teaching community events
• Small group IPE events
• Community based program events
• Simulated ICU one-day events

The above studies reveal the inclusion of IPE in health science program curricula can: a) enhance students understanding of their own role and role of other professionals; b) increase value to work with others and comfort in working with others; c) perceived readiness to work in interprofessional teams towards improvements; and d) increased in confidence and communication skills while working within an IPE team environment.

Methods

Research Design

This research project involved occupational therapy assistant students and physical therapy assistant students. In this study, communication skills are defined as communication in a responsive and responsible manner that supports a team approach (IPE, 2016). Perceived confidence is defined as having trust in oneself in relation to their own role and the role of other professions (Zellner, 1970; IPE, 2016). A simulated environment, which was used in the form of a simulated lab-based case is defined as “a setting that provides an experience similar to a real-world setting in order to allow clients to practice specific occupations” (ACOTE, 2018). The setting was a simulated learning environment that provided a hands-on learning experience that could be realistic to real world scenarios to help students obtain confidence and understanding of the desired learning task (Thomas et al., 2017).

This research project is an explanatory sequential mixed methods design to explore if OTA and PTA students demonstrate increased perceived confidence and communication skills from interprofessional interactions. The explanatory sequential mixed methods design is demonstrated in Figure 1.
This project was conducted in the academic setting, through a simulated lab-based case. The perceived confidence and communication were measured through a pre and post survey using the Interdisciplinary Education Perception Scale (IEPS) (Leitch, 2014). Qualitative data were collected following the IP event in the form of a focus group.

Setting

The setting of this study was completed at College Campus with 5 locations, located in South East United States. The institution is a private, co-educational, non-sectarian academic institution. The locations are in the states of Tennessee, North Carolina, and Georgia. The physical setting of this research included two simulated hospital rooms for the simulated lab experience with dual mirrors for smaller group interactions. Due to the need for smaller groups with COVID-19 protocols, small groups were utilized in a rotational format. The inclusion of a simulated mannequin patient served as the simulated patient model for each room. There was a lecture-based classroom for introductions, lecture, and debriefing.

Instrument

The Interdisciplinary Education Perception Scale (IEPS) is an 18-item survey with a 6-point scale that can be used to assess student perception of experience of interprofessional education (Luecht et. al., 1990). The is divided into four subscales: Competency and Autonomy, Perceived Need for Cooperation, Perception of Actual Cooperation and Resource Sharing within and across Professions, Understanding the Value and Contributions of other Professionals (Luecht et. al., 1990). The IEPS is widely used to evaluate effectiveness of IPE curricula (Oates & Davidson, 2015). The IEPS partially meets standards for instrument development, with the psychometrics of the subscale, “perceived need for cooperation” reporting alpha = .38 - .40 when tested in students in the professions of dietetics, nursing, occupational therapy, physiotherapy, podiatry, prosthetics, and orthotics, radiography, and social work (McFadyen et al., 2007). A restructuring of the IEPS sub scale model was created to improve stability and test-retest reliability (McFayden et al., 2007). For this research, the original IEPS was used as it was identified that many scale items may be more directed toward readiness to collaborate interprofessionally at the
occupational therapy assistant and physical therapist assistant level (Leitch, 2014). The IEPS is provided in a public domain, so permission was not required for use of this instrument.

**Data Collection Methods**

Students were notified of the event in the two months prior to the IP event through the syllabi in each respective course and were provided reminders one week prior the event. Data were collected from student participants using a paper format of the IEPS. The respective faculty members for the OTA and PTA students provided each student the IEPS pre-test, prior to the start of the IP event. The forms were made anonymous, as each student placed the date of their mother’s birth on the top of the IEPS forms. After the event concluded, the respective faculty members provided the IEPS post-test to each student. The IEPS form completion before and after the event lasted approximately 10 –15 minutes each time.

The simulated interprofessional event consisted of four different parts. The first part consisted of a one-hour educational lecture given by a practicing and licensed occupational therapy assistant and a practicing and licensed physical therapy assistant who work in acute care settings. The lecture consisted of information on the roles of occupational therapy assistants and physical therapist assistants, a brief overview of the intensive care unit (ICU), diagnosis and equipment found in the ICU, and collaborative practices for therapy treatment found within this unit.

The second part consisted of a hands-on lab with both clinicians and students practicing transfers and treatment techniques. The clinicians provided a live demonstration to the students and the clinicians provided feedback during the student performance.

The third part of the experience consisted of the students’ task performance of the interprofessional ICU treatment within a simulated ICU setting by students rotating through the simulated ICU room and carrying out the planned intervention session.

The final part of the IPE event was the debriefing portion where faculty assisted students in processing the event.

The simulated ICU lab experience included small groups of one OTA student with two PTA students. There were patient-based case studies provided to each group (Appendix A: *Patient-Based Cases*). The case studies were developed by outside PTA and OTA instructors that work in an acute care setting with ICU patients. The PTA and OTA faculty involved in this study reviewed the patient-based cases and provided additional information on the evaluation section, prior to the IP event and distribution to students. Students were provided time to review the patient case and ask faculty questions in the identified small groups of three. Students were asked to determine an appropriate treatment plan with their identified PTA partners. The students consulted with their respective faculty on treatment plans and gathered needed items/equipment prior to entering the simulated hospital room. The OTA students then carried out their planned treatment session while working together with their PTA partner. Respective faculty supervised and provided feedback immediately after each individual group treatment session. Following the conclusion of the event an informal debriefing session was provided with the entire group in the lecture room. The informal debriefing included the respective PTA and OTA faculty asking the group open ended questions about the participation in the IP event (Appendix B: *Informal Debriefing Questions*). This IP event was completed in a one-day, 4.5-hour session.
Qualitative data were collected in the form of a focus group through a virtual platform, via Zoom. The focus group was conducted approximately 10 months after the IP event and occurred in a forty-minute session. An email invitation was sent to all OTA and PTA participants inviting them to the virtual focus group session with the Zoom link included in the email. A follow up reminder email was sent the day before the event and the day of the focus group. The focus group included the researcher asking the OTA and PTA participants open ended questions as follow up from the IP event (Appendix C: Focus Group Questions). The session was recorded by the researcher and participants were made aware and agreed to the recording prior to the start. The seven participants that joined the focus group included four OTA participants and three PTA students. In this phase, the OTA participants recently graduated from the OTA program and the PTA students were in their seventh quarter of technical coursework, which included a clinical experience.

Data Analysis

The quantitative data analysis was performed using SPSS (IBM SPSS v27.0) and Excel version 16. The quantitative data were assessed using mean, standard deviation, minimum, and maximum value. For comparing mean scores of the pre-test and post-test using the IEPS, a paired sample two tailed t-test was used. Qualitative data were analysed using Braun and Clark thematic analysis protocol. The focus group questions were open ended to allow for a more enriched and broad response (Stanley, 2014). Three investigators analysed the transcript from the participants responses to the focus group questions to identify common themes. Each investigator analysed the transcripts and developed initial categories independently. The two primary investigators met virtually, via Zoom, to collaborate on the categories identified. A week later another virtual meeting was conducted with all three primary investigators to narrow down the categories and begin the initial development of the main themes. A third virtual meeting was conducted with all three investigators and an outside reviewer to discuss and arrive at agreement of the main themes and categories of the qualitative data findings.

Ethical Considerations

Prior to completion of the simulation event, the researchers obtained the necessary ethical board approvals and institutional authorizations. All participants were provided information regarding the purpose of the study, that participation was voluntary, and withdraw was possible thru the respective faculty member. Descriptive statistics such as gender and age of student population were collected from the course makeup of the class. Privacy was ensured as each participant information, such as name were not asked on the forms and kept anonymous during the data collection. Participants were informed that participation in the study and results of the study would not affect their individual course grade. Additionally, all participants signed an informed consent form prior to the event participation.

Results

Identification of Participants
The research participants included 18 PTA students and five OTA students that were enrolled at one of the organizations locations. These students were identified participants through purposeful sampling strategies, as all participants attend courses at the same institution. The OTA students that participated were in the sixth quarter of the technical component of the program and PTA students that participated were all in the first quarter of the technical component of the program. The OTA and PTA students each complete a total of eight quarters to complete their respective program requirements. All students that responded were in good standing within their respective program. Table 1 indicates the demographics of the participants.

Table 1

Demographics of Study Participants: Study Participant Characteristics (N = 23)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group</th>
<th>Number (N)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>4</td>
<td>17.3</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>23</td>
<td>100</td>
</tr>
<tr>
<td>Program of Study</td>
<td>OTA</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>PTA</td>
<td>18</td>
<td>78.2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>23</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>19 or younger</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>20-29</td>
<td>17</td>
<td>73.9</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>2</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>40 or older</td>
<td>2</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>23</td>
<td>100</td>
</tr>
</tbody>
</table>

Quantitative Findings

All 23 students completed both the pre and post-test. Overall, the mean scores on the post-test of the Interdisciplinary Education Perception Scale (IEPS) were higher than those respective scores on the pre-test. The paired samples t-test indicated that IEPS pre-test mean scores (M = 90.08) were significantly different than the IEPS post-test mean scores (M = 97.95), (t [23] = 5.57, p < .001).

The difference in the mean scores demonstrated an improvement in participant perceptions of affective domain components within an interdisciplinary education program. The total mean score of the IEPS from the participants pre-test was 90.08 ± 1.95 and post-test 97.95 ± 1.55. The paired t-test results were statistically significant at 0.05. Cohen’s d is found significant at 0.8, with a large effect size. Cohen’s d was interpreted as significant at 0.02 as a small effect, at 0.5 as a moderate effect size, and at 0.8 as a large effect. The effect size for the paired t-test Cohen’s d equaled 0.93 which equates to a large effect size in this study. See Table 4 for summary.
Table 4

*Pre and Post Test Mean Scores of the IEPS*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pre-Test Mean Scores</th>
<th>Post Test Mean Scores</th>
<th>Difference in Mean Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94</td>
<td>92</td>
<td>-2</td>
</tr>
<tr>
<td>2</td>
<td>105</td>
<td>107</td>
<td>+2</td>
</tr>
<tr>
<td>3</td>
<td>65</td>
<td>84</td>
<td>+19</td>
</tr>
<tr>
<td>4</td>
<td>81</td>
<td>95</td>
<td>+14</td>
</tr>
<tr>
<td>5</td>
<td>96</td>
<td>108</td>
<td>+12</td>
</tr>
<tr>
<td>6</td>
<td>94</td>
<td>103</td>
<td>+9</td>
</tr>
<tr>
<td>7</td>
<td>89</td>
<td>100</td>
<td>+11</td>
</tr>
<tr>
<td>8</td>
<td>89</td>
<td>92</td>
<td>+3</td>
</tr>
<tr>
<td>9</td>
<td>91</td>
<td>96</td>
<td>+5</td>
</tr>
<tr>
<td>10</td>
<td>102</td>
<td>103</td>
<td>+1</td>
</tr>
<tr>
<td>11</td>
<td>77</td>
<td>87</td>
<td>+10</td>
</tr>
<tr>
<td>12</td>
<td>80</td>
<td>82</td>
<td>+2</td>
</tr>
<tr>
<td>13</td>
<td>95</td>
<td>93</td>
<td>-2</td>
</tr>
<tr>
<td>14</td>
<td>105</td>
<td>107</td>
<td>+2</td>
</tr>
<tr>
<td>15</td>
<td>95</td>
<td>103</td>
<td>+8</td>
</tr>
<tr>
<td>16</td>
<td>98</td>
<td>105</td>
<td>+7</td>
</tr>
<tr>
<td>17</td>
<td>91</td>
<td>99</td>
<td>+8</td>
</tr>
<tr>
<td>18</td>
<td>82</td>
<td>94</td>
<td>+12</td>
</tr>
<tr>
<td>19</td>
<td>94</td>
<td>104</td>
<td>+10</td>
</tr>
<tr>
<td>20</td>
<td>83</td>
<td>105</td>
<td>+22</td>
</tr>
<tr>
<td>21</td>
<td>83</td>
<td>104</td>
<td>+21</td>
</tr>
<tr>
<td>22</td>
<td>92</td>
<td>94</td>
<td>+2</td>
</tr>
<tr>
<td>23</td>
<td>91</td>
<td>96</td>
<td>+5</td>
</tr>
<tr>
<td>Totals</td>
<td>2072</td>
<td>2253</td>
<td>+181</td>
</tr>
<tr>
<td>Percentage</td>
<td>90.09</td>
<td>97.96</td>
<td>+7.87</td>
</tr>
</tbody>
</table>

The mean scores were also calculated for each subscale within the IEPS. A paired two tailed *t*-test was run for each individual subscale. Table 5 provides the information for the subscale data in table form. For subscale 1, Competency and Autonomy, the IEPS pre-test scores were significantly different than the post test scores (M = 40.65), (*t* = [23] = 3.99, *p* < .05). For subscale 2, Perceived Need for Cooperation, the IEPS pre-test scores were significantly different than the post test scores (M = 10.65), (*t* = [23] = 2.95, *p* < .05). For subscale 3, Perception of Actual Cooperation, the IEPS pre-test scores were significantly different than the post test scores (M = 25.21, (*t* = [23] = 5.17, *p* < .05). For subscale 4, Understanding Others Value, the IEPS pre-
test scores were significantly different than the post test scores (M = 13.13, (t = [23] = 2.81, p < .05). The effect size for each domain were calculated using Cohen’s d. The effect size Cohen’s d for Subscale 1 (-0.79), Subscale 3 (-0.72), and Subscale 4 (-0.65) indicated a moderate effect size. Subscale 2 (-0.40) indicated as a small effect size.

Table 5

<table>
<thead>
<tr>
<th>Subscale Data: Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscale 1: Competency and Autonomy</td>
</tr>
<tr>
<td>Q1, Q3, Q4, Q5, Q7, Q9, Q10, Q13</td>
</tr>
<tr>
<td>Q6, Q8</td>
</tr>
<tr>
<td>Q2, Q14, Q15, Q16, Q17</td>
</tr>
<tr>
<td>Q11, Q12, Q18</td>
</tr>
</tbody>
</table>

Note. * = Significant at < 0.05

Qualitative Findings

Data analysis of transcripts from the student responses resulted in the identification of four themes:

The first theme was identified as **Collaboration**, including working with other disciplines in different clinical settings, co-treating with other disciplines in clinicals (ie: nursing, teachers, speech language pathologists, PT, PTA, OT, OTA, respiratory therapy, dieticians, psychologists, rehab directors), and role clarification/understanding role differences and different perspectives from each discipline while also understanding professional goals of other disciplines for clients.

The second theme was **Building Confidence and Effective Communication Skills**, which included learning professional communication skills with patients (learning how to talk with other professions, communicating about patients with other disciplines, explaining why to patients) and the application of these skills in interprofessional practice, for example the students must think quickly to respond to patient and other disciplines’ questions.

The third theme was identified as **During the Interprofessional Educational Event**, students reporting they were able to figure out a plan together with continuous communication and the importance of debriefing, which included acknowledging their feelings during the event.
The fourth theme was *Student Reflection of IPE* including the pros of the experience, the cons of the experience, and additional suggestions for improvements for future IPE events in the academic setting.

Table 6 identifies the key themes and categories of the qualitative findings with sample quotes from the student participants.
### Table 6

**Themes and representative quotes**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Sample Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme 1: Collaboration</strong></td>
<td>Working with other disciplines in different clinical settings</td>
<td>“I think being able to tell the other person what your goals are for the session is helpful, so you have in mind what the other person's goal is and you try to work together to accomplish both.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>Role/clarification/different perspectives from each discipline</td>
<td>“Understanding roles, helped to not overstep professional boundaries.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Helped knowing others’ roles prior to clinicals.” (PTA Student)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“It helped hearing others’ perspective.” (OTA Student)</td>
</tr>
<tr>
<td><strong>Theme 2: Building Confidence and Effective Communication Skills</strong></td>
<td>Learning professional communication skills</td>
<td>“Required presentations gave me confidence.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>Application in interprofessional practice</td>
<td>“The IPE event helped me when I was asked to explain why and what I was doing with patients.” (PTA Student)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“It is very important to communicate with nursing and educated on mobility to the bathroom and with brace or splint wear schedules.” (PTA Student &amp; OTA Student)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I would communicate with the PTA if they completed a session with the patient before me, that helped me further understand how the patient was doing.” (OTA Student)</td>
</tr>
<tr>
<td><strong>Theme 3: During the IPE Event</strong></td>
<td>Figuring out a plan</td>
<td>“I like talking together and figuring out a plan and then go forward with the plan. When you talk through and come up with a plan you also learn.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>Continuous communication</td>
<td>“We had to continuously communicate during the IPE event. (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>Importance of debriefing</td>
<td>“Sitting down afterwards in small groups and going over different scenarios together I thought that was extremely beneficial.” (PTA Student)</td>
</tr>
<tr>
<td><strong>Theme 4: Student Reflection of IPE</strong></td>
<td>Pros:</td>
<td>“Tell students how important this is.” (PTA Student)</td>
</tr>
<tr>
<td></td>
<td>• Valued the IPE experience</td>
<td>“It was helpful to see outside OTAs and PTAs working together.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>• Debriefing was extremely beneficial</td>
<td>“In my clinical I know how close we worked together, and I really think that this really was helpful because I can look back and thought oh this is the reason, we are doing this, and it was really important, and I did learn a lot.” (PTA Student)</td>
</tr>
<tr>
<td></td>
<td>• Learning how to build rapport with patients</td>
<td>“Introduction to different types of settings as a project with both (OTA and PTA) classes would be beneficial or any assignment just because you’d have to talk, and bounce ideas off from each other.” (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>Cons:</td>
<td>“It would have helped to have a tutorial of the bed, hospital room” prior to the IPE event. (OTA Student)</td>
</tr>
<tr>
<td></td>
<td>• Simulation was about practice skills more than roles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Did not understand the purpose during the event, but after realized importance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suggestions for Improvement in future IPE</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The study findings answered the research question with quantitative results first using the explanatory mixed methods design. Occupational therapy assistant and physical therapist assistant students reported an increase in their communication skills and perceived confidence, following participation in a simulated lab experience. The results suggested that participants showed an improvement in their perceptions of affective domain components within an interdisciplinary education program. These research findings are supported by and align with other published literature. The results from the study by Kim et al. (2018) concluded that a one day 4-hour IPE collaboration with OT, PT, and PA students demonstrated student improvement in understanding other professional roles and improvements in teamwork. In the current study, the IEPS and all four subscales within the IEPS were statistically significant indicating that student learning occurred in all domains (competency and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others’ values).

The thematic analysis of the qualitative findings occurred 10 months post IPE event. These findings also supported student attainment of perceived confidence and effective communication for the IPE event. A study, by Morrell et al. (2018) resulted in similar themes of collaboration, knowledge of other professions, and communication which correlates with the qualitative findings from this research.

**Theme One: Collaboration.**

*Collaboration,* noted that students reported participation in the IPE event allowed them to better understand other roles, other’s professional goals, and their responsibilities. This opportunity helped assist students to understand how to work with others in clinical settings, include co-treating in different settings. This is consistent with current literature as a similar study by Howell & Clearly (2001) concluded, a collaborative approach between PT and OT was deemed essential for effective treatment progress. Another study with other health care student programs by Luetsch & Rowett (2016) indicated a successful interprofessional collaboration that occurred in the educational setting between pharmacists and medical students increased their knowledge of other’s roles and reinforced strategies for patient safety and the promotion of best clinical practice. The research by Shoemaker et al. (2014) has main themes that are aligned with the qualitative finding from this research that include themes of collaboration with a category of role clarification.

**Theme Two: Building Confidence and Effective Communication Skills.**

*Effective Communication Skills,* provided evidence of achievement in learning professional communication skills, including communicating with clients. This is consistent with current literature as a study by Oppermann et al. (2019), looked at the importance of the implementation of health care communication and the implementation of communication training programs in the educational setting with first semester respiratory therapy students. The Oppermann et al. (2019) study indicated when students improve their communication skills in the academic setting that will translate to a decrease in health care costs, reduction in medical errors, and better outcomes for patients. In addition, theme two from this research, on building confidence, is supported by a study from Thomas et al. (2017) where PT and OT students worked together in a simulated ICU, acute care environment prior to the student’s clinical placements. From the
Thomas et al. (2017) study, the OT and PT students improved their confidence, and their clinical instructors acknowledged the students were more prepared in the ICU clinical setting. Also, application in interprofessional practice requires students to think quickly to respond to patients and other disciplines’ questions. This is supported by a study with Swift et al. (2019), which discussed the importance of effective communication skills and the role of OT practitioners working in practice with clients that have chronic health conditions. The Swift et al. (2019) study identified the importance of OT practitioners in helping clients and their families determine achievable ways to effectively communicate together.

**Theme Three: During the IPE Event.**

*During the IPE Event,* students expressed they were able to have their feelings acknowledged, regarding being unsure of what is next or feeling nervous for the first time working with hospital beds and with another student discipline during the IPE event. Students also verbalized that immediate feedback, and the group debriefing session were valuable components to this learning opportunity. The inclusion of immediate feedback by faculty members and a brief group debriefing session at the end of the IPE event was well received from participants and contributed to student learning. Debriefing is an imperative component that needs to be included in any simulated academic event. Debriefing assists in developing student’s critical thinking skills, clinical judgement that may have a positive impact on student’s future practice (Macdiarmid et al., 2020). Fariduddin et al. (2018) states, during simulation experiences, debriefing regardless of the type and or length contributes towards effective student learning.

**Theme Four: Student’s Reflection of the IPE Event.**

*Student’s Reflection of the IPE Event* included the pros and cons and student suggestions from the student’s perspective. One pro was that students valued the experience after they participated in their clinicals/fieldwork rotations. A study by Rosenfield et al. (2011), concluded similar results and consistencies when working with OT, medical, pharmacy, dental, and social work students over the course of a 2-year period. The Rosenfield et al. (2011) study participants attended two IPE events with over 1,200 students and then completed a focus group where students indicated they felt the IPE event added value to their education. Another pro to the IPE event included students felt this experience assisted in how they built rapport with patients. A third pro students stated was that debriefing was an extremely beneficial aspect that should not be left out of the IPE event. The study by Brown et al. (2018) suggests that “debriefing has been reported by learners to be the most beneficial aspect of a simulated IP experience” (p.779). The cons included students expressed the simulation was more focused on practice skills than understanding the professional roles of each discipline. Furthermore, students indicated they did not exactly understand the purpose of the simulation during the event. However, after attending clinicals, the academic experience of working with other disciplines was highly valued as it had prepared them for their clinical experiences.

Suggestions on how to incorporate smaller IPE events throughout the program were offered. OTA and PTA students felt this event was too large and should have been broken down into smaller components. The student feedback from the study by Rosenfield et al. (2011) correlates with the student suggestions from this research. In the focus group, students provided suggestions for multiple, smaller IPE experiences throughout the program. This is supported by literature regarding spaced and interleaved practice. Rosenfield et al. (2011) states that smaller
scale, sequential IPE events throughout an educational program, using a variety of teaching strategies, could optimize interprofessional collaboration. OTA and PTA students in this study provided examples such as talking through case study scenarios with another discipline, continued inclusion of evidence-based practice, working on a project together, continued inclusion of presentations, additional communication in documentation, and an introduction to the simulation lab setting prior to a large IPE event. These suggestions are supported by published literature. A study by Hendricks-Ferguson et al. (2018) supports the inclusion of case study assignments and the use of shared decision making when working with other disciplines in the academic setting. Case study assignments with the inclusion of shared decision making improves interprofessional collaboration and respect for other health care roles (Hendricks-Ferguson et al., 2018). An article by McLaughlin et al. (2015) also suggests the inclusion of smaller IPE event models. The McLaughlin et al. (2015) article suggests an inclusion of IPE with OTA and PTA students working to teach each other adaptive equipment training and clinical reasoning for gait training. Additionally, evidence-based practice (EBP) is supported in a study by Moyers et al. (2014) that identifies the importance of including EBP in OT education and suggests team learning helps develop a more holistic perspective when working with patients.

Strengths and Limitations

The strengths of this study include a strong faculty collaboration between the OTA and PTA faculty members and the inclusion of two outside guest instructors that were actively working as an OTA and a PTA in an acute care setting. The institution supports IPE program collaboration and offers the use of on-campus simulation labs and simulated mannequins. The mixed method research design grounded the participant’s reflection of their experiences and their point of view from the students’ perspective (Creswell & Creswell, 2018). The inclusion of a more structured debriefing session with future studies will continue to contribute to student learning. A more structured debriefing session should include open ended questions by the research to further gain participant’s understanding and learning following the IPE event. There were identified limitations to this study. The small sample size of participants from the same institution limits the generalizability of the results. There were unequal group sizes with one OTA student with two PTA students during the simulation groups, as this was relative to the enrollment in numbers in the OTA and PTA programs. There was a difference in educational experience between OTA and PTA students. The PTA students were beginning their first quarter of technical coursework, while the OTA students were in their last quarter of academic courses. The OTA students previously completed a simulated fieldwork experience that offered opportunities for further interprofessional educational training that the PTA students had not yet experienced. However, the sample size was relative to the enrollment numbers in both the PTA and OTA programs. Also, there was a 10-month gap between the participants participating in the IP event and when the focus group occurred, due to scheduling conflicts with student participants remaining off campus while participating in their clinical rotations. Another limitation included the researchers served as the course instructors for the perspective OTA and PTA courses. Additionally, the data were collected anonymously for both PTA and OTA students. In future studies, having students provide field of study and the inclusion of student’s experience in interprofessional collaboration for further data collection may prove beneficial.
Implications for Occupational Therapy and Physical Therapy Education

IPE is engrained in the national and educational standards of OTA education. OTAs and PTAs practice within settings where interprofessional teams consisting of multiple disciplines are expected to work cohesively. However, this is the first published study on IPE in the educational setting that include OTA or PTA level students. These research results support the integration of interprofessional education for OTA and PTA students, as a foundational component within the curriculum. Increased learning in effective communication skills, building confidence prior to clinical and fieldwork experiences, and understanding the importance of interprofessional practice and different roles, contribute to learning opportunities for students to gain knowledge from and impart knowledge to student peers in other professions.

Occupational therapy assistant and physical therapist assistant faculty can collaborate with college administrators to support college and university wide IPE and explore opportunities to offer IPE experience to their students (Hughes et al., 2019). Students provided the following suggestions regarding the implementation of IPE events in OTA/PTA education programs:

- Include progressive, smaller IPE events throughout academic program
- Ensure the inclusion of a debriefing session follows the IPE event
- Include a variety of teaching strategies and types of assignments
- Faculty need to assist in providing IPE carry over into clinical experiences with fieldwork educators/clinical instructors.

Implications for Occupational Therapy and Physical Therapy Practice

Preprofessional students learning together in the academic setting can translate into the ability of health care students applying their knowledge and skills, once they are professionals in the workplace, to treating their patients more collaboratively and effectively (Park et al., 2014).

In occupational and physical therapy practice, interprofessional collaboration continues to be a lifelong learning process that begins at the student level and carries over into clinical practice (Chau et al., 2010). Health care workers can have a higher rate of job burnout than other non-health care related jobs and a higher rate of work-related stress. IPE can lead to an increase in interprofessional practice which sequentially improve employment satisfaction and patient outcomes (Hughes et al., 2019). To narrow the gap between IPE and the carry over in effectiveness in clinical practice, additional research is needed in this area.

Future Research

More research is also required to determine effective avenues for the delivery of interprofessional education at the occupational therapy assistant and physical therapist assistant levels of education. Further research is needed with a larger participant sample size to better support this single interprofessional educational event. Additionally, this research could be conducted with other OTA and PTA programs that are housed within the same institution or region and replicated each year.
Conclusion

The use and implementation of interprofessional education within the OTA and PTA curricula can be a powerful tool. It provides a multitude of benefits to students, such as increased communication skills, cooperation between professions, and competency with interprofessional care (WHO, 2010; IPEC 2016). With interprofessional collaboration being embedded into both respective accrediting bodies (AOTA and CAPTE) the implementation of pre-professional collaborative experiences is considered a foundation for learning in didactic and lab coursework (Hughes et al., 2019). With many health program accreditation bodies including IPE within their standards, faculty need to continue to seek creative avenues to support and incorporate IPE in the academic setting. To do so prepares OT and PT practitioners to work collaboratively in the workplace and with the clients they serve. The results of this one-day interprofessional event demonstrated that the participants showed an improvement in their perceptions of affective domain components within an interdisciplinary education program. However, more research is needed with a larger participant sample size to better support these research findings. With no studies published in this area of teaching, further research is needed to determine effective avenues for the delivery of interprofessional education with occupational therapy assistant and physical therapist assistant students. Faculty within OTA and PTA programs are encouraged to utilize IPE experiences when teaching content related to communication, competence/autonomy, perceived need, and perception of cooperation and teamwork.
References


Appendix A: Patient-Based Cases
Patient #1 Cardiac: Jane Smith is a 72-year-old female with a past medical history of severe aortic insufficiency, aortic stenosis, hypertension (HTN), coronary artery disease (CAD) (recently diagnosed), and Type II heart attack. Pt now s/p Aortic Valve Replacement (AVR), and Coronary artery bypass grafting (CABG) x2 (double by-pass).

- **Precautions:** Sternal precautions, 3L O2 via NC, arterial line, Foley, Dobhoff tube
- **Evaluation (3 days ago):** Bed mobility – max A of 2; supine to sit – max A of 2; sit to stand – mod A of 2; unable to advance to transfer this day.

Prior level of function:
- Prior Ambulation: Independent
- Work/Vocational Status: Retired
- Work/Vocational Details: administrative assistant
- Prior Therapy: Outpatient for R total knee in 2015
- History of Falls: No
- Type of Home: Single level house
- Home Layout: One level home (2 steps to enter/exit with a rail)
- Equipment Owned: elevated toilet seat, shower chair
- Additional Home Information: walk in shower
- Lives With: Spouse
- Assistance Available at Discharge: Continuous assistance available
- Social/Leisure History: working in her garden and going shopping

Patient #2 Intensive Care Unit: Johnny Cage is a 51-year-old male with past medical history for significant for COPD, DMII, depression and Etoh abuse. He presented to the hospital for a planned orthotopic liver transplant on 10/20. He is currently 4L O2 via NC.

- **Precautions:** 4L O2, Foley catheter, peripheral IV, 2 JP drains
- **Evaluation:** bed mobility – max A of 1; supine to sit – max A of 2; sit to stand – max A of 2; transfer – unable at time of evaluation

Prior level of function:
- Prior Ambulation: Independent
- Prior Transfers: Independent
- Work/Vocational Status: full time
- Work/Vocational Details: diesel mechanic
- Prior Therapy: None
- History of Falls: multiple
- Home Layout: Two level home (2 steps to enter/exit with a rail) can stay on 1st floor.
- Equipment Owned: none
- Additional Home Information: walk in shower
- Lives With: Alone
- Assistance Available at Discharge: Continuous assistance questionable
- Social/Leisure History: being outdoors

Appendix B: Informal Debriefing Questions
1. What did you learn for this experience?

2. What did you enjoy most about this experience?

3. What was challenging about this experience?

Appendix C: *Focus Group Questions*
1. How did you experience interprofessional team dynamics during your clinical experiences
   a. Working with PTAs or OTAs?
   b. Working with OT’s and PT’s
   c. What other disciplines (nursing, CNA’s, physicians, physician assistants or nurse practitioners, dietitian, psychologists, teachers, etc.) did you work with and how was that experience?

2. Did you feel the OTA/PTA interprofessional simulation experience help to prepare you to work with PTAs/OTAs and other health care practitioners during your clinical experiences? If so, how? Please provide examples.

3. Did you feel this experience helped you feel more confidence in your role? Did the experience help you feel more confidence in understanding the role of the other discipline (OTA or PTA)? If so, how? Please provide examples.

4. Did you feel this experience helped you with effective communication with other OTA/PTAs during your clinical experiences? If so, how? Please provide examples.

5. What did you enjoy or find most helpful after participating in the OTA/PTA interprofessional simulation?

6. What suggestions do you have for future interprofessional simulation experiences in the OTA/PTA educational program?

7. Are there other academic education experiences that contributed to confidence in your role on your clinical rotations?

8. Are there other academic education experiences that contributed to effective communication with OTA’s, PTA’s and other disciplines on your clinical rotations?

9. Are there any additional comments or feedback on the interprofessional simulation experience?