Open Access Library Journal
2018, Volume 5, e4460
ISSN Online: 2333-9721
ISSN Print: 2333-9705

# Getting it Right from the Start: An Interprofessional Orientation Experience for Graduate Health Sciences Students, Evaluating Attitudes toward Role

**Lucyellen Dahlgren[1], Debra Gibbs[2], Suzanne Greenwalt[3], Lindsay Hahn[4], Mary S. Dietrich[5]**

[1]School of Nursing, Belmont University, Nashville, TN, USA
[2]School of Occupational Therapy, Belmont University, Nashville, TN, USA
[3]School of Physical Therapy, Belmont University, Nashville, TN, USA
[4]College of Pharmacy, Belmont University, Nashville, TN, USA
[5]School of Nursing, Vanderbilt University, Nashville, TN, USA
Email: lucy.dahlgren@belmont.edu

**How to cite this paper:** Dahlgren, L., Gibbs, D., Greenwalt, S., Hahn, L. and Dietrich, M.S. (2018) Getting it Right from the Start: An Interprofessional Orientation Experience for Graduate Health Sciences Students, Evaluating Attitudes toward Role. *Open Access Library Journal*, **5**: e4460.
https://doi.org/10.4236/oalib.1104460

**Received:** March 1, 2018
**Accepted:** April 25, 2018
**Published:** April 28, 2018



## Abstract

To encourage a collaborative practice environment, educators should implement interprofessional education (IPE) into the healthcare curriculum. The objective of this study was to assess students' attitudes about interprofessional education by determining whether a short interprofessional program impacts their attitudes toward the roles and responsibilities of other healthcare professionals. Graduate students in nursing, pharmacy, occupational therapy, and physical therapy participated in a two-hour orientation program. Students completed a validated pretest and posttest. Significant changes from pretest to posttest were found ($p < 0.001$), except for one question which addressed the need to acquire more skills than others ($p = 0.46$). This study suggested that a short program can have a positive impact on student attitudes about IPE.

## Subject Areas

Education

## Keywords

Attitudes, Interprofessional Education, Roles, Interprofessional Learning

## 1. Introduction

It has been estimated that there are over 200,000 preventable hospital-related

medical errors [1]. The issue of healthcare safety and quality has initiated a search for ways to increase patient safety. One area of focus to decrease medical errors and increase patient outcomes has been interprofessional practice (IPP).

Interprofessional practice brings together healthcare professionals from various disciplines in order to deliver the highest quality of care to the patient [2]. Furthermore, IPP is considered an essential component for developing future healthcare practitioners, so it should be introduced in the education system. However, the majority of healthcare education occurs in silos, where each discipline is governed by specific accreditation standards and curricular requirements. To remove this barrier and create a healthcare environment centered on IPP, the status quo must be challenged and strategies found to incorporate opportunities across healthcare education programs.

According to the World Health Organization, "Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" [3]. To prepare collaborative healthcare practitioners, colleges and universities are beginning to implement interprofessional education (IPE) into the curriculum.

Interprofessional education indicates a shift from single discipline education to a team approach in the delivery of patient care. Barriers to this shift include the attitudes and understanding of students about professional roles. According to Zwarenstein and Reeves [4], several factors, such as no defined tasks or roles and lack of leadership or time for team building, interfere with moving toward a team approach in the delivery of patient care. As such, involvement with IPE learning opportunities early in professional curricula may positively affect students by making them more willing to learn with students from other disciplines and thus improve long-term positive feelings about IPE [5].

Previous research suggests that attitudes about IPE can be positively impacted through exposure to IPE opportunities [6]. Whether a student has a positive or a negative attitude prior to engaging in IPE activities, participation seems to positively impact those attitudes [5] [6]. Further, students who had prior exposure to IPE had a more positive attitude toward it than those who were being exposed for the first time [7]. Taken together, these findings suggest that the more exposure healthcare students have to IPE, the more positively their attitudes are impacted.

Although there is support for the early implementation of IPE, research investigating the optimal timing or method of IPE delivery necessary to influence the learning or attitudes of students has been inconsistent. One institution utilized a one-day seminar to introduce IPE to students and faculty [8]. Other institutions have used simulation techniques and short IPE meetings that lasted for about 80 minutes [9] [10]. The University of South Carolina designed an IPE curriculum consisting of three in-person meetings and six web-based modules [11]. This curriculum was delivered as a stand-alone course in the colleges of pharmacy, social work, and public health, but it was embedded into preexisting courses in the medicine and nursing colleges [11]. According to Kenaszchuk, Rykhoff, Col-

lins, McPhail, and van Soeren [12], the necessary length of time a student needs to be involved in an IPE activity for it to influence attitudes about IPE and collaborative practice is undetermined. Positive change in attitudes has been noted with semester-long courses and with short events that last about six hours [5] [13]. These diverse examples indicate that regardless of the method or timing of delivery, students' attitudes can be positively impacted.

Another key component of IPE is teaching practitioners to understand the roles and responsibilities of all the healthcare team members. In fact, the roles and responsibilities of the healthcare team is one of the collaborative competency domains identified by the Interprofessional Education Consortium as an important component of interprofessional education and practice [14] [15]. Therefore, healthcare team members must understand their individual role and the roles of those in other disciplines, and they also need to be able to account for the limitations of their own role and responsibilities, appreciate the roles of practitioners from other disciplines, and understand when and how to include practitioners from other disciplines [16]. Suter *et al.* [17] investigated the understanding of roles in conjunction with effective communication as part of a collaborative practice that would result in positive patient outcomes. Through interviews conducted with members of a healthcare team comprised of nursing, occupational therapy, social work, and administration practitioners, the authors found that although collaboration was considered valuable successfully working together as an interprofessional team was not easy [17]. The lack of understanding of the roles and responsibilities of other team members attributed to this difficulty [17].

To improve this understanding between various healthcare practitioners, IPE should begin early in the curriculum, and place emphasis on orienting students to their own profession and to that of other team members. Unfortunately, many healthcare educational programs lack adequate opportunities and training in IPE [18]. Mellor, Cottrell, and Moran [19] (conducted semi-structured interviews with students following an IPE program offered four times to students in medicine, physical therapy, occupational therapy, pharmacy, and nursing. Using an interpretative phenomenological analysis, the theme of role identification and context was identified [19]. Students indicated that they gained a greater understanding of each other's roles and that the IPE activities gave context to their future practice and provided a greater appreciation of their own role and that of practitioners in other disciplines [19].

In a study at Saint Louis University, educating students about the roles of other healthcare team members improved students' attitudes learning together [5]. In that study, students participated in a one-credit, semester-long course that focused on interprofessional education and practice [5]. The purpose of the course was to educate students on the roles of each health profession represented and on the concepts of interprofessional care and practice [5]. As a result of the course, students had improved positive attitudes about learning together, recog-

nized the benefits of learning together, and recognize the benefit to patient care [5].

Faculty from nursing, pharmacy, occupational therapy, and physical therapy collaborated to develop and implement an IPE program. The faculty were from an institution with a strong commitment to IPE and evidence-based practice. To reinforce this commitment and create collaborative practitioners, an inaugural IPE project was planned around the domain of roles and responsibilities, and an orientation program for graduate students in nursing, pharmacy, occupational therapy, and physical therapy was developed. The current study was conducted to evaluate the effectiveness of this orientation program. The objective of this study was to assess students' attitudes about interprofessional learning by determining whether a short interprofessional program influenced their attitudes toward the roles and responsibilities of other healthcare professionals.

An initial search of the literature identified the Jefferson Interprofessional Center as a resource with a series of educational sessions on IPE available for use [20]. One session entitled, "Roles of Health Professionals Module: Interprofessional Orientation," aligned with the Interprofessional Education Collaborative domain of roles and responsibilities [20]. Because the institution of the current study and the Jefferson Interprofessional Center included students from similar disciplines (e.g., nursing, pharmacy, occupational therapy, and physical therapy), that module was chosen as the template for our orientation program.

## 2. Methods

### 2.1. Design

A two-hour IPE orientation program was created with the following learning objectives: to define and understand interprofessional healthcare practice and IPE, to gain knowledge of the roles of various healthcare practitioners, and to learn to communicate with providers from other disciplines. The program began with a case study focused around a post-operative patient managed by multiple disciplines. Small interdisciplinary groups of students discussed their discipline's roles and responsibilities in caring for the patient. Faculty from nursing, pharmacy, occupational therapy, and physical therapy, were present to guide group discussions and answer questions. Following the case study discussion, a panel of interdisciplinary faculty discussed their individual roles specifically for the case study and generally for healthcare practice. Lastly, the interdisciplinary groups participated in a team building activity, which required communication, collaboration, and recognition of the strengths of various members for successful completion. In summary, activities included in the orientation intended to introduce the concept of IPE as well as an understanding of individual roles and responsibilities. The local institutional review board granted approval of this study, and each participant provided informed consent prior to participation. All participants were 18 years or older.

## 2.2. Instrument

The Readiness for Interprofessional Learning Scale (RIPLS) was the pretest and posttest survey used to assess students' attitudes about IPE and toward the roles and responsibilities of other healthcare professionals (**Appendix 1**). The RIPLS was chosen for this study because it was developed to measure the readiness for interprofessional shared learning and to evaluate the effectiveness of shared learning activities and changes in attitudes about those activities [21].

The RIPLS is comprised of 19 statements that are assessed on a five-point Likert scale, where 1 is strongly disagree and 5 is strongly agree [21] Parsell and Bligh [21] have identified four separate domains of the RIPLS: teamwork and collaboration (9 statements), positive professional identity (5 statements), negative professional identity (3 statements) and roles and responsibilities (2 statements). The items comprising each domain are summed to arrive at total domain scores. Our scores indicated very poor internal consistency for the "Roles and Responsibilities" domain (Cronbach's $\alpha$ = 0.34 (pre), 0.50 (post)) therefore the responses to each of the statements comprising that score were analyzed separately, each having a possible range of 1 to 5. Internal consistency values for the other three domain scores were acceptable (Teamwork/Collaboration: 9 items, $\alpha$ = 0.92 (both pre and post), possible range = 9 - 45; Positive Professional Identity: 5 items, $\alpha$ = 0.87 (pre), 0.91 (post), possible range = 5 – 25; Negative Professional Identity: 3 items, $\alpha$ = 0.85 (pre), 0.76 (post), possible range = 3 - 15). A lower score on negative professional identity and higher scores for teamwork, positive professional identity, and the two role statements are indicative of a more positive attitude about inter-professional collaboration and learning [21].

## 2.3. Participants

Two groups of first-year graduate students participated in the study. In 2015, 91 students from nursing, occupational therapy, and physical therapy participated. In 2016, 187 students from nursing, pharmacy, occupational therapy, and physical therapy participated. The total number of participants for both years was 278 students. This study used a pretest and posttest design. A purposive and non-randomized method of participant selection was used since the IPE orientation program was a mandatory, non-graded experience. Student participation on the surveys was anonymous. At the top of the RIPLS questionnaire, students developed their own "personal code", which would be used on both the pre-test and post-test surveys.

## 2.4. Data Collection

On the day of the orientation, students completed a pretest RIPLS questionnaire by either a paper or electronic version. Students were informed that completing the RIPLS pretest before the mandatory IPE orientation program was optional and those who agreed were given 20 minutes to complete it. After students completed the pretest, they participated in the two-hour IPE orientation program. At

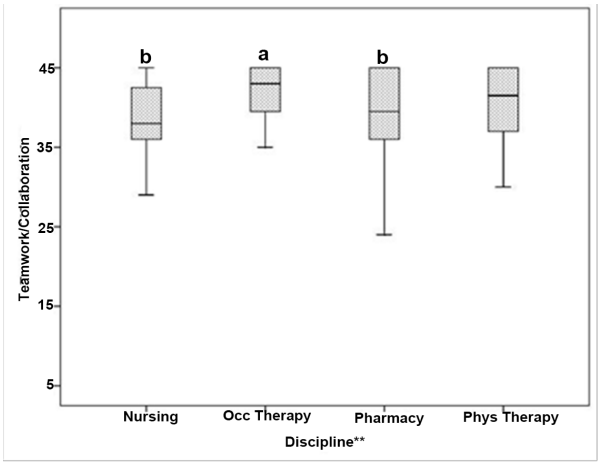
the conclusion of the orientation program, the students were given a RIPLS posttest. Students were again informed that participation in the posttest was optional, and those who agreed were given 20 minutes to complete the test. Pretest and posttest completion was 91% in 2015 and 85% in 2016. In order to capture all possible data, incomplete tests were included in the analysis. This resulted in a variable number of responses among domains.

### 2.5. Data Analysis

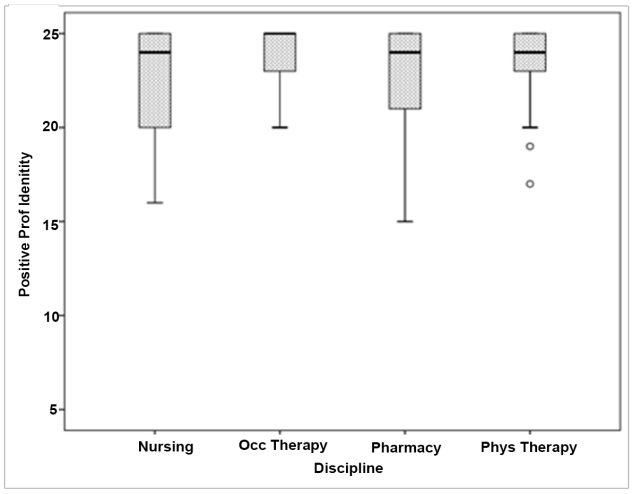
SPSS version 23 was used for data analysis. Several of the RIPLS score distributions were extremely skewed thus median and 25$^{th}$ - 75th interquartile ranges (IQR) were used to summarize those distributions and the distributions were rank-transformed to normal prior to analyzing study aims. Analysis of variance (ANOVA) of the transformed scores was used to test for differences among the disciplines in the domain and single statement scores at pretest. Post-hoc pairwise comparisons of statistically significant main effects were conducted using Scheffe' tests that maintained the overall alpha of 0.05. Wilcoxon Signed Ranks tests were used to test for change from pretest to posttest in the scores for the entire sample (all disciplines combined). To control for differences among disciplines at pretest, analysis of covariance (ANCOVA) of the transformed scores was used. This also tested for differences among the disciplines in the amount of change from pretest to posttest in the RIPLS scores. An alpha of 0.05 was used for testing statistical significance.

## 3. Results

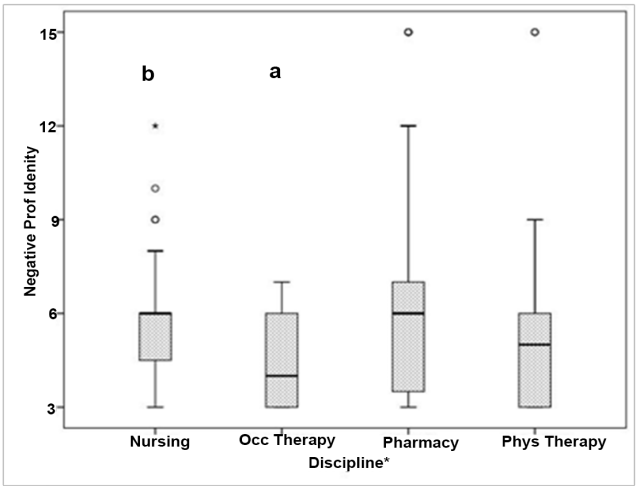
Initial (pre-test) scores on the three RIPLS domain scores used in this study, as well as the two questions comprising the "Roles" domain for each of the disciplines are shown in **Figure 1**. As can be seen, overall the scores were rather high for Teamwork and Collaboration (median = 41, range = 24 - 45 of a possible 9 - 45) and Positive Professional Identity (median = 24, range = 15 - 25 of a possible 5 - 25), and in the lower range for Negative Professional Identity (median = 5, range = 3 - 15 of a possible 3 - 15). Values were more in the middle of the possible ranges for the two Roles items ("Sure of Professional Role": median = 2, range = 1 - 5 of a possible 1 - 5; "Need to Acquire More Skills": median = 3, range = 1 - 5 of a possible 1 - 5). With the exception of the Positive Professional Identity domain score and the "Sure of Professional Role" item value, there were statistically significant differences among the disciplines (Teamwork/Collaboration: $p < 0.01$, Positive Professional Identity: $p = 0.09$, Negative Professional Identity: $p < 0.01$, "Need to Acquire more Knowledge and Skills than Others": $p = 0.04$). Post-hoc tests indicated that the occupational therapy students had higher teamwork and collaboration scores (median = 43) than did the nursing (median = 38, $p < 0.01$) and pharmacy (median = 40, $p = 0.04$) students. Occupational therapy students had lower negative professional identity scores (median = 4) than nursing students (median = 6, $p < 0.01$) and lower



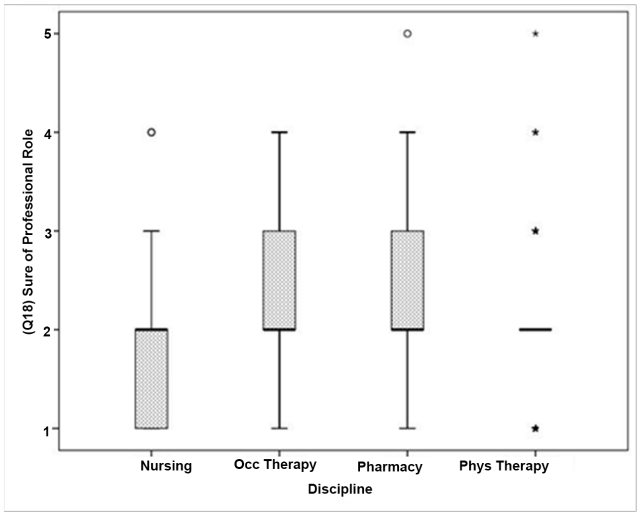

(a)



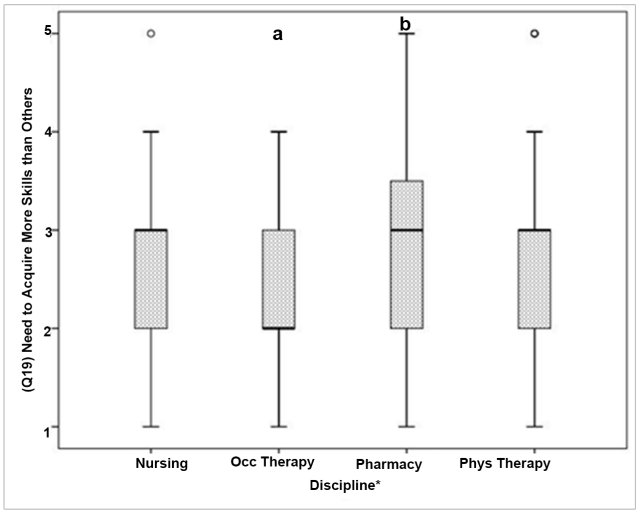

(b)




(c)




(d)




(e)

**Figure 1.** RIPLS Domain and single item "Roles" scores for each of the disciplines at pre-test. *Statistically significant differences among disciplines using rank-transformed data in one-way ANOVAs ($p < 0.05$). For the statistically significant findings, letters above particular boxes denote statistically significant differences between specific disciplines resulting from Scheffe' post-hoc tests ($p < 0.05$).

scores for "Need to Acquire more Knowledge and Skills than Others" (median = 2) than the pharmacy students (median = 3, $p = 0.04$).

Pretest, posttest and change in each of the RIPLS scores by discipline are summarized in Table 1. Statistically significant ($p < 0.001$) changes from pretest to posttest were found for each of the scores with the exception of the statement within the Roles domain regarding the need to acquire more skills than others do ($p = 0.90$). Overall, the domain scores for teamwork and collaboration increased from 0 to 4 amongst all disciplines, while positive professional identity increased from a score of 0 - 2. Negative professional identity domain scores decreased from a −2 to 0. The values for the role statement, which asked about the sureness of professional role, changed from a −1 to 0 for all disciplines, and the need to require more skills and knowledge improved from a score of −1 to 0. As shown in Table 1, there were no statistically significant differences among the disciplines in the amount of change in the scores ($p > 0.05$).

## 4. Discussion

Research suggests that including interprofessional opportunities within an educational curriculum can result in positive changes in student attitudes about IPE and collaborative practice [5] [7]. However, the amount of time needed to affect student attitudes about interprofessional learning is unclear [12]. In the current study, we found a positive change in student attitudes, as measured by the RIPLS, after a short two-hour IPE program, which supports the findings of previous studies.

The IPE orientation program used in this study also focused on establishing an understanding of the roles and responsibilities of various healthcare providers, one of the four domains on the RIPLS. The domain of roles and responsibilities is represented by two statements, 18 and 19 (Appendix 1). In this study, there was a lack of statistically significant changes in student responses to statement 19, which asked about acquiring more knowledge and skills. This result may be a result of the timing of the IPE orientation program since the program was presented early in the educational process. Although the students gained knowledge of the roles of those in other disciplines, they may have felt that they did not understand the "knowledge and skills" of the other disciplines. On average, pharmacy students had higher scores for this statement than occupational therapy and physical therapy students. This result may suggest that pharmacy students are not as familiar with the other disciplines, so they did not understand the knowledge and skills of the other disciples before the orientation program. This may be an area for additional investigation. In a longitudinal study by McFayden, Webster, Maclaren & O'Neill [22], the scores for the statements representing the domain of roles and responsibilities (statement 18 and 19) gradually increased with time attributing this to a "students' knowledge of their future roles and responsibilities" being limited early in their career (p. 560).

Other studies have identified differences between professional groups. Bradley, Cooper & Duncan [23] studied the impact on an IPE experience with

**Table 1.** Readiness for inter, professional learning scale (ripls) pretest and posttest scores after a short inter, professional education program for nursing, pharmacy, occupational therapy, and physical therapy students.

| RIPLS Domain | Median (25th, 75th Interquartile Range) RIPLS Scores | | | |
|---|---|---|---|---|
| | Pretest | Posttest | Change | *P* value |
| **Teamwork and Collaboration (Possible range = 9 - 45)** | | | | |
| **All disciplines (n = 234)** | **41 (37, 45)** | **45 (41, 45)** | **2 (0, 4)** | **<0.001** |
| Specific disciplines | | | | 0.46[a] |
| Nursing (n = 44) | 38 (35, 42) | 43 (37, 45) | 3 (0, 6) | |
| OT (n = 56) | 43 (39, 45) | 45 (42, 45) | 1 (0, 3) | |
| Pharmacy (n = 57) | 40 (36, 45) | 45 (41, 45) | 2 (0, 5) | |
| PT (n = 77) | 42 (37, 45) | 45 (42, 45) | 1 (0, 4) | |
| **Positive Professional Identity (Possible range = 5 - 25)** | | | | |
| **All disciplines (n = 241)** | **204 (22, 25)** | **25 (24, 25)** | **0 (0, 2)** | **<0.001** |
| Specific disciplines | | | | 0.76[a] |
| Nursing (n = 47) | 24 (20, 25) | 25 (22, 25) | 0 (0, 2) | |
| OT (n = 56) | 25 (23, 25) | 25 (24, 25) | 0 (0, 1) | |
| Pharmacy (n = 59) | 24 (21, 25) | 25 (24, 25) | 0 (0, 2) | |
| PT (n = 79) | 24 (23, 25) | 25 (25, 25) | 0 (0, 1) | |
| **Negative Professional Identity (Possible range = 3 - 15)** | | | | |
| **All disciplines (n = 238)** | **5 (3, 6)** | **3 (3, 6)** | **0 (−2, 0)** | **<0.001** |
| Specific disciplines | | | | 0.16[a] |
| Nursing (n = 45) | 6 (4, 6) | 4 (3, 6) | −1 (−3, 0) | |
| OT (n = 56) | 4 (3, 6) | 3 (3, 4) | 0 (−2, 0) | |
| Pharmacy (n = 58) | 6 (3, 7) | 4 (3, 6) | 0 (−1, 0) | |
| PT (n = 79) | 5 (3, 6) | 3 (3, 6) | 0 (−2, 0) | |
| **Roles and Responsibilities Single Statements (Possible range = 1 - 5)** | | | | |
| **Sure of professional role** | | | | |
| **All disciplines (n = 238)** | **2 (2, 3)** | **2 (1, 2)** | **0 (-1, 0)** | **<0.001** |
| Specific disciplines | | | | 0.73[a] |
| Nursing (n = 45) | 2 (1, 2) | 2 (1, 2) | 0 (−1, 0) | |
| OT (n = 56) | 2 (2, 3) | 2 (1, 2) | 1 (−1, 0) | |
| Pharmacy (n = 58) | 2 (2, 3) | 2 (1, 2) | 0 (−1, 0) | |
| PT (n = 79) | 2 (2, 2) | 2 (1, 2) | 0 (−1, 0) | |
| **Need to acquire more knowledge and skills than others** | | | | |
| **All disciplines (n = 237)** | **3 (2, 3)** | **2 (2, 3)** | **0 (−1, 0)** | **0.90** |
| Specific disciplines | | | | 0.10[a] |
| Nursing (n = 45) | 3 (2, 3) | 2 (2, 4) | 0 (−1, 0) | |
| OT (n = 55) | 2 (2, 3) | 2 (2, 3) | 0 (−1, 0) | |
| Pharmacy (n = 58) | 3 (2, 4) | 3 (2, 4) | 0 (−1, 1) | |
| PT (n = 79) | 3 (2, 3) | 2 (2, 3) | 0 (−1, 0) | |

nursing and medical students. In this study, the IPE experience was in the teaching of a very specific skill, resuscitation skills. The researchers found that the nursing students had significantly higher scores on the domain of roles and responsibilities attributing this increase to the greater clinical exposure and additional IPE experiences. Likewise, Systma, *et al.* [18] found significant differences in the roles and responsibility domain between medical students and physical therapy students in an anatomy lab with medical students scoring significantly higher that the physical therapy students. A study by Rose, *et al.* [24]with similar disciplines as represented in this study did not show differences amongst the disciplines.

Although the primary outcome of the study was roles and responsibilities, other outcomes were worthy of discussion. Even though the total amount of change between pretest and posttest RIPLS scores was not significantly different between the disciplines, other differences were found. On average, nursing students had lower scores for the RIPLS domains of teamwork and collaboration and positive professional identity than occupational therapy and physical therapy students. Further, occupational therapy students had lower scores on the negative professional identity domain than nursing and pharmacy students.

This study had several limitations. First, there were only four healthcare disciplines represented in the IPE orientation event. This reduces the generalizability of the results to all healthcare students. In addition, the sample size of students was relatively small and limited to students at a small private university. These factors also reduce the ability to generalize the results to students at all universities. Lastly, there is the potential that student responses on the RIPLS were biased towards the students' perceptions of what the desired responses were. Students entered the orientation with varying educational and healthcare backgrounds. After completing the program students now have a consistent IPE foundation. Looking forward through future IPE experiences, will allow further insight into the differences noted above. Future studies of these differences between the disciplines may identify effective IPE activities and suggest needed changes in curricular or admission criteria to better prepare students as collaborative healthcare practitioners. Studies could also investigate how these differences are impacted as students are exposed to more IPE opportunities. However, future studies should address whether changes in attitudes can be maintained with only intermittent IPE opportunities included in the curriculum.

## 5. Conclusion

Results of the current study suggest that an IPE program as short as two hours can positively affect students' attitudes about interprofessional learning, as well as their attitudes toward the roles and responsibilities of other healthcare professionals. As time constraints serve as a formidable barrier to IPE, this study addresses the success of a short orientation program. As educators are charged with preparing the future collaborative interprofessional practitioners while ba-

lancing the need to include an ever-growing amount of discipline-specific information, we must determine formats that in addition to addressing time, make changes necessary to fit the competing curricula and accreditation requirements.

## Acknowledgements

We are grateful to Deb Goggin, Research Support and Scientific Writer at A.T. Still University for her support throughout this work.

## Declaration of Interest

The authors of this paper report no conflict of interest. This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors. There has been no financial support for this work that could have influenced its outcome. The authors alone are responsible for the writing and content, and confirm that this manuscript has been read and approved by all named authors, and that there are no other persons who satisfied the criteria for authorship but are not listed. We understand that the Corresponding Author is the sole contact for the Editorial.

## References

[1] Kavanaugh, K., Saman, D., Bartel, R. and Westerman, K. (2017) Estimating Hospital-Related Deaths due to Medical Error: A Perspective from Patient Advocates. *Journal of Patient Safety*, **13**, 1-5.

[2] McNeil, K.A., Mitchell, R.J. and Parker, V. (2013) Interprofessional Practice and Professional Identity Threat. *Health Sociology Review,* **22**, 291-307. https://doi.org/10.5172/hesr.2013.22.3.291

[3] World Health Organization. (2010) Framework for Action on Interprofessional Education and Collaborative PRACTICE. http://www.who.int/hrh/resources/framework_action/en/

[4] Zwarenstein, M. and Reeves, S. (2006) Knowledge Translation and Interprofessional Collaboration: Where the Rubber of Evidence-Based Care Hits the Road of Teamwork. *The Journal of Continuing Education in the Health Professions*, **26**, 46-54. https://doi.org/10.1002/chp.50

[5] Ruebling, I., Pole, D., Breitbach, A.P., Frager, A., Kettenbach, G., Westhus, N., *et al.* (2014) A Comparison of Student Attitudes and Perceptions before and after an Introductory Interprofessional Education = Experience. *Journal of Interprofessional Care*, **28**, 23-27. https://doi.org/10.3109/13561820.2013.829421

[6] Hood, K., Cant, R., Baulch, J., Gilbee, A., Leech, M., Anderson, A., *et al.* (2014) Prior Experience of Interprofessional Learning Enhances Undergraduate Nursing and Healthcare Students' Professional Identity and Attitudes to Teamwork. *Nurse Education in Practice*, **14**, 117-122. https://doi.org/10.1016/j.nepr.2013.07.013

[7] Lie, D.A., Fung, C.C., Trial, J. and Lohenry, K. (2013) A Comparison of Two Scales for Assessing Health Professional Students' Attitude toward Interprofessional Learning. *Medical Education Online*, **18**, 1-10. https://doi.org/10.3402/meo.v18i0.21885

[8] Cranford, J.S. and Bates, T. (2015) Infusing Interprofessional Education into the Nursing Curriculum. *Nurse Educator*, **40**, 16-20.

https://doi.org/10.1097/NNE.0000000000000077

[9] Bolesta, S. and Chmil, J.V. (2014) Interprofessional Education among Student Health Professionals Using Human Patient Simulation. *American Journal of Pharmaceutical Education*, **78**, 94. https://doi.org/10.5688/ajpe78594

[10] Prast, J., Herlache-Pretzer, E., Frederick, A. and Gafni-Lachter, L. (2016) Practical Strategies for Integrating Interprofessional Education and Collaboration into the Curriculum. *Occupational Therapy in Health Care*, **30**, 166-174. https://doi.org/10.3109/07380577.2015.1107196

[11] Addy, C.L., Browne, T., Blake, E.W. and Bailey, J. (2015) Enhancing Interprofessional Education: Integrating Public Health and Social Work Perspectives. *American Journal of Public Health*, **105**, S106-S108. https://doi.org/10.2105/AJPH.2014.302502

[12] Kenaszchuk, C., Rykhoff, M., Collins, L., McPhail, S. and van Soeren, M. (2012) Positive and Null Effects of Interprofessional Education on Attitudes toward Interprofessional Learning and Collaboration. *Advances in Health Sciences Education: Theory and Practice*, **17**, 651-669. https://doi.org/10.1007/s10459-011-9341-0

[13] Wellman, R., Gilin, B., Knauss, L. and Linn, M.I. (2012) Changes in Student Attitudes toward Interprofessional Learning and Collaboration Arising from a Case-Based Educational Experience. *Journal of Allied Health*, **41**, 26-34.

[14] Interprofessional Education Collaborative Expert Panel. (2011) Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel. Interprofessional Education Collaborative, Washington DC. http://www.aacn.nche.edu/education-resources/ipecreport.pdf

[15] MacDonald, M.B., Bally, J.M., Ferguson, L.M., Murray, B.L., Fowler-Kerry, S.E. and Anonson, J.M.S. (2010) Knowledge of the Professional Role of Others: A Key Interprofessional Competency. *Nurse Education in Practice*, **10**, 238-242. https://doi.org/10.1016/j.nepr.2009.11.012

[16] Barr, H. (1998) Competent to Collaborate: Towards a Competency-Based Model for Interprofessional Education. *Journal of Interprofessional Care*, **12**, 181-187. https://doi.org/10.3109/13561829809014104

[17] Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E. and Deutschlander, S. (2009) Role Understanding and Effective Communication as Core Competencies for Collaborative Practice. *Journal of Interprofessional Care*, **23**, 41-51. https://doi.org/10.1080/13561820802338579

[18] Sytsma, T.T., Haller, E.P., Youdas, J.W., Krause, D.A., Hellyer, N.J., Pawlina, W., Lachman, N., *et al.* (2015) Long-Term Effect of a Short Interprofessional Education Interaction between Medical and Physical Therapy Students. *Anatomical Sciences Education*, **8**, 317-323. https://doi.org/10.1002/ase.1546

[19] Mellor, R., Cottrell, N. and Moran, M. (2013) "Just Working in a Team Was a Great Experience…"—Student Perspectives on the Learning Experiences of an Interprofessional Education Program. *Journal of Interprofessional Care*, **27**, 292-297. https://doi.org/10.3109/13561820.2013.769093

[20] Thomas Jefferson University (2016) The Role of Health Professions. http://www.jefferson.edu/university/interprofessional_education/learning_resources/roles.html

[21] Parsell, G. and Bligh, J. (1999) The Development of a Questionnaire to Assess the Readiness of Health Care Students for Interprofessional Learning (RIPLS). *Medical Education*, **33**, 95-100. https://doi.org/10.1046/j.1365-2923.1999.00298.x

[22] McFadyen, A.K., Webster, V.S., Maclaren, W.M. and O'Neill, M.A. (2010) Inter-

professional Attitudes and Perceptions: Results from a Longitudinal Controlled Trial of Pre-Registration Health and Social Care Students in Scotland. *Journal of Interprofessional Care*, **24**, 549-564. https://doi.org/10.3109/13561820903520369

[23] Bradley, P., Cooper, S. and Duncan, F. (2009) A Mixed-Methods Study of Interprofessional Learning of Rescusitation Skills. *Interprofessional Learning*, **43**, 912-922.

[24] Rose, M., Smith, K., Veloski, J., Lyons, K., Umland, E. and Arenson, C. (2009) Attitudes of Students in Medicine, Nursing, Occupational Therapy, and Physical Therapy toward Interprofessional Education. *Journal of Allied Health*, **38**, 196-200.

## Appendix

Readiness for Interprofessional Learning Scale (RIPLS) Questionnaire

***Appendix* 1: Readiness for Interprofessional Learning Scale (RIPLS) Questionnaire**

The purpose of this questionnaire is to examine the attitude of health and social care students and professionals towards interprofessional learning.

Your name: (develop your own 'personal code' by using the following formula):

**First 3 letters** from your first name: ☐☐☐ **Last 3 letters** from your last name: ☐☐☐

**Year of birth**: 19 _____ **Your discipline**: _____

**Gender**: ☐ M ☐ F

Have you completed the RIPLS questionnaire before? □ Yes □ No

If you answered yes to the previous question please indicate how long ago you last completed the questionnaire:

☐ 1 - 3 months ☐ 3 - 6 months ☐ 6 - 12 months

☐ 1 - 2 years ☐ 2 - 3 years ☐ 3+ years

**Have you had previous experience of interprofessional teaching?**

☐ Yes ☐ No

**If you answered yes to the previous question please give a very brief statement of what this IPE teaching was and any impact it may have had.**

**Please complete the following questionnaire.**

| | | Strongly agree | Agree | Undecided | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| **1.** | Learning with other students/professionals will make me a more effective member of a health and social care team | | | | | |
| **2.** | Patients would ultimately benefit if health and social care students/professionals worked together | | | | | |
| **3.** | Shared learning with other health and social care students students/professionals will increase my ability to understand clinical problems | | | | | |
| **4.** | Communications skills should be learned with other health and social care students students/professionals | | | | | |
| **5.** | Team-working skills are vital for all health and social care students students/professionals to learn | | | | | |
| **6.** | Shared learning will help me to understand my own professional limitations | | | | | |
| **7.** | Learning between health and social care students before qualification and for professionals after qualification would improve working relationships after qualification/collaborative practice. | | | | | |
| **8.** | Shared learning will help me think positively about other health and social care professionals | | | | | |
| **9.** | For small-group learning to work, students/professionals need to respect and trust each other | | | | | |
| **10.** | I don't want to waste time learning with other health and social care students/professionals | | | | | |

**Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| **11.** | It is not necessary for undergraduate/postgraduate health and social care students/professionals to learn together | | | | | |
| | | **Strongly agree** | **Agree** | **Undecided** | **Disagree** | **Strongly disagree** |
| **12.** | Clinical problem solving can only be learnt effectively with students/professionals from my own school/organisation | | | | | |
| **13.** | Shared learning with other health and social care professionals will help me to communicate better with patients and other professionals | | | | | |
| **14.** | I would welcome the opportunity to work on small group projects with other health and social care students/professionals | | | | | |
| **15.** | I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health and social care students/professionals | | | | | |
| **16.** | Shared learning and practice will help me clarify the nature of patients' or clients' problems | | | | | |
| **17.** | Shared learning before and after qualification will help me become a better team worker | | | | | |
| **18.** | I am not sure what my professional role will b/is | | | | | |
| **19.** | I have to acquire much more knowledge and skill than other students / professionals in my own faculty/organisation | | | | | |

**If you have any further comments regarding interprofessional education, please enter them in the box below**

Thank you for completing this survey. The data will provide us with an understanding of the influence of the Interprofessional Collaborative Practice program that we are facilitating or implementing. The original RIPLS survey has been adapted for use by Latrobe Community Health Service & the Health & Social care Interprofessional Network (HSIN), Victoria, August 2009.