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# The Effects of a Single Event Interprofessional Education (IPE) Experience on Occupational Therapy Students' Attitudes Toward IPE

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### ABSTRACT

**Purpose:** The purpose of the study was to evaluate the impact of a single interprofessional education (IPE) seminar on student attitudes toward interprofessional education (IPE) at a small northeastern university that housed an entry-level Master in Occupational Therapy (MOT) program. **Method:** Investigators used the Readiness for Interprofessional Learning Scale (RIPLS) to determine attitudes of thirty-six MOT students after attending an interprofessional seminar. **Results:** Participant response rate of MOT students was 88.9% percent. The analysis of data revealed no significant differences between MOT student attitudes toward IPE pre and post IPE seminar. **Conclusion:** Several factors are discussed that may have contributed to the lack of statistical differences. Growing interest in IPE related to clinical care warrants explorations into various issues raised by this study regarding implications for health care professional education, training, and patient care.

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### INTRODUCTION

Nearly 25 years ago, the World Health Organization (WHO) highlighted the need for collaboration of health care professionals to achieve maximal patient outcomes.<sup>1</sup> Academic institutions in the United States, having recognized the potential benefits of interprofessional education (IPE) conducted in Canada and Europe, have begun implementation of IPE among health care students.

More recently, the inclusion of programmatic accreditation standards have pushed forward an integration of IPE into health science educational curricula. Higher education instructors are searching for opportunities to meet the new curricular mandate. IPE experiences are being created among health science as well as non-health science students as a method of demonstrating interprofessional collaborations.

Occupational therapy (OT) educators have long promoted team collaboration, both among individuals within the occupational therapy profession (occupational therapists and occupational therapy assistants) and with other medical and rehabilitative professionals. Interestingly, there have been recent forays into developing a body of evidence to support collaborative work among varied health professions, now commonly referred to as interprofessional education (IPE). In 1988, the World Health Organization (WHO) suggested IPE as a potential means for health care professionals to increase awareness of team members' joint responsibility in achieving health outcomes.<sup>1</sup> Although increasing awareness of other health care professionals associated with patient care is one focus of occupational therapy education, the incidence of actual face to face interaction and IPE experiences among varied student professionals remains limited.

Several supportive factors for integration of IPE into occupational therapy curricula originate from national organizations providing oversight to the profession. The American Occupational Therapy Association (AOTA) identified the need for the occupational therapy profession to adapt to changing societal, economic, environmental, and educational developments such as IPE that face its stakeholders. AOTA, recognizing this need for adaptation, in conjunction with its 100<sup>th</sup> anniversary, crafted the Centennial Vision that states the AOTA "envision[s] that occupational therapy is a powerful, widely recognized, science-driven, and evidence-based profession with a globally connected and diverse workforce meeting society's occupational needs."<sup>2</sup> In order to increase recognition through collaboration, occupational therapy students, educators, and practitioners have embodied the vision by participating in IPE experiences. Similarly, the Accreditation Council for Occupational Therapy Education (ACOTE), via its most recently modified standards, charged occupational therapy educators to create opportunities to increase student awareness of and participation in interprofessional learning opportunities.<sup>3</sup>

The WHO has defined multi-professional education as "the process by which a group of students (or workers) from the health-related occupations with different educational backgrounds learn together during certain periods of their education, with interaction as an important goal, to collaborate in providing promotive, preventive, curative, rehabilitative and other health-related services."<sup>1</sup> Members of the Interprofessional Education Collaborative (IPEC) expert panel of professional organizations in the United States also uses this definition.<sup>4</sup> As professional literature began to document potential benefits of IPE, several organizations emerged to establish and advance interprofessional learning environments. Development of formal associations and subsequent adoption of a common language and definitions began in countries outside of the United States, with organizations in the United Kingdom, Canada, Australia, and New Zealand introducing various forms of IPE and providing examples of developed IPE initiatives.

As a result of the majority of IPE initiatives occurring outside of the United States, there has been very little IPE literature based in the United States. A large reason for the focus on IPE in those countries was in part due to government-based health care systems.<sup>5</sup> In 2001, the Institute of Medicine (IOM) in the United States acknowledged the need for collaborative and enhanced skills for American health care workers to function in the ever-changing health care environment.<sup>6</sup> IPE can serve as the tool for development of those skills. In fact, in 2011, the Interprofessional Education Collaborative Expert Panel (IECEP), a component of the Interprofessional Education Collaborative, introduced the first IPE competencies in the United States because the group deemed the competencies necessary for development of effective interprofessional collaboration and team work. The authors compiled four areas of competencies or outcomes for IPE, which included (a) values and ethics, (b) roles and responsibilities, (c) interprofessional communication, and (d) teams and teamwork.<sup>4</sup> These competencies can serve as a guide for health care educators and professionals to establish comprehensive IPE curricula. Subsequently, established curricula may provide data to aid in future research focused on identifying effective IPE processes.

Determination of the most effective time to introduce IPE, pre or post licensure or certification, has emerged as a debate among those immersed within IPE implementation and assessment.<sup>7-9</sup> Even among those who agree that IPE needs to take place pre-licensure, there are differences of opinion as to optimal timing for the introduction of IPE.<sup>10-12</sup> Although McPherson et al purport that IPE needs to occur early in the academic phase of learning, several general arguments exist for introducing IPE at the end of the curricular experience.<sup>10</sup> Parsell and Bligh proposed learners need to have a relatively comfortable sense of their own professional identities before they can develop appropriate communication and negotiation strategies necessary for IPE; this suggests the beginning of the educational experience may not be the best time to introduce IPE.<sup>12</sup> Proponents of integrating IPE opportunities early in the educational tenure of health care students' education also endorse continued IPE experiences throughout their professional careers.<sup>11</sup> Oandasan and Reeves hypothesized that introduction of IPE early in the education process can impact individual knowledge about one's own profession as well as help develop positive attitudes and behaviors toward other professionals.<sup>11</sup> Although educators invested in IPE have not yet reached consensus as to optimal timing of IPE experiences, most now agree IPE is a critical component of education for health care professionals. Despite calls for investigations into outcome of IPE among students, literature examining the impact of IPE during academic education remains

limited. Therefore, there is a critical need for research investigating IPE in educational processes, including variables that affect the structure and outcomes of IPE.

Attitudes toward IPE among students entering health care professions have only recently become a focus of inquiry. That research has already begun to yield some interesting results that may help inform the argument regarding timing of IPE experiences. In 2003, Hind et al studied student attitudes and stereotypes of their own profession as well as others.<sup>8</sup> Hind et al provided questionnaire surveys to a group of undergraduate health care students and found strong positive correlations between participant stereotypes of the various health professions, professional identity, and readiness for interprofessional learning. Participants described strong identification with their own profession and positive attitudes toward interprofessional learning at the beginning of their education. Furthermore, comparison between participant identification and attitude toward other professions yielded a positive outcome. These findings led the authors to postulate that positive attitudes toward others as well as their own profession could support the introduction of IPE in the beginning stage of health care student education. Development of positive attitudes along with the relationship between students' professional identity and readiness for interprofessional learning can facilitate a sense of group belonging.<sup>8</sup>

As development of IPE initiatives has occurred, no consensus has emerged in the literature regarding an effective pedagogy to build an IPE-based curriculum that leads to the ultimate outcome of high quality patient care.<sup>13</sup> One essential factor related to IPE pedagogy is that participants in IPE projects demonstrate a readiness or openness to engage in projects of this nature.<sup>7</sup> Participants need to acknowledge a willingness to engage in cooperative learning with others in order for IPE to be a positive experience.<sup>7</sup> In turn, educators need to model and provide an environment that facilitates cooperation among group members from different professions.

The American occupational therapy profession, to remain consistent with current health care practice trends, must examine supports and benefits for introduction of IPE into occupational therapy curricula. There has been a focus on team collaboration and interprofessional experiences early in occupational therapy academic preparation.<sup>14</sup> However, there has been very little research focused on evaluating the impact and effectiveness of these experiences among entry level occupational therapy students. The purpose of this study was to evaluate if a single interprofessional educational seminar could impact student attitudes toward IPE at a small northeastern university that housed an entry-level Master in Occupational Therapy (MOT) program. This study is part of an ongoing initiative investigating attitudes of IPE among health science students enrolled in several professional programs.<sup>15</sup> This was the first step in developing an interprofessional curriculum for MOT students and other health professions students educated at the same university.

## **METHODS**

### **Participants**

Thirty-six graduate level occupational therapy students in their first semester of the program participated in a single IPE seminar. There were 34 females and two males. Mean age was 23.78, with ages ranging from 21 to 37. Attendance at the IPE seminar was a mandatory part of the course "Introduction to Occupational Therapy Assessment and Intervention," a required course in the curriculum. Completion of study questionnaires was voluntary. Thirty-six MOT students completed the pre seminar survey and 32 students completed the post seminar survey. Twenty-six participants included an optional unique identifier on their surveys, allowing for matched pre-post data.

In addition to the OT participants, students from Physician Assistant (PA) Studies, Counseling Psychology (CP), and Physical Therapy (PT) collaboratively participated in an IPE seminar. However very few of the non-OT students completed the post assessment; specifically, of the 71 PA students who completed the pre assessment, only two completed the post assessment; of the 17 CP students who completed the pre assessment, only four completed the post assessment; and of the 34 PT students who completed the pre assessment, only sixteen completed the post assessment. Because of the limited number of non-OT participants who completed the post assessment, all non-OT students were excluded from additional analyses.

### **Measure**

#### ***Readiness for Interprofessional Learning Scale (RIPLS)***

The investigators chose the RIPLS as the tool to assess readiness for IPE among first year MOT students. RIPLS has become one of the most widely used instruments in research relating to IPE. The scale, originally developed in 1997, evaluates attitudes and perceptions of students regarding IPE.<sup>9</sup> The revised version developed by McFadyen et al in 2005 consisted of 19 items utilizing a 5-point Likert scale and included four subscales: 1) Teamwork and Collaboration (items 1 to 9, total possible score 45); 2) Negative Professional Identity (items 10 to 12, total possible score 15); 3) Positive Professional Identity (items 13 to 16, total possible score 20); and 4) Roles and Responsibilities (items 17 to 19, total possible score 15).<sup>16</sup> The end points of the Likert

scale included the labels “strongly disagree (1)” to “strongly agree (5)”. The maximum total RIPLS score was 95.<sup>16</sup> McFadyen et al examined test-retest reliability for this version of RIPLS and determined each of the four subscales and individual items to be within acceptable ranges.<sup>16</sup>

The Teamwork and Collaboration subscale assessed participant attitude related to impact of cooperative learning with other professions' students pertaining to clinical and communication issues, trust and respect, and professional limitations. A high subscale score suggested students agree with item content concerning importance of these qualities. Negative Professional Identity items represented negative statements regarding the value of working with other health care students. Consistent with an alter publication from McFadyen et al, investigators in the present study reverse scored these items so that high scores consistently indicate readiness for IPE.<sup>17</sup> High scores indicated that participants value cooperative learning with other health care professions students. Positive Professional Identity related to optimistic attitudes toward shared learning experiences with other health care profession students; cooperative learning improves communication, problem-solving, and team skills. A high score indicated that participants identify benefits to these shared learning experiences with students from other health professions. The Roles and Responsibilities subscale, also reverse scored, related to items asking about the participants' own professional roles and those of other health care providers. A high score indicated an uncertain or inaccurate perception of one's own role and that of other health care providers.

### Procedure

The investigators collected data during Fall 2011. There were no exclusion criteria. Researchers stored data on a secure password-protected computer. Researchers handled missing data by excluding subjects only from those questions that they omitted. The university's Internal Review Board granted approval for the study.

Investigators entered the RIPLS questions into Qualtrics, an internet-based survey software system.<sup>18</sup> In addition to the 19 items of the RIPLS survey, researchers included five additional questions. Four demographic questions included gender, age, educational program, and time (in months) in the educational program. The question was how many months they had been in their program. Researchers provided access to the RIPLS two days prior to the IPE seminar. The response rate prior to the IPE seminar was 100% of MOT students. The IPE seminar included students from various health profession programs (counseling psychology, nursing, occupational therapy, physical therapy, and physician assistant studies). The duration of the seminar was three hours. Faculty members initiated the seminar by explaining a case study and then assembled students into groups, with each group representing a diversity of health care professional programs attending the seminar. Once groups formed, interprofessional student group members, facilitated by a faculty member, communicated their profession's role in the case. Researchers made the post survey available to participants for one week after the seminar. There were no significant differences in age or gender of participants who completed the survey at the two different times (see Table 1).

**Table 1. Demographic Data of Participants**

	Pre Seminar	Post Seminar
Gender		
Male	2	1
Female	34	31
Age (in years) ± Standard Deviation	23.8 ± 2.95	23.9 ± 3.15
Range of ages (in years)	21 to 37	21 to 37

### RESULTS

RIPLS total score and subscale scores for each of the four subscales were computed. A one-factor pre-post multivariate analysis of variance (MANOVA), with time of survey (pre seminar versus post seminar) as the independent variable and RIPLS subscale scores as the dependent variables, was not statistically significant, multivariate  $F(4, 63) = 0.869$ ,  $p = .488$ . A univariate analysis of variance (ANOVA), with time of survey (pre seminar versus post seminar) as the independent variable and RIPLS total score as the dependent variable, was also not statistically significant,  $F(1, 66) = 0.176$ ,  $p = .676$ . Means, standard deviations, and inferential statistics appear in Table 2.

**Table 2. Means, Standard Deviations, and ANOVA Statistics RIPLS Subscales and RIPLS Total Score**

Subscale	Pre Seminar			Post Seminar			F	P
	N	Mean	Standard Deviation	N	Mean	Standard Deviation		
Teamwork	36	39.9	3.35	32	39.4	4.76	0.263	.610
Negative Professional ID	36	12.6	1.54	32	12.2	2.37	0.580	.449
Positive Professional ID	36	12.4	1.33	32	12.6	1.74	0.388	.536
Roles	36	11.5	1.46	32	11.6	1.56	0.032	.858
RIPLS TOTAL	36	76.4	5.49	32	75.8	8.20	0.117	.733

Researchers used only the 26 MOT participants who provided matched data for subsequent analyses. A one-factor pre-post multivariate analysis of variance (MANOVA), with time of survey (pre seminar versus post seminar) as the independent variable and RIPLS subscale scores as the dependent variables, was not statistically significant, multivariate  $F(4, 22) = 1.020, p = .419$ . A univariate analysis of variance (ANOVA), with time of survey (pre seminar versus post seminar) as the independent variable and RIPLS total score as the dependent variable, was also not statistically significant,  $F(1, 25) = 0.000, p = 1.000$ . Means, standard deviations, and inferential statistics appear in Table 3.

**Table 3. Means, Standard Deviations, and ANOVA Statistics for RIPLS Subscales and RIPLS Total Score for the 26 Matched Students**

Subscale	Pre seminar		Post seminar		F	P
	Mean	Standard Deviation	Mean	Standard Deviation		
Teamwork	40.0	3.35	39.8	4.27	0.038	.847
Negative Professional ID	12.4	1.58	12.3	2.49	0.117	.735
Positive Professional ID	12.4	1.42	12.7	1.71	1.294	.266
Roles	11.5	1.56	11.4	1.65	0.009	.927
RIPLS TOTAL	76.3	5.62	76.3	7.88	0.000	1.000

## DISCUSSION

Results of this study indicated no statistically significant quantitative difference in the pre-post response to the RIPLS in either the total or any of the subscales. Several factors may contribute to the lack of differences in participant pre and post scores. Identification of the most appropriate time to introduce IPE experiences remains a controversial area of inquiry presented in IPE literature. Participants in the current study engaged in an IPE experience at the beginning of their academic education. Educators need to consider several factors that can affect change in student attitude when deciding the time to initiate IPE. These considerations include previously established student stereotypes or perceptions of their profession and those of other professions, ability to interact or communicate with students representing other professions, and development of a basic understanding of each other's roles.<sup>15,19, 20</sup>

Absence of statistically significant comparisons between pre and post scores for the four RIPLS subscales and RIPLS total are consistent with existing literature finding little to no change in attitude regarding the profession of participants.<sup>8</sup> Investigators are in agreement that health science students tend to exhibit positive identity toward their own profession upon entering their educational programs.<sup>8, 20</sup> Results from the current study revealed that participants had very high pre seminar scores on the subscales of the RIPLS and total RIPLS score indicating they already had positive attitudes toward IPE. These high scores may represent a ceiling effect, thereby preventing manifestation of change in the positive direction. Hornsey's explanation for existing high scores among our participants is Social Identity Theory, which states that individuals tend to identify more positively with their own group than those outside of their group.<sup>21</sup> Although students in this research project were only in their first semester of

graduate study, it is possible they already had identified themselves as part of a unified group within the occupational therapy profession, a profession that espouses high attitudes toward IPE.

Consistent with this hypothesis is the possibility that students entering occupational therapy education have developed predetermined attitudes/stereotypes that are positive toward readiness for IPE. Several recent studies have indicated that students in other health professions may also be entering their studies with preconceived stereotypes of their chosen profession as well as others.<sup>15, 22</sup> Hertweck et al showed the physician assistant (PA) students' scores were significantly lower than scores from students in counseling psychology, occupational therapy, and physical therapy programs on three subscales (Roles & Responsibilities, Negative Professional Identity, and Teamwork & Collaboration) as well as the RIPLS total score.<sup>15</sup> They also noted different teaching models used among PA and other health care students might impact acceptance or readiness for IPE among PA students. Medical education programs typically use a medical or unidisciplinary model, whereas other health science disciplines learn from multidisciplinary models.<sup>23</sup> Consistent with Tanaka's et al positive view of multidisciplinary teams, Hertweck et al proposed educators could use findings of their study to create an interprofessional learning environment to minimize stereotypes and increase collaboration among all health care students.<sup>15, 23</sup>

Another possible reason for the absence of statistically significant differences in the present study is the use of a single IPE experience. Research has shown that one-time IPE presentations are unlikely to change attitudes, whereas multiple or longitudinally designed IPE experiences elicit attitudinal change.<sup>5, 24, 25, 26</sup> Saini et al found that a three-day event produced significant changes on two of the subscales of the RIPLS but not on the total score.<sup>26</sup> In 2004, Mu et al found statistically significant changes after multiple IPE events throughout an entire academic program.<sup>27</sup> Thus, although single event activities do not appear to change attitudes of students toward IPE, there is support for effectiveness of multiple-event activities with regards to changing IPE attitudes.

Perhaps the instrument chosen for this study also impacted our results. Authors of the present study chose the RIPLS, a frequently used instrument that produces quantitative data. However, qualitative assessment might help researchers discern subtle changes that were occurring as a result of the single event IPE. Lidskog et al used a qualitative approach to describe perceptions of students in occupational therapy, social work, and nursing regarding students' own profession and those of others participating in the study.<sup>19</sup> Qualitative data revealed a variety of perceptions regarding knowledge, responsibilities, and values of other participants' professions. Such intricate information does not appear to be available by using existing attitude questionnaires alone. Qualitative information, in addition to that obtained from quantitative measures, could enhance faculty ability to strengthen and modify existing IPE curricula to meet specific learning needs of participants as well as assess initial impact of IPE events.

## CONCLUSION

Future studies, in addition to incorporating qualitative measures, also need to evaluate any impact demographic variables may have on readiness for IPE. Female participants in the present study greatly outnumbered male participants, though this gender disparity is consistent with and representative of the occupational therapy profession. Wilhelmsson et al examined the impact of various student traits on their open-mindedness to interprofessional collaboration and found that female participants scored higher than males on the Teamwork and Collaboration subscale of the RIPLS.<sup>28</sup> Curran et al have also reported female students were more positive toward interprofessional teamwork than their male counterparts.<sup>29</sup>

Given that studies have shown gender effects on readiness for IPE, research also needs to look at race and ethnicity, which our current study did not do. Omission of race/ethnicity does not allow for understanding effects that these variables may have on learning style and outcomes. In fact, Breland and Ellis indicated that inclusion of participant race and ethnicity appears limited in occupational therapy research, and this exclusion prevented generalization of research outcomes to the general population. Researchers must increase awareness and efforts of designing studies that include culturally diverse participants.<sup>30</sup>

Finally, occupational therapy leaders have recognized that the importance of IPE extends beyond the classroom. The newest ACOTE standards (effective July, 2013) specifically state the expectation for entry level master's degree students is to "effectively communicate and work interprofessionally with those who provide services to individuals, organizations, and/or populations in order to clarify each member's responsibility in executing an intervention plan."<sup>33</sup> Incorporation of the new ACOTE standards will continue to promote interprofessional team building, integrated patient care, and improved patient outcomes. Evidence in support of ACOTE's standards has begun to emerge in interprofessional team work literature. One important outcome of effective interprofessional team work is the potential for providing optimal patient care.<sup>14, 31</sup> Parsell and Bligh suggest the focus of IPE education needs to move toward patient-centered care instead of individual profession territorial domains.<sup>12</sup>

Current changes in the health care delivery system and subsequent educational program designs to meet those demands are fueling the need for IPE in the pre-licensure phases of professional health care education. As educational institutions comply with accreditation standards, quality of research provided to support this process needs to increase. It will become necessary to increase the number of robustly designed studies that incorporate psychometrically sound measurement tools. Refinement of studies determining the most effective method of IPE during the pre-licensure phase of health profession students must continue. Along with the many questions that have risen from IPE literature, studies related to impact of pre-licensure IPE on patient care outcomes post licensure seem highly relevant. With the growing interest in IPE as related to clinical care, there is a critical need to continue explorations into various issues raised by this study and others for implications for health care professional training and interprofessional patient care.

### Declaration of Interest

The authors report no declarations of interest.

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