JOTE Journal of Occupational Therapy Education

Volume 5 | Issue 3 Article 7

2021

Occupational Therapy Students' Test/Re-Test Reliability of the Readiness for Interprofessional Education Learning Scale and Interdisciplinary Education Perception Scale

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Recommended Citation

Simpkins, L. S., Sciascia, A. D., & Humphrey, C. E. (2021). Occupational Therapy Students' Test/Re-Test Reliability of the Readiness for Interprofessional Education Learning Scale and Interdisciplinary Education Perception Scale. *Journal of Occupational Therapy Education, 5* (3). https://doi.org/10.26681/jote.2021.050307

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Abstract

The purpose of this study was to establish the test/re-test reliability of two interprofessional education (IPE) instruments, the Readiness for Interprofessional Learning Scale (RIPLS) and the Interdisciplinary Education Perception Scale (IEPS) among occupational therapy (OT) graduate students. The intent was to compare results based on previous IPE experience and year in the program. The RIPLS and IEPS were distributed to 111 OT students at one university. Both instruments were distributed a second time 10-14 days later. Cronbach's alpha, weighted Kappas, intraclass correlation coefficients (ICC), standard error of measurement, and minimal detectable change were calculated for each instrument. Assessments occurred for all subjects, between students with and without previous IPE experience, and first and second-year students in the program. Overall and between group composite score reliability for the RIPLS and IEPS were fair to excellent (ICC≥0.72). RIPLS subscale ICC's were variable per previous IPE experience and year in program, ranging from fair-excellent (ICC=0.45-0.93). IEPS subscale ICC's were excellent for second-year students (ICC≥0.79), and fair-excellent for students with or without previous experience and first-year students (ICC=0.50-0.84). There were no differences for the RIPLS within or between sessions or groups. First-year students had significantly higher scores compared to second-year students within sessions for the IEPS composite score, Competency and Autonomy subscale, and Perception of Actual Cooperation subscale (p≤0.035). Both instruments have acceptable test-re-test reliability; however, previous IPE experience and year in program should be accounted for when distributing the instruments and interpreting the results.

Keywords

Occupational therapy students, interprofessional education, Interdisciplinary Education Perception Scale, Readiness for Interprofessional Learning Scale

JOTE
Journal of Occupational Therapy Education

Volume 5, Issue 3

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ABSTRACT

The purpose of this study was to establish the test/re-test reliability of two interprofessional education (IPE) instruments, the Readiness for Interprofessional Learning Scale (RIPLS) and the Interdisciplinary Education Perception Scale (IEPS) among occupational therapy (OT) graduate students. The intent was to compare results based on previous IPE experience and year in the program. The RIPLS and IEPS were distributed to 111 OT students at one university. Both instruments were distributed a second time 10-14 days later. Cronbach's alpha, weighted Kappas, intraclass correlation coefficients (ICC), standard error of measurement, and minimal detectable change were calculated for each instrument. Assessments occurred for all subjects, between students with and without previous IPE experience, and first and second-year students in the program. Overall and between group composite score reliability for the RIPLS and IEPS were fair to excellent (ICC≥0.72). RIPLS subscale ICC's were variable per previous IPE experience and year in program, ranging from fair-excellent (ICC=0.45-0.93). IEPS subscale ICC's were excellent for second-year students (ICC≥0.79), and fair-excellent for students with or without previous experience and first-year students (ICC=0.50-0.84). There were no differences for the RIPLS within or between sessions or groups. First-year students had significantly higher scores compared to second-year students within sessions for the IEPS composite score, Competency and Autonomy subscale, and Perception of Actual Cooperation subscale ($p \leq 0.035$). Both instruments have acceptable test-re-test reliability; however, previous IPE experience and year in program should be accounted for when distributing the instruments and interpreting the results.

Introduction

The World Health Organization (WHO) defines interprofessional education (IPE) as "an experience that occurs when students from two (or more) professions learn about, from and with each other" (2010). IPE is a topic that is becoming more prevalent within occupational therapy (OT) educational programs from the associate degree in occupational therapy assistant (OTA) programming throughout the master's degree, entry-level doctoral, and post-professional doctoral degrees. The inclusion of IPE is mentioned in the Accreditation Council for Occupational Therapy Education (ACOTE) 2018 adopted standards which states "students must be prepared to effectively communicate and work interprofessionally with all who provide services and programs for persons, groups, and populations" (ACOTE, 2018, p. 2). ACOTE, which is the accrediting body for all OT educational programming, desires for IPE to be provided in college curricula.

Two IPE constructs that are frequently measured are student readiness for IPE and existing attitudes towards IPE. Readiness for IPE is commonly assessed through the Readiness for Interprofessional Learning Scale (RIPLS; Parsell & Bligh, 1999) while attitudes towards IPE are assessed via the Interdisciplinary Education Perception Scale (IEPS; Luecht et al., 1990). The RIPLS focuses on three different areas: 1) Teamwork and Collaboration, 2) Negative Professional Identity, and 3) Positive Professional Identity while the IEPS is comprised of 3 subscales (Competency & Autonomy, Perceived Need for Cooperation, and Perception of Actual Cooperation) designed to measure an individual's professional understanding of identity in relation to his or her profession. While these scales can be used individually, they are often found throughout the literature used in combination as a measurement tool to explore both the attitudes and readiness of students participating in IPE (Maharajan et al., 2017; McFadyen et al., 2007; McFadyen et al., 2006; McFadyen et al., 2005; Sciascia et al., 2021). Various psychometric aspects of the two aforementioned self-reported questionnaires have been studied including factor analysis (McFadyen et al., 2007; McFadyen et al., 2005; Williams & Webb, 2013; Yu et al., 2018), test/re-test reliability (McFadyen et al., 2007; McFadyen et al., 2006; Sciascia et al., 2021), and item agreement/internal consistency (McFadyen et al., 2007; McFadyen et al., 2006; McFadyen et al., 2005; Williams & Webb, 2013; Yu et al., 2018). However, test/re-test reliability has been studied sparingly and with variations in sample size and subject population (McFadyen et al., 2007; McFadyen et al., 2006; Sciascia et al., 2021).

The seminal published studies that examined the test/re-test reliability of the RIPLS and IEPS was comprised of 65 first-year OT students at a single university showing fair to good test/re-test reliability (McFadyen et al., 2007; McFadyen et al., 2006). More recently, Sciascia et al. (2021) replicated the initial study, expanding the test/re-test reliability study results by including more disciplines and calculating the standard error of measurement and minimal detectable change for both instruments; they found slightly higher intraclass correlation coefficients compared to McFadyen et al. (2006) and McFadyen et al. (2007). However, if the RIPLS and IEPS are to continue being the metrics of choice for measuring IPE effectiveness, it would be prudent to examine individual disciplines at the university level with larger sample sizes to ensure test/retest

DOI: 10.26681/jote.2021.050307

reliability remains stable between disciplines with varied curriculums, programs that span across multiple years, or within larger groups. For example, replicating the original studies by McFadyen et al. (2006) and McFadyen et al. (2007) with only OT students in varying years of curriculum programming would be beneficial because it will evaluate the impact of a multi-year curriculum which includes IPE experiences in different contexts on the reliability of these tools. It is possible that student experiences within a program that spans multiple years, particularly those that include IPE experiences such as an OT program, could impact the stability of the RIPLS and IEPS. Understanding how these multi-year program experiences influence the RIPLS and IEPS is unable to be seen when only considering a small number of students within a single year of programming.

It has also been shown that test/re-test reliability of the RIPLS and IEPS is influenced by previous IPE experience (Sciascia et al., 2021). However, what has not been examined is whether year in program influences these instruments in similar experiences. Graduate students who have matriculated further through a health care program could have had clinical rotations where IPE may have been experienced, thus influencing measurement results. Occupational therapy is one such type of program and therefore would benefit from being looked at individually. Maharajan and colleagues (2017) recommended that ongoing research is needed to evaluate specific components that may impact a student's attitude and readiness towards IPE which could include years in program and previous IPE experience. Further investigation of programs, such as OT, that account for year in program and include the influence of previous IPE experiences is necessary to establish the use of the RIPLS and IEPS across all health care professional programs and for accurate use for curriculum evaluation.

Therefore, the purpose of this study was to 1) determine the test/re-test reliability of the RIPLS and the IEPS in a large sample of OT students and 2) determine if test/re-test reliability metrics vary based upon previous IPE experience or year in program. The study hypotheses were: 1) the test/re-test reliability specifically for the OT students using the RIPLS and IEPS would be good to excellent and 2) previous experience or second-year OT students in the program would result in higher test/re-test reliability.

Methods

After receiving Institutional Review Board (IRB) approval for exemption, research team members approached potential participants during scheduled classes within the first three weeks of the fall semester of 2019. Students within five varying health sciences program professional programs (athletic training, communication disorders, dietetics, nursing, and OT) were enrolled in the study (Sciascia et al., 2021). From the original data set, only the OT students were extracted for analysis in this study (111 OT students). Students were formally admitted to the OT program and were either first or second-year graduate students. First-year students did not yet have an assigned clinical rotation while second-year students had two different clinical rotations completed at the time the study was performed. In order to decrease the potential of student coercion and/or students feeling "obligated" to participate, research team members did not recruit potential participants from the courses he or she (the research team member) was

serving as instructor. After seeking approval from the instructor of record to attend his or her class for the purpose of recruitment, a research team member described the proposed study, all inclusion criteria, and distributed a cover letter that contained the study details. The instructor of record for each course was asked to leave the classroom during the recruitment procedures to avoid any undue influence from the instructor on the students to participate in the study.

After reading and signing an IRB approved packet, all participants provided the following information: first name, last name, course, sex, academic program, and previous IPE experience. Previous IPE experience was defined as any classroom or clinical activity that involved working with students from other health care professions. Students were provided the opportunity to write in the nature of any previous IPE experience, but this was not required to complete the surveys. Next, the participants completed the RIPLS and IEPS.

Instruments

Readiness for Interprofessional Learning Scale

Various iterations of the RIPLS have been reported in the literature ranging from 16-19 items and three to four subscales (Groessl & Vandenhouten, 2019; Maharajan et al., 2017; Mahler et al., 2015; McFadyen et al., 2005; McFadyen et al., 2006; Parsell & Bligh, 1999; Welsch et al., 2017; Yu et al., 2018); however, the most recent version containing 16 items scored on a 5-point Likert scale ranging from strongly agree to strongly disagree was included in this study. This version of the RIPLS was selected based on the recent confirmation (Yu et al., 2018) of the three-factor model (Teamwork and Collaboration, Positive Professional Identity, and Negative Professional Identity) described by McFadyen et al. (2005, 2006). Higher scores reflect increased readiness for IPE.

Interdisciplinary Education Perception Scale

The IEPS is a 12-item questionnaire with each question scored on a 6-point Likert scale that also ranges from strongly agree to strongly disagree, with higher scores reflecting more positive attitudes or perceptions about IPE (McFadyen et al., 2007).

No less than 10 days after the initial completion of the questionnaires but no more than 14 days later, the RIPLS and IEPS were completed again by the participants. This time frame was utilized because a shorter time frame could have led to possible carryover effects while a longer time frame could have allowed for too much change to occur due to active teaching and learning. For each instrument, a composite score was calculated as well as individual scores for each subscale as described in previous literature (McFadyen et al., 2007; McFadyen et al., 2005; Yu et al., 2018).

Data Analysis

Descriptive statistics for all subjects were reported as frequencies and percentages reported for categorical variables. Reliability metrics including Cronbach's alpha, weighted Kappa (k), intraclass correlation coefficients (ICC), standard error of

DOI: 10.26681/jote.2021.050307

measurement (SEM), and minimal detectable change at 90% (MDC_{90}) and 95% confidence levels (MDC_{95}) were calculated for the RIPLS and IEPS composite scores and subscales. Agreement and test/re-test reliability was assessed for all subjects and individually for students with and without previous IPE experience as well as for first and second-year students. Internal consistency of each instrument was assessed via Cronbach's alpha. Responses for each item within the RIPLS and IEPS between the two distribution sessions were assessed for level of agreement using the weighted Kappa coefficient (Cohen, 1960). Interpretation of agreement per each weighted Kappa value was as follows: -0.10-0=no agreement, 0.1-0.20=slight, 0.21-0.40=fair, 0.41-0.60=moderate, 0.61-0.80=good, and 0.81-1.00=very good (Landis & Koch, 1977). ICC values were calculated using the two-way random effects model with absolute agreement [ICC (2,1)] (Denegar & Ball, 1993; Shrout & Fleiss, 1979). An ICC ≥ 0.75 was interpreted as excellent while values between 0.40–0.74 were considered fair to good and ≤0.39 were considered poor (Cicchetti, 1994). The Shapiro-Wilk test for normality was utilized revealing the variables were not normally distributed. Non-parametric procedures were employed, including Wilcoxon Sign Rank tests for between session comparisons and Mann-Whitney U Rank Sum tests to compare RIPLS and IEPS scores between students with and without previous IPE experience and between first and second-year students within each session. Statistical significance was set at $p \leq 0.05$. All statistical calculations were performed using STATA/SE 15.1 (STATACorp, Inc., College Station, TX).

Results

One hundred eleven students from the OT program participated in the study. Ninety-one percent (91%) of the students were female (n=101), 67% of students reported having previous IPE experience (n=74), and 43% were first-year students (n=48). Of the first-year students, 56% (n=37) did not have any previous IPE. Although all second-year students had completed two clinical rotations prior to participating in the study, 16% reported having no previous IPE experience.

Item Test/Re-Test Reliability

All items within the RIPLS were statistically significant ($p<0.001$) while the level of agreement for each item ranged from fair to good (k=0.348-0.630) (see Table 1). For students without previous IPE experience, all items except items #4 and #5 were statistically significant ($p \leq 0.020$). Items ranged from no agreement to good agreement (k=0.000-0.656). For students with previous IPE experience, all 16 items were statistically significant ($p \leq 0.008$) and ranged from fair to good agreement (k=0.279-0.724). When examining kappa values between first and second-year students, items ranged from no agreement to good agreement for first-year students and fair to good for second-year students. Items #2, 4, 5, 8, 9, and 13 were not statistically significant for first-year students ($p \geq 0.121$) while all 16 items were statistically significant ($p<0.001$) for second-year students. There was no agreement amongst first-year students for items #2, 5, 9, and 13.

Table 1

Weighted Kappa Results for the Readiness for Interprofessional Learning Scale (RIPLS)

RIPLS Item	Overall (n=111)	No Previous IPE Experience (n=37)	Previous IPE Experience (n=74)	1st Year Students (n=48)	2nd Year Students (n=63)
Learning with other students will help me become a more effective member of a health care team					
Kappa	0.630	0.615	0.638	0.564	0.679
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Good	Good	Good	Moderate	Good
Patients would ultimately benefit if health care students worked together to solve patient problems					
Kappa	0.461	0.358	0.509	-0.053	0.701
P-value	<0.001	0.013	<0.001	0.645	<0.001
Agreement	Moderate	Fair	Moderate	No agreement	Good
Shared learning with other health care students will increase my ability to understand clinical problems					
Kappa	0.583	0.599	0.570	0.575	0.591
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Moderate	Moderate	Moderate
Communication skills should be learned with other health care students					
Kappa	0.349	0.109	0.486	0.154	0.472
P-value	<0.001	0.235	<0.001	0.121	<0.001
Agreement	Fair	Slight	Moderate	Slight	Moderate
Team-working skills are essential for all health care students/professionals to learn					
Kappa	0.454	0.000	0.724	0.000	0.667
P-value	<0.001	1.000	<0.001	1.000	<0.001
Agreement	Moderate	No agreement	Good	No agreement	Good

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RIPLS Item	Overall (n=111)	No Previous IPE Experience (n=37)	Previous IPE Experience (n=74)	1st Year Students (n=48)	2nd Year Students (n=63)
Shared learning will help me to understand my own professional limitations					
Kappa	0.582	0.481	0.620	0.654	0.529
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Good	Good	Moderate
Learning between health care students before qualification and for professionals after qualification would improve working relationships after qualification/collaborative practice					
Kappa	0.584	0.656	0.544	0.603	0.569
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Good	Moderate	Moderate	Moderate
Shared learning will help me think positively about other health care professionals					
Kappa	0.348	0.325	0.358	0.125	0.431
P-value	<0.001	0.020	<0.001	0.186	<0.001
Agreement	Fair	Fair	Fair	Slight	Moderate
For small group learning to work, students/ professionals need to respect and trust each other					
Kappa	0.348	0.536	0.279	-0.053	0.417
P-value	<0.001	<0.001	0.008	0.645	<0.001
Agreement	Fair	Moderate	Fair	No agreement	Moderate
I don't want to waste my time learning with other health care students					
Kappa	0.500	0.609	0.448	0.600	0.436
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Moderate	Moderate	Moderate
It is not necessary for undergraduate health care students to learn together					
Kappa	0.448	0.345	0.513	0.416	0.467
P-value	<0.001	0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Fair	Moderate	Moderate	Moderate

RIPLS Item	Overall (n=111)	No Previous IPE Experience (n=37)	Previous IPE Experience (n=74)	1st Year Students (n=48)	2nd Year Students (n=63)
Clinical problem-solving skills can only be learned with students from my own department					
Kappa	0.374	0.492	0.312	0.412	0.341
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Fair	Moderate	Fair	Moderate	Fair
Shared learning with other health care students will help me to communicate better with patients and other professionals					
Kappa	0.383	0.373	0.385	-0.037	0.535
P-value	<0.001	0.009	<0.001	0.606	<0.001
Agreement	Fair	Fair	Fair	No agreement	Moderate
I would welcome the opportunity to work on small-group projects with other health care students					
Kappa	0.457	0.573	0.401	0.441	0.464
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Fair	Moderate	Moderate
Shared learning will help to clarify the nature of patient problems					
Kappa	0.433	0.475	0.415	0.388	0.436
P-value	<0.001	<0.001	<0.001	0.002	<0.001
Agreement	Moderate	Moderate	Moderate	Fair	Moderate
Shared learning before qualification will help me become a better team worker					
Kappa	0.468	0.493	0.461	0.340	0.488
P-value	<0.001	<0.001	<0.001	0.006	<0.001
Agreement	Moderate	Moderate	Moderate	Fair	Moderate

IPE=Interprofessional Education

All items within the IEPS were statistically significant ($p<0.001$) while the level of agreement for each item ranged from fair to moderate ($k=0.347$-0.519) (see Table 2). All items were also statistically significant for students with ($p<0.001$) and without previous IPE experience ($p\leq0.021$). All items for both groups had fair to moderate agreement

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(k=0.270-0.534). When examining kappa values between first and second-year students, items ranged from slight to moderate agreement for first-year students and fair to moderate for second-year students. Items #1 and #9 were not statistically significant for first-year students while all 16 items were statistically significant (p≤0.003) for second-year students.

Table 2

Weighted Kappa Results for the Interdisciplinary Education Perception Scale (IEPS)

IEPS Item	Overall (n=111)	No Previous IPE Experience (n=37)	Previous IPE Experience (n=74)	1st Year Students (n=48)	2nd Year Students (n=63)
Individuals in my profession are well-trained					
Kappa	0.495	0.455	0.482	0.063	0.518
P-value	<0.001	<0.001	<0.001	0.320	<0.001
Agreement	Moderate	Moderate	Moderate	Slight	Moderate
Individuals in my profession are able to work closely with individuals in other professions					
Kappa	0.405	0.388	0.408	0.298	0.379
P-value	<0.001	0.003	<0.001	0.013	<0.001
Agreement	Fair	Fair	Fair	Fair	Fair
Individuals in my profession are very positive about their goals and objectives					
Kappa	0.475	0.483	0.470	0.467	0.464
P-value	<0.001	0.002	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Moderate	Moderate	Moderate
Individuals in my profession need to cooperate with other professions					
Kappa	0.362	0.421	0.338	0.431	0.316
P-value	<0.001	0.004	<0.001	0.001	0.003
Agreement	Fair	Moderate	Fair	Moderate	Fair
Individuals in my profession are very positive about their contributions and accomplishments					
Kappa	0.451	0.418	0.462	0.400	0.460
P-value	<0.001	0.002	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Moderate	Fair	Moderate

IEPS Item	Overall (n=111)	No Previous IPE Experience (n=37)	Previous IPE Experience (n=74)	1st Year Students (n=48)	2nd Year Students (n=63)
Individuals in my profession must depend upon the work of people in other professions					
Kappa	0.407	0.301	0.461	0.291	0.488
P-value	<0.001	0.002	<0.001	0.001	<0.001
Agreement	Fair	Fair	Moderate	Fair	Moderate
Individuals in my profession trust each other's professional judgment					
Kappa	0.347	0.270	0.380	0.312	0.362
P-value	<0.001	0.021	<0.001	0.005	<0.001
Agreement	Fair	Fair	Fair	Fair	Fair
Individuals in my profession are extremely competent					
Kappa	0.399	0.449	0.375	0.366	0.373
P-value	<0.001	<0.001	<0.001	0.003	<0.001
Agreement	Fair	Moderate	Fair	Fair	Fair
Individuals in my profession are willing to share information and resources with other professionals					
Kappa	0.449	0.337	0.496	0.190	0.498
P-value	<0.001	0.007	<0.001	0.067	<0.001
Agreement	Moderate	Fair	Moderate	Slight	Moderate
Individuals in my profession have good relations with people in other professions					
Kappa	0.400	0.475	0.365	0.415	0.349
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Fair	Moderate	Fair	Moderate	Fair
Individuals in my profession think highly of other related professions					
Kappa	0.519	0.481	0.534	0.384	0.559
P-value	<0.001	<0.001	<0.001	0.002	<0.001
Agreement	Moderate	Moderate	Moderate	Fair	Moderate
Individuals in my profession work well with each other					
Kappa	0.447	0.471	0.436	0.426	0.424
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Agreement	Moderate	Moderate	Moderate	Moderate	Moderate

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Composite Score and Subscale Test/Re-Test Reliability

The overall and between group composite scores for the RIPLS were considered excellent with ICC values above the 0.75 threshold (ICC≥0.77; see Table 3). However, when examining the ICC values for the RIPLS subscales, the majority of the ICCs were in the fair to good classification, ranging from 0.45-0.74. The ICCs for the three subscales for students without previous IPE experience ranged from 0.72-0.82 while the ICCs for students with previous IPE experience ranged from 0.45-0.90. The ICCs for all three subscales for first-year students were within the fair to good classification (0.59-0.72). Conversely, two subscales (Positive and Negative Professional Identity) were fair to good for second-year students with Teamwork and Collaboration being excellent (ICC=0.93). The SEM, MDC_{90}, and MDC_{95} values for the RIPLS are presented in Table 3.

Table 3

Test/Re-Test Reliability Results for Readiness for Interprofessional Learning Scale (RIPLS)

Overall n=111	RIPLS Composite	Teamwork and Collaboration	Negative Professional Identity	Positive Professional Identity
ICC	0.84	0.85	0.63	0.53
P-value	<0.001	<0.001	<0.001	<0.001
ICC Interpretation	Excellent	Excellent	Good	Fair
95% CI Lower Bound	0.76	0.79	0.45	0.32
95% CI Upper Bound	0.89	0.90	0.74	0.68
Cronbach's Alpha	0.84	0.85	0.62	0.54
Mean (pooled)	75.30	43.23	13.40	18.67
SD (pooled)	5.45	2.60	2.00	2.15
SEM	2.21	1.01	1.22	1.47
MDC_{90}	5.17	2.35	2.84	3.44
MDC_{95}	6.14	2.79	3.37	4.09
No Previous IPE Experience n=37	**RIPLS Composite**	**Teamwork and Collaboration**	**Negative Professional Identity**	**Positive Professional Identity**
ICC	0.82	0.74	0.72	0.82
P-value	<0.001	<0.001	<0.001	<0.001
ICC Interpretation	Excellent	Good	Good	Excellent

95% CI Lower Bound	0.66	0.51	0.46	0.65
95% CI Upper Bound	0.91	0.87	0.86	0.91
Cronbach's Alpha	0.83	0.75	0.72	0.84
Mean (pooled)	75.32	43.15	13.31	18.87
SD (pooled)	5.20	2.55	2.20	1.60
SEM	2.21	1.30	1.16	0.68
MDC_{90}	5.15	3.03	2.72	1.58
MDC_{95}	6.12	3.60	3.23	1.88
Previous IPE Experience n=74	RIPLS Composite	Teamwork and Collaboration	Negative Professional Identity	Positive Professional Identity
ICC	0.85	0.90	0.56	0.45
P-value	<0.001	<0.001	<0.001	0.006
ICC Interpretation	Excellent	Excellent	Fair	Fair
95% CI Lower Bound	0.75	0.85	0.30	0.12
95% CI Upper Bound	0.90	0.94	0.72	0.65
Cronbach's Alpha	0.84	0.90	0.55	0.45
Mean (pooled)	75.30	43.26	13.47	18.57
SD (pooled)	5.60	2.65	1.85	2.35
SEM	2.17	0.84	1.23	1.74
MDC_{90}	5.06	1.96	2.86	4.07
MDC_{95}	6.01	2.32	3.40	4.83
1st Year Students n=48	RIPLS Composite	Teamwork and Collaboration	Negative Professional Identity	Positive Professional Identity
ICC	0.77	0.69	0.72	0.59
P-value	<0.001	<0.001	<0.001	0.001
ICC Interpretation	Excellent	Good	Good	Fair
95% CI Lower Bound	0.60	0.46	0.50	0.27
95% CI Upper Bound	0.87	0.83	0.84	0.77
Cronbach's Alpha	0.78	0.70	0.72	0.59

DOI: 10.26681/jote.2021.050307

Mean (pooled)	76.03	43.49	13.45	19.09
SD (pooled)	4.85	2.30	2.05	1.45
SEM	2.33	1.28	1.08	0.93
MDC_{90}	5.43	2.99	2.53	2.17
MDC_{95}	6.45	3.55	3.01	2.57
2nd Year Students n=63	RIPLS Composite	Teamwork and Collaboration	Negative Professional Identity	Positive Professional Identity
ICC	0.87	0.93	0.53	0.49
P-value	<0.001	<0.001	0.002	0.004
ICC Interpretation	Excellent	Excellent	Fair	Fair
95% CI Lower Bound	0.78	0.89	0.22	0.17
95% CI Upper Bound	0.92	0.96	0.72	0.69
Cronbach's Alpha	0.87	0.93	0.52	0.49
Mean (pooled)	74.75	43.02	13.39	18.34
SD (pooled)	5.80	2.75	1.90	2.50
SEM	2.09	0.73	1.30	1.79
MDC_{90}	4.88	1.70	3.04	4.17
MDC_{95}	5.80	2.02	3.61	4.95

IPE=interprofessional education; ICC=intraclass correlation coefficient; 95% CI=95% confidence interval; SD=standard deviation; SEM=standard error of measurement; MDC_{90}=minimal detectable change at 90% confidence level; MDC_{95}=minimal detectable change at 95% confidence level

The overall and between group composite scores for the IEPS were considered excellent with ICC values above the 0.75 threshold (ICC≥0.80) except for the first-year students (ICC=0.72; see Table 4). The overall and between group Competency and Autonomy and the Perception of Actual Cooperation subscales were considered excellent with ICC values above the 0.75 threshold (ICC≥0.80) except for the first-year students for the Perception of Actual Cooperation subscale (ICC=0.71). The ICCs for the Perceived Need for Cooperation subscale were fair to good (ICC=0.50-0.74) for all groups except for the second-year students which had an excellent ICC of 0.79. The SEM, MDC_{90}, and MDC_{95} values for the IEPS are presented in Table 4.

Table 4

Test/Re-Test Reliability Results for Interdisciplinary Education Perception Scale (IEPS)

Overall n=111	IEPS Composite	Competency and Autonomy	Perceived Need for Cooperation	Perception of Actual Cooperation
ICC	0.83	0.84	0.70	0.80
P-Value	<0.001	<0.001	<0.001	<0.001
Interpretation	Excellent	Excellent	Good	Excellent
95% CI Lower Bound	0.75	0.77	0.56	0.72
95% CI Upper Bound	0.88	0.89	0.79	0.87
Cronbach's Alpha	0.83	0.85	0.70	0.81
Mean (pooled)	66.05	27.79	10.54	27.70
SD (pooled)	5.35	2.35	1.35	2.55
SEM	2.21	0.94	0.74	1.14
MDC_{90}	5.15	2.19	1.73	2.66
MDC_{95}	6.11	2.61	2.05	3.16
No Previous IPE Experience n=37	**IEPS Composite**	**Competency and Autonomy**	**Perceived Need for Cooperation**	**Perception of Actual Cooperation**
ICC	0.80	0.84	0.60	0.80
P-Value	<0.001	<0.001	0.004	<0.001
Interpretation	Excellent	Excellent	Good	Excellent
95% CI Lower Bound	0.62	0.69	0.22	0.61
95% CI Upper Bound	0.90	0.92	0.80	0.90
Cronbach's Alpha	0.81	0.85	0.60	0.80
Mean (pooled)	66.61	28.14	10.45	28.03
SD (pooled)	4.90	2.10	1.35	2.45
SEM	2.19	0.84	0.85	1.10
MDC_{90}	5.11	1.96	1.99	2.56
MDC_{95}	6.07	2.33	2.37	3.04
Previous IPE Experience n=74	**IEPS Composite**	**Competency and Autonomy**	**Perceived Need for Cooperation**	**Perception of Actual Cooperation**
ICC	0.84	0.84	0.74	0.81

DOI: 10.26681/jote.2021.050307

P-Value	<0.001	<0.001	<0.001	<0.001
Interpretation	Excellent	Excellent	Good	Excellent
95% CI Lower Bound	0.74	0.75	0.59	0.69
95% CI Upper Bound	0.90	0.90	0.84	0.88
Cronbach's Alpha	0.84	0.84	0.74	0.81
Mean (pooled)	65.78	27.62	10.59	27.57
SD (pooled)	5.50	2.45	1.35	2.60
SEM	2.20	0.98	0.69	1.13
MDC_{90}	5.13	2.29	1.61	2.64
MDC_{95}	6.10	2.72	1.91	3.14
1st Year Students n=48	IEPS Composite	Competency and Autonomy	Perceived Need for Cooperation	Perception of Actual Cooperation
ICC	0.72	0.78	0.50	0.71
P-Value	<0.001	<0.001	0.011	<0.001
Interpretation	Good	Excellent	Fair	Good
95% CI Lower Bound	0.50	0.62	0.10	0.48
95% CI Upper Bound	0.84	0.88	0.72	0.84
Cronbach's Alpha	0.72	0.78	0.49	0.71
Mean (pooled)	67.89	28.55	10.67	28.67
SD (pooled)	3.85	1.65	1.25	1.85
SEM	2.04	0.77	0.88	1.00
MDC_{90}	4.75	1.81	2.06	2.32
MDC_{95}	5.65	2.15	2.45	2.76
2nd Year Students n=63	IEPS Composite	Competency and Autonomy	Perceived Need for Cooperation	Perception of Actual Cooperation
ICC	0.84	0.84	0.79	0.80
P-Value	<0.001	<0.001	<0.001	<0.001
Interpretation	Excellent	Excellent	Excellent	Excellent
95% CI Lower Bound	0.73	0.74	0.65	0.67
95% CI Upper Bound	0.90	0.90	0.87	0.88
Cronbach's Alpha	0.84	0.85	0.79	0.80

Mean (pooled)	64.66	27.21	10.44	27.00
SD (pooled)	5.85	2.55	1.40	2.80
SEM	2.34	1.02	0.64	1.25
MDC_{90}	5.46	2.38	1.50	2.92
MDC_{95}	6.49	2.83	1.78	3.47

IPE=interprofessional education; ICC=intraclass correlation coefficient; 95% CI=95% confidence interval; SD=standard deviation; SEM=standard error of measurement; MDC_{90}=minimal detectable change at 90% confidence level; MDC_{95}=minimal detectable change at 95% confidence level

Between and Within Session Assessment

There were no statistically significant differences between the sessions for the overall RIPLS composite or subscale scores (see Table 5). There were also no statistically significant differences between or within sessions when accounting for previous IPE experience and year in the OT program (see Table 6).

Table 5

Between Session Results for RIPLS n=111 (reported as mean ± standard deviation)

	Session 1	Session 2	P-Value
RIPLS Composite	75.57 ± 5.05	75.05 ± 5.83	0.483
Teamwork and Collaboration	43.32 ± 2.45	43.14 ± 2.79	1.000
Negative Professional Identity	13.42 ± 1.87	13.41 ± 2.06	1.000
Positive Professional Identity	18.83 ± 1.76	18.50 ± 2.49	0.470

RIPLS=Readiness for Interprofessional Learning Scale; IPE=Interprofessional Education; 95%CI=95% Confidence Interval

DOI: 10.26681/jote.2021.050307

Table 6

Between and Within Session Results for RIPLS by Previous IPE Experience and Year in Program (reported as mean ± standard deviation)

	Session 1	Session 2	P-Value
RIPLS Composite			
No Previous Experience (n=37)	75.78 ± 4.43	74.86 ± 6.01	0.307
Previous Experience (n=74)	75.46 ± 5.36	75.14 ± 5.78	1.000
P-Value	0.885	0.974	
1st Year Students (n=48)	76.48 ± 3.87	75.58 ± 5.76	0.472
2nd Year Students (n=63)	74.87 ± 5.73	74.63 ± 5.90	0.877
P-Value	0.301	0.344	
Teamwork and Cooperation			
No Previous Experience (n=37)	43.49 ± 2.14	42.81 ± 2.96	0.263
Previous Experience (n=74)	43.23 ± 2.60	43.30 ± 2.70	0.486
P-Value	0.956	0.599	
1st Year Students (n=48)	43.77 ± 1.84	43.21 ± 2.89	0.286
2nd Year Students (n=63)	42.97 ± 2.79	43.08 ± 2.73	0.472
P-Value	0.232	0.469	
Negative Professional Identity			
No Previous Experience (n=37)	13.22 ± 2.26	13.41 ± 2.06	1.000
Previous Experience (n=74)	13.53 ± 1.65	13.41 ± 2.07	1.000
P-Value	0.614	0.898	
1st Year Students (n=48)	13.50 ± 2.13	13.40 ± 2.04	0.405
2nd Year Students (n=63)	13.37 ± 1.66	13.41 ± 2.09	0.584
P-Value	0.387	0.985	
Positive Professional Identity			
No Previous Experience (n=37)	19.08 ± 1.36	18.65 ± 1.78	0.143
Previous Experience (n=74)	18.70 ± 1.93	18.43 ± 2.79	1.000
P-Value	0.922	0.759	
1st Year Students (n=48)	19.21 ± 1.30	18.98 ± 1.60	0.503
2nd Year Students (n=63)	18.54 ± 2.01	18.14 ± 2.96	0.850
P-Value	0.183	0.192	

RIPLS=Readiness for Interprofessional Learning Scale; IPE=Interprofessional Education

The overall scores for the IEPS composite score (0.63 point increase at session 2, p=0.038) and the Competency and Autonomy subscale (0.32 point increase at session 2, p=0.028) scores were significantly different between sessions (see Table 7). The differences were not beyond minimal detectable change (see Table 4). There were no significant differences identified between or within sessions or students with and without previous IPE experience. However, the IEPS composite score, the Competency and Autonomy subscale, and Perception of Actual Cooperation subscale scores were significantly greater for first-year students at both sessions (p≤0.035) (see Table 8). The differences were not beyond minimal detectable change. There was a 0.88 increase between sessions for the IEPS composite score for second-year students (p=0.041).

Table 7

Between Session Results for IEPS n=111 (reported as mean ± standard deviation)

	Session 1	Session 2	P-Value
IEPS Composite	65.74 ± 5.40	66.37 ± 5.26	***0.038***
Competency and Autonomy	27.63 ± 2.28	27.95 ± 2.40	***0.028***
Perceived Need for Cooperation	10.56 ± 1.39	10.52 ± 1.26	1.000
Perception of Actual Cooperation	27.55 ± 2.58	27.89 ± 2.55	0.088

IEPS=Interdisciplinary Education Perception Scale

Table 8

Between and Within Session Results for IEPS by Previous IPE Experience (reported as mean ± standard deviation)

	Session 1	Session 2	P-Value
IEPS Composite			
No Previous Experience (n=37)	66.11 ± 5.38	67.11 ± 4.37	0.137
Previous Experience (n=74)	65.55 ± 5.44	66.00 ± 6.65	0.178
P-Value	0.606	0.542	
1st Year Students (n=48)	67.73 ± 4.46	68.04 ± 3.24	0.511
2nd Year Students (n=63)	64.22 ± 5.60	65.10 ± 6.11	***0.041***
P-Value	***0.001***	***0.031***	
Competency and Autonomy			
No Previous Experience (n=37)	27.92 ± 2.19	28.35 ± 2.00	0.286
Previous Experience (n=74)	27.49 ± 2.33	27.76 ± 2.56	0.074
P-Value	0.368	0.289	
1st Year Students (n=48)	28.44 ± 1.98	28.67 ± 1.45	0.248
2nd Year Students (n=63)	27.02 ± 2.32	27.41 ± 2.82	0.082
P-Value	***0.001***	***0.035***	

DOI: 10.26681/jote.2021.050307

Perceived Need for Cooperation			
No Previous Experience (n=37)	10.41 ± 1.42	10.49 ± 1.26	0.383
Previous Experience (n=74)	10.64 ± 1.38	10.54 ± 1.27	0.511
P-Value	0.388	0.799	
1st Year Students (n=48)	10.75 ± 1.26	10.58 ± 1.18	1.000
2nd Year Students (n=63)	10.41 ± 1.48	10.48 ± 1.33	1.000
P-Value	0.262	0.766	
Perception of Actual Cooperation			
No Previous Experience (n=37)	27.78 ± 2.70	28.27 ± 2.23	0.302
Previous Experience (n=74)	27.43 ± 2.52	27.70 ± 2.68	0.222
P-Value	0.371	0.288	
1st Year Students (n=48)	28.54 ± 1.90	28.79 ± 1.77	0.503
2nd Year Students (n=63)	26.79 ± 2.78	27.21 ± 2.83	0.144
P-Value	***<0.001***	***0.003***	

IEPS=Interdisciplinary Education Perception Scale; IPE=Interprofessional Education

Discussion

The study hypotheses were partially accepted. The first hypothesis was that the test/re-test reliability for the OT students using the RIPLS and IEPS would be good to excellent. Rather than the test/re-test reliability results being good to excellent they were fair to excellent for both instruments. Overall, the composite score and one of three subscales for the RIPLS had excellent test/re-test reliability. Similarly, the composite score and two of the three subscales for the IEPS had excellent test/re-test reliability.

The second hypothesis tested was students with previous experience or second-year OT students in the program would result in higher test/re-test reliability. Students with previous IPE experience had higher consistency for the composite score of the RIPLS and the Teamwork and Collaboration subscale. Additionally, students with previous IPE experience had higher consistency with the IEPS composite score and the Perceived Need for Cooperation subscale. In regard to year in program, only the RIPLS composite score was in the excellent category for first-year students, whereas the composite score and Teamwork and Collaboration subscale were excellent for second-year students. Only the Competency and Autonomy subscale for the IEPS was excellent for the first-year students, while the composite score and all three subscales for the IEPS were excellent for the second-year students.

These results show, similar to previous research, that the test/re-test reliability for both instruments is acceptable but also varies based on previous IPE experience (McFadyen et al., 2007; McFadyen et al., 2006; Sciascia et al., 2021). This is an important finding when considering the use of these tools to measure the impact of IPE activities within a curriculum, as the tools may be of stronger value depending on where students are in their academic programming. Furthermore, having access to stable instruments will allow faculty to consistently measure learning outcomes as related to IPE thus, allowing critical appraisal of implemented IPE activities.

Readiness for Interprofessional Learning Scale

Similar to previous work (Sciascia et al., 2021), there were identified variations in the test/re-test reliability within the items and subscales of the RIPLS. Individual items for the RIPLS varied across all groupings in level of agreement ranging from no agreement to good agreement. When examining the individual groups, level of agreement was more varied for students without previous IPE experience but more consistent for students with previous experience. Additionally, second-year students had more instances of higher levels of agreement with 94% of the items registering as moderate agreement or higher. These findings mimic the results from Sciascia et al. (2021) who suggested the abstract nature of measuring readiness lent to the variation that was found. The results of this study support this suggestion, especially considering that the level of agreement among second-year students was higher across all items in comparison to those that reported previous IPE experience. In other words, second-year students whose pathways and opportunities were more controlled (fieldwork clinical rotations and completed OT curriculum courses throughout the program) resulted in higher item agreement on the RIPLS compared to students with previous experiences. The type of previous experience was not accounted for; therefore, it is possible that the students' perception of previous experience was minimal, of varying quality, and/or of varying frequency.

An additional thought as to why level of agreement varied depending on grouping would be the wording of the items on the RIPLS. The kappas for items (#4) *Communication skills should be learned with other health care students* and (#5) *Team-working skills are essential for all health care students/professionals to learn* were vastly different between students based on IPE experience and year in the program (see Table 1). The items focus on communication skills with other health care students and team working skills for health care students. Those students without previous IPE experience and those that are beginning the OT program may have not yet had a clinical fieldwork rotation or an OT curriculum course which demonstrates working together with other disciplines, as those with previous experience and second-year students would have had. This finding agrees with previous work by Sciascia et al. (2021) but differs from McFadyen et al. (2006) who found fair agreement with both items on the RIPLS. However, the study cohort from McFadyen et al. (2006) exclusively included first-year OT students and previous IPE experience was unaccounted for. It is also possible that first-year students have a "silo mentality," not understanding their individual profession or role along with the need for the health care professional to learn from other disciplines and work together for a patient. This has not been demonstrated exclusively in OT students but has been demonstrated in other professions such as nursing (Zhewei et al., 2018). This is highlighted by the spread in Kappa values for items (#2) *Patients would ultimately benefit if health care students worked together to solve patient problems*; (#5) T*eam-working skills are essential for all health care students/ professionals to learn;* and (#9) *For small-group learning to work, students/professionals need to respect and trust each other.* All were statistically significant with no agreement to good agreement when comparing first-year to second-year students. The second-year students would have already had fieldwork rotations where they should have seen firsthand the importance of working together for a common goal for a patient.

DOI: 10.26681/jote.2021.050307

The overall and the subgroup RIPLS composite score ICCs were all in the excellent category. However, the ICCs for the subscales differed depending on group. When reviewing Teamwork and Collaboration, the ICC was higher for those with previous IPE experience compared to those without (0.90 versus 0.74 respectively). Similarly, the ICC for first-year students was 0.69 while the ICC for second-year students was 0.87. From a statistical perspective, the variations in values may not be group related but could be related to the length of the subscales. The internal consistency (Cronbach's alpha) values paralleled the ICC values. When the values fell below the accepted threshold of 0.75, it is possible this occurred due to the subscales containing less questions compared to the totality of the instrument. Bearing in mind that internal consistency drops when an instrument is shorter in length, this phenomenon should be considered when interpreting these results (Tavakol & Dennick, 2011). Conversely, from a population standpoint, these results suggest that exposure in some capacity is likely influencing the student's ability to report readiness to participate in IPE. However, this trend did not occur for the Professional Identity subscales. In both instances, students without previous IPE experience and first-year students had higher ICC values for the *Negative Professional Identity* and *Positive Professional Identity* subscales. This may have occurred based on the wording of the subscale items. For example, the *Positive Professional Identity* subscale items are rooted in the concept of shared learning. It is possible that the students are answering the items in the context of a *student* instead of as a *future health care professional*, in other words second-year students and those with previous IPE experience have interacted in some way with other students and/or other professionals. As such it is possible that they could be thinking about a previous exposure (positive or negative) or the fact that they had some exposure affects "readiness," since readiness assumes that an exposure has not happened yet (Ikiugu & Rosso, 2003). Considering there were no statistical differences between the groups for the composite score or all three subscales, it can be assumed that the exposures influence individual instrument items more-so than the overall score on the RIPLS. Therefore, when making the decision to use these tools for IPE activity appraisal, educators should consider reviewing individual item responses and not only the composite and subscale scores, in order to best understand the educational value of IPE activities. This is similar to clinical practice when reviewing individual items on a standardized assessment measure, in addition to the total score to make clinical decisions.

Interdisciplinary Education Perception Scale

For the IEPS, the weighted Kappa scores overall remained consistent between the groups with previous IPE experience and those without previous IPE experience ranging from fair to moderate agreement for both groups. Similarly, the weighted Kappa scores for the first-year students and second-year students range from fair to moderate, excluding items (#1) *Individuals in my profession are well-trained* and (#9) *Individuals in my profession are willing to share information and resources with other professionals*. This lack of agreement on these two specific items may be explained that first-year students may not have had exposure to clinical fieldwork rotations and structured didactic course work thus creating the inconsistency in responses as demonstrated by the lack of agreement. Furthermore, first-year students possibly did not understand their

own profession or role well due to just beginning the OT program. It has been previously shown that first-year students may have differing opinions in regard to sharing of resources or ethical options related to shared intellectual property or resources (Merges, 2011). This is further demonstrated in the current study with the lack of agreement noted in item #9 in the IEPS which focused on the sharing of resources and information with other professionals (Luecht et al., 1990).

In contrast to the RIPLS, there were more instances of the ICCs being classified as excellent for the IEPS. The ICCs for the IEPS composite score *Competency and Autonomy* subscale and *Perception of Actual Cooperation* subscale were excellent for all subjects (overall), for students with no previous experience and for students with previous IPE experience. Similarly, the ICCs for these groups of students were fair to good for the *Perceived Need for Cooperation* subscale. It is possible that the excellent ICCs occurred for students no matter whether they had previous exposure to IPE because 75 % of students graduated from the study institution's undergraduate Occupational Science Program (OS). The OS program provided a basic understanding of the theoretical rationale behind OT; however, does not include any hands-on fieldwork clinical rotations, is not clinically based, and is strictly foundational coursework unlike the OT program which is clinically based. Therefore, students graduating from the OS program and admitted to the OT program likely had been introduced to the OT profession on some level. Since all items on the IEPS begin with *"Individuals in my profession…"* this preliminary introduction to the OT field provides a more consistent perception as measured by the IEPS. This is in line with the American Occupational Therapy Association Research Agenda (2018) which contains "*socialization to the profession.*" This could be viewed as IPE experiences for preparation of students as clinicians. In regard to the fair to good ICC values on the *Perceived Need for Cooperation* subscale, Sciascia et al. (2021) postulated that the firm wording of items #4 and #6 likely contributes to greater inconsistencies in responses leading to the lower ICC values. Additionally, this subscale is only comprised of two items not allowing room for error unlike the other two subscales which contain five items each.

In regard to year in program, only the *Competency and Autonomy* subscale resulted in an ICC value above 0.75 threshold for the excellent category. Conversely, the composite score and all three subscales for the IEPS resulted in excellent ICCs for the second-year students. First-year students have yet to have clinical fieldwork rotations as compared to second-year students having two clinical fieldwork rotations. Unlike the ICCs calculated for the RIPLS for this current study, which were variable for both first and second-year students, the consistency of the IEPS ICCs is likely supported by the fact that the second-year students have had clinical fieldwork rotations. This exposure potentially provided the students with a stronger understanding of their professional identity and role within the profession. Furthermore, the RIPLS is measuring readiness to participate in IPE whereas the IEPS asks for a student's perception of his or her own profession. Therefore, it should be anticipated that the students who are further along in their OT program will produce more consistent responses on the IEPS.

DOI: 10.26681/jote.2021.050307

When examining the IEPS composite scores and all three subscales for the between and within session differences, there are spurious differences amongst students based on previous IPE experience and year in program. For example, only one between session difference occurred which was for second-year students on the IEPS composite score. However, although statistically significant, the 0.88-point difference did not exceed the calculated minimal detectable change. Additionally, there were numerous examples of first-year students having statistically significant higher composite *Competency and Autonomy* and *Perception of Actual Cooperation* scores compared to second-year students within each session. The differences ranged from 1.2 points to 3.5 points, yet none of these differences exceeded minimal detectable change. This suggests that the statistical difference does not necessarily equate to clinical meaningfulness. Thus, educators should be aware of the calculated minimal detectable change values from the current study in order to properly interpret future IPE activity assessments.

Implications for Occupational Therapy Education

The considerations for educators following a review of the current study are 1) the timing of distribution will affect the results and 2) a students' previous experience to IPE and/or level of student (first-year or second-year) will impact their responses on the RIPLS and IEPS. The level of agreement of the items and the consistency of responses as noted by the ICCs were clearly influenced by these factors. This suggests that the RIPLS, which measures readiness, is likely better suited to students who are in the earlier stages of the programming. While it is to be expected, the IEPS will be influenced more positively by more years in the program due to the likelihood of increased clinical exposure. While both tools have been demonstrated to be reliable measures for all levels of students, educators should consider implications of year in programming and previous IPE experience of students when utilizing the RIPLS and/or IEPS as an outcome measure. Attempts to understand the impact of IPE activities or curricular decisions within an OT program that utilizes these tools must be done with the acknowledgment that dissimilar prior experiences will influence outcomes and that these experiences are likely impacting students' perceptions and readiness of IPE and not just the activity itself. Future research implications could be to: 1) establish the reliability in other health care related fields; 2) assessing the reliability of the RIPLS and IEPS in post-professional OT doctoral graduate students while accounting for years as a practicing OT; and 3) assessing the influence of IPE received in school on clinical practice following graduation.

Limitations

This study presented with limitations that were identified by the authors. To begin, there are known limitations with using ICCs for interpreting reliability. These limitations can include sample size, models, types, and measures employed. However, the current study's sample was robust, and the ICC model and measures were appropriate for the study design. Furthermore, the inclusion of the 95% confidence intervals and the fact that the Cronbach's alpha values paralleled the ICC values should allow for transparent interpretation of each ICC. Second, participants in this study had varying previous IPE experiences resulting in differing ideations of IPE team working abilities and exposure to

multiple disciplines (i.e. nursing, physical therapy, speech language pathology, psychology). Although the research team asked whether previous experience occurred, the types of experience(s) were only reported by 13% of the respondents while the total number of IPE experiences were not obtained. This could have affected the results. Third, while all second-year students experience clinical rotations, those experiences varied. It is possible that some clinical rotations provided more opportunities for IPE experiences in practice than others. Fourth, the study sample contained 91% female students. It is possible that a more evenly distributed sample of males and females could yield different results. Finally, although IPE is mandated by ACOTE accreditation for OT curriculum, there is not a dedicated course for IPE at the university where the research took place. Student learning outcomes are standardized per individual course and multiple sections of a course; however, the content delivery and any associated learning activities can vary per instructor. It is possible that students could have received more IPE focus in some courses compared to others, which could have influenced the results.

Conclusion

Interprofessional education is a growing concern within professional programs, such as OT curriculum and ACOTE accreditation requirements specifically. Therefore, it is necessary to establish if commonly used tools for measuring the outcomes related to interprofessional education are reliable. Prior to this study, there were a limited sample used to establish test/re-test reliability for the RIPLS and IEPS for OT students. Upon completion of this study the authors concluded that both instruments have acceptable test/re-test reliability, but it is important to account for previous IPE experience and year in program. Educators who choose to implement IPE activities should refer to the calculated minimal detectable change values established in this study to confirm meaningful change occurred following IPE activities. This study provided support for educators to use the RIPLS and IEPS throughout OT professional programs to measure student readiness for IPE as well as current perception of the OT profession.

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