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Examining the effectiveness of interprofessional collaboration for preprofessional speech-language pathology and occupational therapy graduate students

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Examining the Effectiveness of Interprofessional Collaboration for Preprofessional Speech-Language Pathology and Occupational Therapy Graduate Students

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This work is accepted for presentation, in part or in full, at the Honors Symposium on April 5, 2019.

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Abstract

This study explores the effects of an emergent writing interprofessional collaboration experience for preprofessional speech-language pathology (SLP) and occupational therapy (OT) graduate students. The preprofessionals were split into two groups (SLP only and SLP-OT pairs) and delivered emergent writing interventions to preschoolers either individually (SLP only) or collaboratively (SLP-OT pairs). The purpose of this study was to investigate how working collaboratively versus working individually to deliver the interventions to preschoolers influences the preprofessionals' knowledge of the Interprofessional Education Collaborative's (IPEC) core competencies and emergent writing concepts. The results showed that paired preprofessionals reported higher levels of interprofessional competency than unpaired preprofessionals. The paired preprofessionals also demonstrated a deeper understanding of the IPEC core competencies and showed greater gains in knowledge of emergent writing concepts. The study concluded that the opportunity to work collaboratively and apply theoretical knowledge through hands-on experiences leads to increased learning outcomes and better equips preprofessional students with the skills necessary for successful collaboration.

Introduction

IPE Defined

According to the World Health Organization, interprofessional education (IPE) is a process that "occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010). In the interest of promoting team-based education for preprofessionals, the Interprofessional Education Collaborative (IPEC) defined four core competencies that are organized within the broader, singular domain of interprofessional collaboration and include values and ethics, roles and responsibilities, interprofessional communication, and teams and teamwork (IPEC, 2016). The values and ethics competency is achieved through fostering a collaborative environment with mutual respect and a shared system of values. The core competency of roles and responsibilities focuses on gaining an understanding of one's own professional role as well as the roles of others in order to appropriately address the patient's needs. Interprofessional communication requires that professionals communicate effectively with patients, families, and other professionals to create a team atmosphere when caring for a patient. Competency in teams and teamwork involves building relationships and encouraging team dynamics to provide patient-centered care. These competencies, along with their respective sub-competencies, can be used as behavioral learning objectives in the development of IPE curriculum as well as an assessment of the effectiveness of interprofessional learning activities provided to students in preprofessional programs (IPEC, 2011). Current research has indicated that knowledge about interprofessional collaboration should be taught and implemented at the preprofessional level to prepare students for the demands of the workplace (Dobbs-Oates & Wachter Morris, 2016).

IPE in the Education Setting

Interprofessional collaboration has mainly been utilized in the medical field, but recently there has been a push for IPE to be taught and applied in the education setting. The need for IPE in the education professions is due, in part, to the wide variety of professionals that provide services in schools including general education teachers, special education teachers, administrators, counselors, psychologists, social workers, resource officers, behavior support specialists, speech-language pathologists, occupational therapists, and physical therapists, among others (Dobbs-Oates & Wachter Morris, 2016). These professionals are expected to collaborate with one another when providing services to students, yet the vast majority are educated in separate programs with minimal opportunities to interact with those in different disciplines (Shoffner & Wachter Morris, 2010). Collaboration among these various professionals aids in providing students with well-coordinated academic, career, physical, and social/emotional supports and is a crucial element to the effectiveness in schools, and thus to students' learning and well-being (Dobbs-Oates & Wachter Morris, 2016).

Approximately 13% of all K-12 students in the US receive special education services (National Center for Education Statistics, 2018). The Individuals with Disabilities Education Act (IDEA, 2004) requires a team both when determining the need for special education services and when creating an Individualized Education Program (IEP) for students with disabilities. A speech-language pathologist is often a member of those teams.

Although SLPs are one member of IEP teams, research revealed that school-based SLPs receive little to no education on how to effectively collaborate (Pfeiffer, Pavelko, Hahs-Vaughn, & Dudding, in press; ASHA, 2017). For example, a survey conducted by Pfeiffer and colleagues (in press) showed that, of the 609 school-based SLPs surveyed, only 44% had received training

on how to work on teams with other professionals. In a survey of 184 Communication Sciences and Disorders programs across the United States, Goodman (2017) reported that only 50.5% were incorporating IPE into their curriculum, and most (50.5%) had only been doing so for one to three years. Taken together, these findings suggested that many preprofessional SLPs do not participate in IPE experiences during their training programs, which resulted in them being ill-prepared to be an effective team member once in the workplace. In order to develop the competencies and skills necessary for successful collaboration, students need to be exposed to other professional disciplines and have opportunities to interact with these professionals in authentic settings (Dobbs-Oates & Wachter Morris, 2016).

Speech-Language Pathology and IPE with Other Professions

Although research examining the effectiveness of IPE experiences is just emerging, results indicated that preprofessional SLPs and teachers benefit from IPE experiences (Pfeiffer, Pavelko, & Ingram, 2018). For example, Pfeiffer and colleagues (2018) reported that preprofessional SLPs and general education teachers benefited from IPE experiences that facilitated gaining an understanding of roles and responsibilities of other professionals, taught preprofessional students about service delivery models and provided opportunities to practice those models, and discussed the importance of effective communication when working in teams. Similarly, Brandel and Loeb (2011) reported that students who participated in shared teaching during their preprofessional training program were more likely to provide collaborative interventions in a resource room, rather than in a separate therapy room, when they became practicing professionals.

IPE Between Speech-Language Pathologists and Occupational Therapists

Speech-language pathologists and occupational therapists are two of various professionals that work in school systems across the United States. Pfeiffer and colleagues (in press) reported that occupational therapists are one of the most frequently cited collaborators with SLPs in the school setting (13.87%) and 15.86% cited collaborating with OTs during treatment in the 2016-2017 school year. Because school-based SLPs and OTs frequently collaborate with each other when providing services to student and share certain elements in their scopes of practice, these two professions were the focus of this study.

Research on IPE experiences involving SLPs and OTs is limited, but two studies demonstrated the impact that interprofessional collaboration had on the individuals treated as well as the professionals involved (Asher & Nichols, 2016; Beverley & Wooster, 2018). Asher and Nichols (2016) used a case study to illustrate the benefits of utilizing a collaborative approach when determining a child's treatment plan. The practicing professionals responsible for planning the child's treatment included a classroom teacher, an SLP, a special education teacher, and an OT. The professionals worked collaboratively on an IEP team to determine the child's level of functioning and to formulate IEP goals and objectives aimed at improving the child's literacy. Several of the strategies the team used during their collaborative efforts included: (1) shared philosophy, (2) defined discipline-specific role in the context of a particular student's needs, (3) presented discipline-specific information in terms understood by all team members, (4) understanding the scope of practice of team members and being aware of their personal expertise in specific areas, (5) being prepared for role release with clear delineation of responsibilities, (6) shared responsibility and situational leadership, (7) clear, precise, and timely communication, and (8) equal respect and equal voice for all team members. These strategies

aided in a successful interprofessional collaborative experience in which each professional used his or her expertise to contribute to meeting the child's needs. Their collaborative efforts led to growth in all the goals and objectives written in the child's IEP. School-based interprofessional collaboration allowed each professional to use his or her strengths in a collective decision-making process to provide a more holistic and coordinated treatment program for the child.

A study by Beverly and Wooster (2018) showed several benefits that resulted from the completion of an interprofessional graduate course for PT, OT, and SLP students. The focus of the course was to increase knowledge and competency relative to autism spectrum disorders (ASD) and to develop interprofessional collaboration skills. Nine graduate students completed a weekly online course and attended a day-long autism conference. To assess the changes in attitudes toward interprofessional practice, the students completed the Student Interdisciplinary Education Perception Scale and Interprofessional Education Collaborative (IPEC) Competency Survey Instrument before and after completing the course (Leucht, Madsen, Taugher, & Petterson, 1990; Dow, Diaz Granados, Mazmanian, & Retchin, 2014). Additionally, to assess the change in knowledge of ASD over the course of the study, the School Personnel Knowledge of Autism: A Pilot Survey was conducted before and after completing the course. The results of the study revealed an increase in favorable attitudes toward other disciplines as well as in two of the four IPEC core competencies: interprofessional communication and teams and teamwork. Additionally, the participants stated they felt more aware of their own role and the role of other team members involved in providing screenings and assessments for children with autism spectrum disorders. These results suggested that engaging in IPE experiences led to more positive attitudes related to other professionals, and increased knowledge and more positive outlooks on the IPEC core competencies (Beverly & Wooster, 2018).

Dissertation Research

The current study extends the doctoral dissertation work of Danika Pfeiffer entitled "Preparing Speech-Language Pathologist for Interprofessional Collaborative Practice" (Pfeiffer, 2018). The aims of that study were to: (1) determine if participation in an IPE experience results in a change in self-reported levels of competency in interprofessional collaboration, (2) discover which IPEC core competencies are developed through the course of the IPE experience, (3) find if knowledge of emergent writing concepts is acquired by delivering emergent writing interventions to preschoolers, and (4) determine if the preschoolers receiving the emergent writing interventions demonstrate improvement on the designated writing tasks.

That study included six preprofessional SLPs and three preprofessional OTs, split into two groups: SLP only (*n* = 3) and SLP-OT pairs (*n* = 3). The preprofessionals were assigned to a group of preschoolers and implemented five 30-minute emergent writing interventions. In each condition, the preprofessionals delivered the emergent literacy intervention activities twice a week for five weeks. Preschoolers' emergent writing skills were assessed using the *Write Letters, Write Name,* and *Write CVC words* tasks both pre- and post-intervention (Puranick & Lonigan, 2011).

The results of the preschoolers' emergent writing assessments revealed that the preschoolers who received interventions from the SLP/OT pairs improved their scores from pre- to post-test. The preschoolers made statistically significant gains in the *Write Name* and *Write CVC Words* tasks. These findings suggested that receiving interventions from paired preprofessionals increased in the preschoolers' emergent writing skills when compared to preschoolers who received their interventions from unpaired preprofessionals.

The preprofessionals completed the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) and an emergent writing knowledge test at different times over the course of the study (Archibald, Trumpower, & MacDonald, 2014). The ICCAS was completed at the end of the intervention period and examined preprofessionals' perceptions of their collaborative skills. The knowledge test was completed before and after the intervention period.

The results of the ICCAS showed that the paired SLPs showed greater growth in the competencies than the unpaired SLPs. The paired OTs demonstrated similar improvement to that of the paired SLPs. The study also showed that preprofessional SLPs in the paired condition made more comments related to the IPEC competencies in their post-intervention interviews than the unpaired SLPs. All of the preprofessionals gained knowledge in emergent writing concepts.

Purpose of Current Study

One aspect of the study not examined was how working in pairs versus working individually, regardless of preprofessional program, impacted the preprofessionals' knowledge of IPEC core competencies and emergent writing concepts. The purpose of the current study was to determine if working in pairs or working individually to deliver emergent writing interventions to preschoolers influenced the preprofessionals' knowledge of IPEC core competencies and emergent writing concepts. Therefore, the research questions of the current study included:

1. How does delivering emergent writing interventions in a pair versus delivering the interventions individually impact the preprofessionals' self-reported levels of interprofessional-related competencies?

2. Which IPEC core competencies do preprofessionals in the paired and unpaired conditions develop during the experience?

3. How does delivering emergent writing interventions in a pair versus delivering the interventions individually impact the preprofessionals' knowledge of emergent writing concepts?

Methods

Participants

The participants in the current study were the same subjects from Pfeiffer (2018) and included six first-year speech-language pathology (SLP) graduate students and three first-year occupational therapy (OT) students from James Madison University. The graduate students were organized into two groups. One group included three SLP students and three OT students that worked in SLP-OT pairs to deliver emergent writing interventions to groups of 3-4 preschoolers. The second group included three SLP students who worked individually to deliver the same interventions to groups of 3-4 preschoolers.

Instrumentation

To evaluate the preprofessionals' progress, three measures were utilized: the Interprofessional Collaborative Competencies Attainment Survey (ICCAS), an emergent writing knowledge test, and facilitated discussions/focus groups.

ICCAS. The ICCAS was designed to evaluate the change in interprofessional-related competencies in healthcare students and practicing healthcare students before and after completion of IPE training interventions (Archibald, et al., 2014). It is a 20-item self-report that measures the participants' skills in six areas: (1) communication, (2) collaboration, (3) roles and responsibilities, (4) collaborative patient-family-centered approach, (5) conflict management/resolution, and (6) team functioning. This measure utilizes a retrospective pre-post design in which the participants complete the tool at the conclusion of the IPE training. At that time, they reflect on their abilities at the beginning of the training and complete one rating scale. They also reflect on their abilities at the conclusion of the training and complete a second rating

scale. Each of the 20 items are rated on a 7-point Likert scale from "strongly disagree" to "strongly agree", giving the tool a maximum score of 140 (Archibald, et al., 2014).

Knowledge Test. To assess the preprofessionals' knowledge of emergent writing concepts, a knowledge test was developed by the researcher of the original study (Pfeiffer, 2018). The test consisted of 10 four-item multiple choice questions and was completed before and after the intervention period.

Focus Groups. The preprofessionals participated in focus groups before and after the intervention period. The questions asked during these sessions were related to the IPEC core competencies and were coded to show the preprofessionals' understanding of each competency. Their responses were determined to demonstrate a "deep knowledge", "superficial knowledge", or "no knowledge" of the IPEC competency. A response received a "deep knowledge" designation if it captured all the elements defined for the IPEC core competency. A response received a "superficial knowledge" designation if it included some elements of the competency but lacked others. A response demonstrating no understanding or a misunderstanding of the competency received a "no knowledge" designation.

Training

As part of Pfeiffer (2018) the preprofessionals took part in a training, which provided an overview of emergent writing, IPE, and interprofessional collaboration. They received a binder that included readings on emergent writing and IPE, an intervention schedule, and an intervention book, *Emergent Literacy Lessons for Success* (Cabell, Justice, Kaderavek, Turnbull, & Breit-Smith, 2009). At the training, the preprofessionals completed the pre-knowledge emergent writing test and participated in the pre-intervention focus group discussion.

To facilitate the preprofessionals' understanding of the IPEC core competencies and emergent writing concepts, two facilitated discussions were conducted. The first occurred following the third intervention session but before the fifth. The second occurred following the seventh intervention session but before the ninth. The paired preprofessionals attended the facilitated discussions together while those in the unpaired condition met independently with the researcher. To help connect the research to the preprofessionals' experiences, the supplemental readings about emergent writing and interprofessional education were discussed during the sessions. Additionally, the preprofessionals were asked to identify their preschoolers' present stage of emergent writing and discuss how they would progress the preschoolers to the next stage.

Following each intervention session, the preprofessionals met with a clinical educator for a debrief session. The debrief sessions were implemented to facilitate the preprofessionals' learning during the experience. Each debrief session focused on increasing knowledge of interprofessional education and emergent writing concepts by guiding discussions about the interventions completed each day. The preprofessionals were asked to critically examine their experience from an academic perspective by answering questions such as "How did you target emergent writing skills in this lesson?" and "How does this experience enhance your knowledge of emergent writing?"

Interventions

The preprofessionals were provided readings about emergent writing and IPE to help develop their understanding of each. To foster the preprofessionals' learning of the IPEC competencies and emergent writing concepts, the preprofessionals participated in two facilitated discussions during the intervention period. The purpose of the facilitated discussions was to

incorporate the supplementary emergent writing and IPE readings and the preprofessionals' experience working with the preschoolers. Additionally, each preprofessional had a debriefing session with a clinical supervisor at the conclusion of their intervention sessions with the preschoolers. The supervisors were given a list of topics to address during the debrief to facilitate the preprofessionals' reflection on the experience.

Data Analysis

Pfeiffer (2018) examined data by comparing the results based on differing disciplines, SLP versus OT. The current study reanalyzed the same data, but compared it based on paired versus unpaired condition. The data collected from the ICCAS, knowledge test, and focus group responses conducted during Pfeiffer (2018) were included in the current study.

Results

ICCAS

The participants working in pairs showed improvement in all six areas of the ICCAS: *Communication, Collaboration, Roles/Responsibilities, Collaborative Patient/Family Centered Approach, Conflict Management/Resolution,* and *Team Functioning*. As shown in *Figure 1*, preprofessionals who worked in a pair showed the greatest improvement in the areas of *Communication* and *Roles/Responsibilities* (average improvement: 8.17 and 5.5, respectively). There was a 4.67-point increase in *Collaboration*, a 4.17-point increase in *Team Functioning*, a 3-point increase in *Collaborative Patient/Family Centered Approach*, a 2.33-point increase in *Conflict Management/Resolution* for these participants. In contrast, those who worked individually only showed improvement in one area, *Collaborative Patient/Family Centered Approach (*average improvement: 3.33).
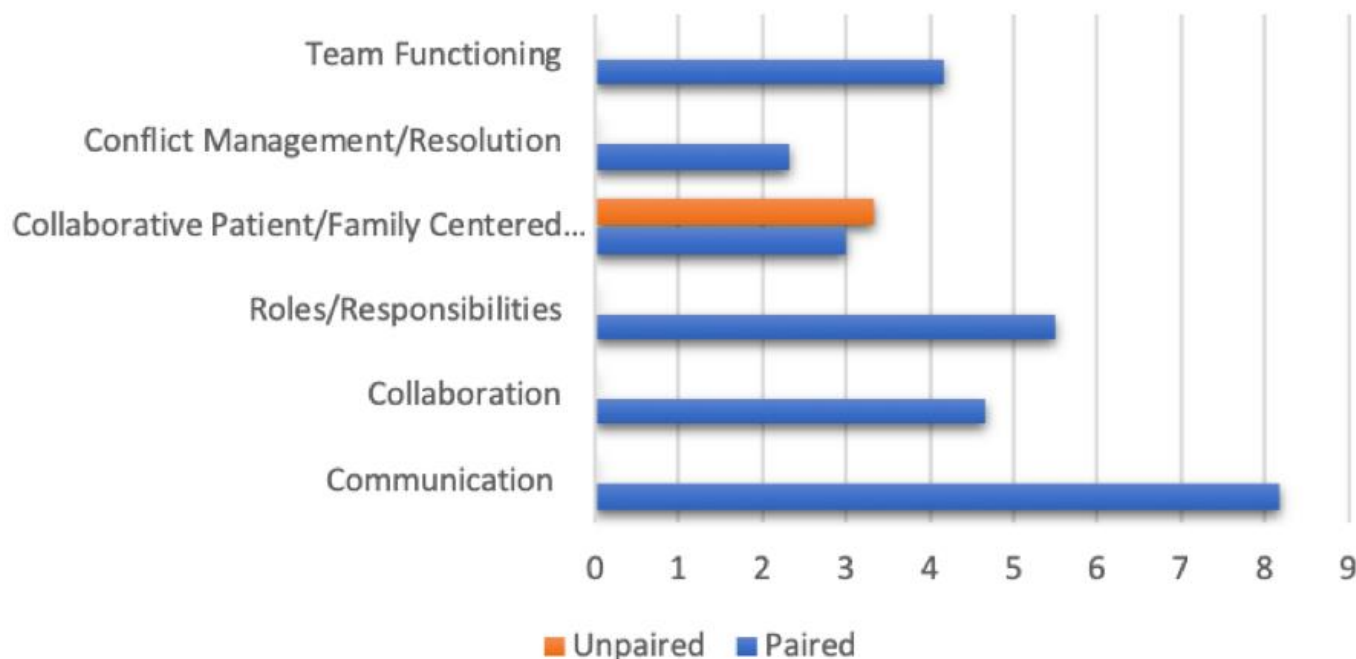

Figure 1. Average ICCAS improvement for paired and unpaired preprofessionals

Knowledge Test

The average pre-test score for the participants working in pairs was 5.5 out of 10 points and the average post-test score was 8.5 out of 10 points. These participants improved by an average of 3 points between the pre- and post-test. The average pre-test score for participants that worked individually was 7.3 out of 10 points and the post-test score was 9.0 out of 10 points. These participants improved by an average of 1.7 points between the pre- and post-test. While the participants that worked individually had a higher average score on both the pre-test and post-test, the participants that worked in pairs showed a greater improvement in their overall score.
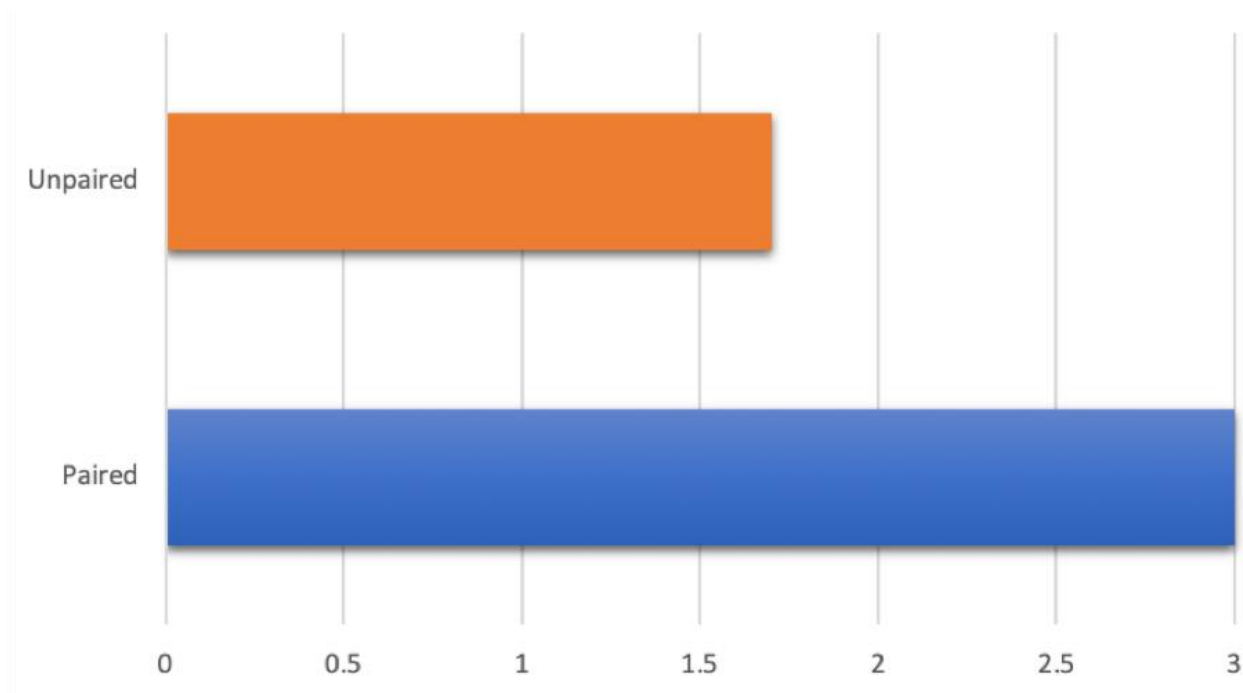

Figure 2. Difference between pre- and post-test knowledge test scores for paired and unpaired preprofessionals

Focus Groups

In the paired condition, 73% of the participant's responses demonstrated a superficial knowledge of the competencies, 15% deep knowledge, and 12% no knowledge. The most

frequently cited competencies were *Teams and Teamwork* at 44%, *Interprofessional Communication* at 22%, and *Roles and Responsibilities* at 20%.

For example, when asked how interprofessional collaboration can benefit service providers, the paired preprofessional replied:

> Working together with someone who's in the same profession that's not yours with the same goal and contributing as much as both of us can toward the same goal…to make sure that we are using both of our strengths the most that we can to help the kids progress in their emergent writing.

This response demonstrates deep knowledge because it captures all of the elements of the *Roles and Responsibilities* competency, which includes understanding one's own role and the role of others in order to promote the client's progress.

The following is an example of a statement that shows superficial knowledge of the *Teams and Teamwork* competency made by a paired preprofessional when asked to describe what she learned about collaboration:

> Having the opportunity to work with another IP team member to enhance the skill. Because communication obviously is important from client to professional, but the inner collaboration is really important.

This statement discusses working as a team to enhance the preschoolers' skills, but failed to mention other elements of the competency, such as building relationships and performing effectively in different team roles to enhance patient care.

When asked to describe what she learned about collaboration, the paired preprofessional responded, "In order to complete activities, we had to use teamwork and kinda divide and conquer." Since this statement discusses dividing and conquering rather than combining roles

and responsibilities to improve the preschoolers' learning outcomes, it demonstrates a misunderstanding of the *Roles and Responsibilities* competency; therefore, was coded as no knowledge.

In the unpaired condition, 52% of responses demonstrated a superficial knowledge of the competencies and 48% no knowledge. The most frequently cited competencies were *Teams and Teamwork* ($n = 29\%$) and *Roles and Responsibilities* ($n = 13\%$).

When asked to describe what skills and behaviors are required for successful interprofessional collaboration, the unpaired preprofessional responded, "Respect. The ability to listen and integrate others' opinions, backgrounds, and knowledge. Teamwork and the ability to work together." This statement demonstrates a superficial knowledge of the *Teams and Teamwork* competency because it addresses the principles of team dynamics, but doesn't mention relationship-building or taking on various team roles.

When describing what the unpaired preprofessional learned about collaboration during the experience, she said:

> Just making sure all the materials that I used first are still there where they need to be, everything is in the right places…behind the scenes stuff. I know it wasn't collaboration in the moment in the intervention. But kinda background stuff.

This statement doesn't reflect knowledge of any IPEC competency and was coded as displaying no knowledge.
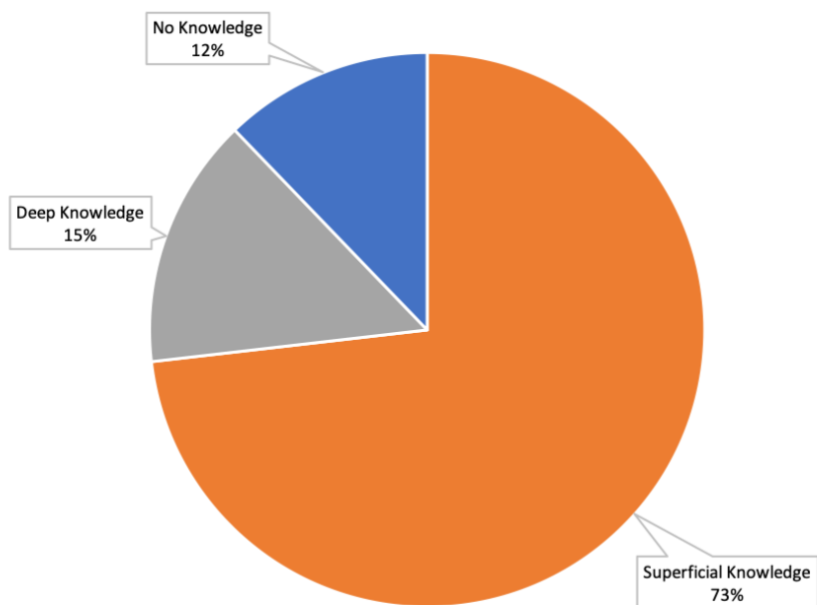
Figure 3. Knowledge level of IPEC core competencies demonstrated in the focus group responses given by paired preprofessionals
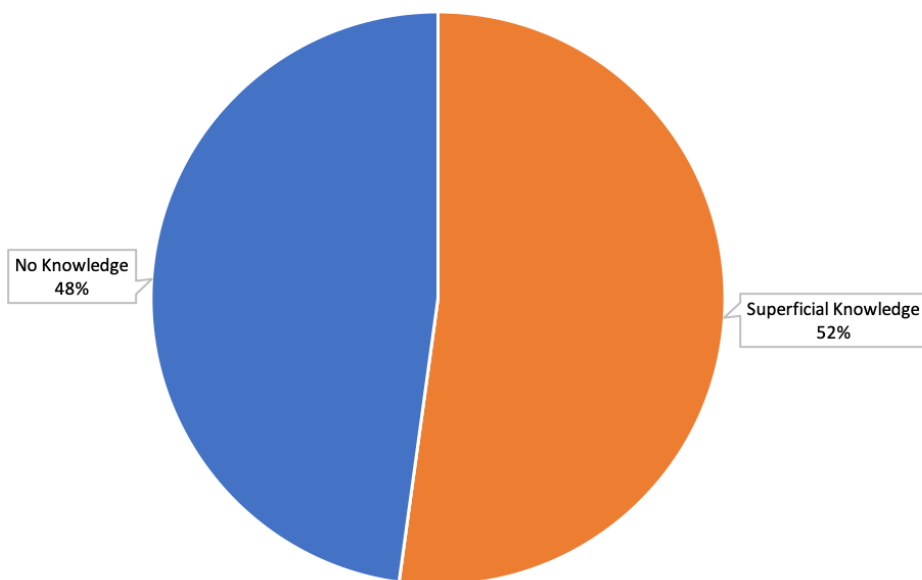

Figure 4. Knowledge level of IPEC core competencies demonstrated in the focus group responses given by unpaired preprofessionals
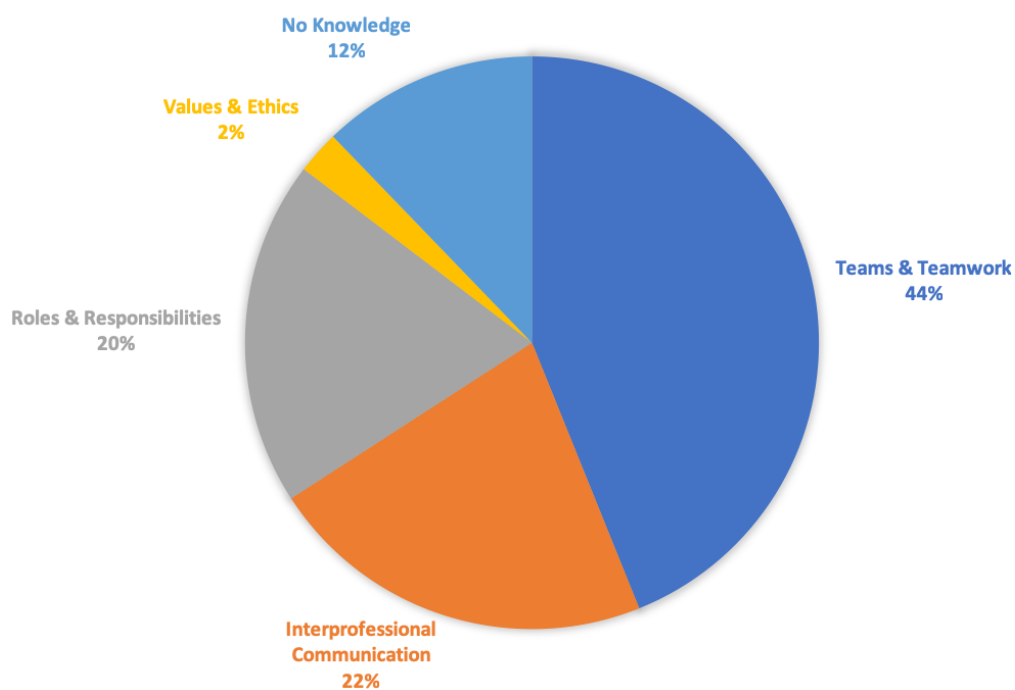
Figure 5. Type of IPEC core competency demonstrated in the focus group responses given by paired preprofessionals
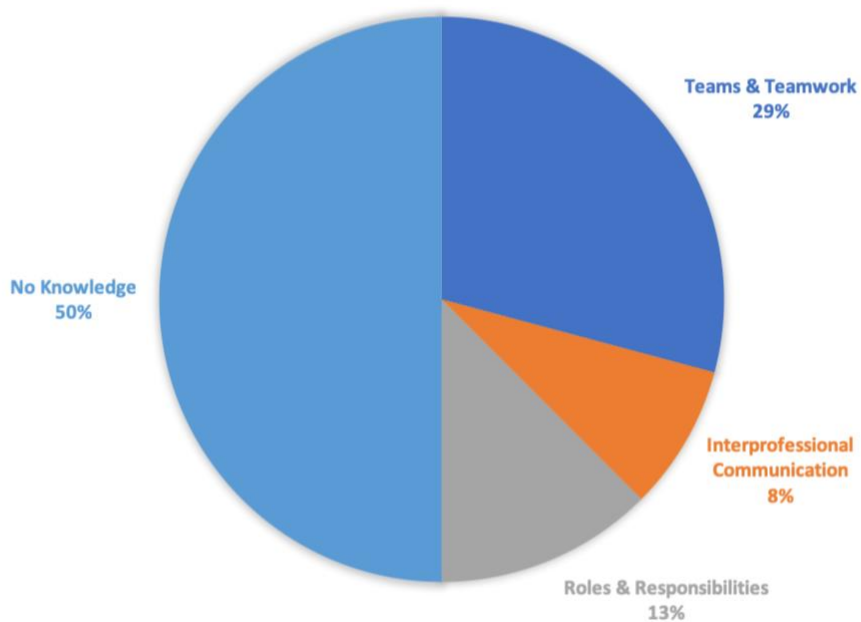

Figure 6. Type of IPEC core competency demonstrated in the focus group responses given by unpaired preprofessionals

Discussion

The purpose of this study was to investigate how working in interprofessional pairs versus working independently when delivering emergent writing interventions to preschoolers influenced preprofessionals' knowledge of IPEC core competencies and emergent writing concepts. The results of this study indicated that the paired preprofessionals demonstrated more knowledge of IPEC competencies, reported increased levels of self-reported competency, and gained more knowledge of emergent writing concepts than those who delivered the interventions individually. The two major findings of this study were: (1) delivering emergent writing interventions in pairs led to increased levels of self-reported interprofessional-related competency and (2) collaborative experiential learning led to increased knowledge of emergent writing concepts.

When asked to self-report their competency, preprofessionals in the paired condition reported greater competency in all six content areas of the ICCAS, whereas those in the unpaired condition only reported increased competency in one content area. The paired preprofessionals reported the greatest improvement in the areas of *Communication* and *Roles/Responsibilities*. The unpaired preprofessionals only showed improvement in *Collaborative Patient/Family Centered Approach.* The paired preprofessionals had the opportunity to put their knowledge of interprofessional competencies into practice throughout the experience, which led to an enhancement in their learning and increased perception of competency.

The preprofessionals in the paired condition also made more comments related to the IPEC core competencies during their post-interview focus group than those in the unpaired condition. For preprofessionals in the paired condition, 73% of the responses demonstrated superficial knowledge of the competencies and an additional 15% demonstrated deep knowledge

of the competencies. In contrast, only 52% of the responses from the preprofessionals in the

unpaired condition demonstrated superficial knowledge of the competencies. Further, none of

the participants in the unpaired condition demonstrated deep knowledge of any of the

competencies and 48% had no knowledge or a misunderstanding of the competencies. The paired

responses demonstrated a deep knowledge of *Teams and Teamwork* and *Roles and*

Responsibilities. This difference suggested that the unpaired preprofessionals did not gain as

thorough an understanding of the competencies as those in the paired condition. These results

indicated that the opportunity to work collaboratively and put knowledge into practice afforded

the paired preprofessionals an increased understanding of the IPEC competencies and achieved

higher levels of self-reported competency.

The results of the emergent writing knowledge tests showed that eight of the nine

preprofessionals improved their score between the pre- and post-test. The preprofessional that

didn't improve maintained the same score (80%). Although nearly all of the participants' scores

improved, the paired preprofessionals showed greater gains in their overall score when compared

to the unpaired preprofessionals. Specifically, the average improvement for the paired condition

was 3 points, whereas the average improvement in the unpaired condition was 1.7 points. This

difference suggested that being involved in a collaborative learning experience allowed the

paired preprofessionals to gain more knowledge of emergent writing concepts than those in the

unpaired condition.

The facilitated discussions and debrief sessions were utilized to guide the

preprofessionals' learning of interprofessional collaboration and emergent writing. The

facilitated discussions allowed the preprofessionals to discuss the readings about emergent

writing, analyze their preschoolers' writing abilities, and brainstorm ways to help their

preschooler progress to the next level of emergent writing. The debrief sessions required the preprofessionals to critically examine their intervention sessions in order to receive feedback that, in turn, facilitated their learning. The paired preprofessionals completed the discussions in collaboration with their partner, and the unpaired preprofessionals completed the discussions individually. Participating in the discussions together allowed the paired preprofessionals to collaborate and share their thoughts and ideas with one another. They then implemented those ideas into their intervention sessions to improve the experience each week. These findings suggested that communicating with one another throughout the experience contributed to the paired preprofessionals' increased knowledge of emergent writing concepts when compared to the unpaired professionals.

These findings suggested that students should not only be educated on the IPEC core competencies, but that some content areas should be taught in collaboration with other disciplines at the graduate level. Other disciplines may include occupational therapy, physical therapy, audiology, psychology, education, and social work (Dobbs-Oates & Wachter Morris, 2016). Finding interdisciplinary overlap within each discipline's scope of practice will help determine content areas that can be more effectively taught and learned in a mixed classroom. A collaborative learning environment coupled with the opportunity to apply their knowledge through hands-on experiences may lead to increased learning outcomes and better equip students with the skills necessary for successful collaboration.

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