

COVID-19 Modifications to a Service-Learning Project Designed to Prepare Special Education Students to Be Effective Participants in Transdisciplinary Collaborations

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Abstract

This research study examined the impact of COVID-19 on university students' perceptions about the effectiveness of a community-based service-learning project designed to prepare graduate students in special education and undergraduate students in psychology and speech-language pathology to work in transdisciplinary teams in early childhood settings. Students were placed into transdisciplinary teams and assigned to one of two community-based early childhood programs to administer a universal screening tool that assessed young children in several domains. The project was in its sixth year when the country stood still because of the COVID-19 pandemic. The project was re-envisioned, mid-course, to provide an equitable and rigorous assignment for students who were unable to complete the original assignment due to the lockdown. Student perceptions were compared, pre and post COVID; subsequent results are discussed in alignment with the original four goals of the project. Additionally, suggestions are posed to position this service-learning assignment for remote delivery should the pandemic persist to disrupt higher education.

Keywords

COVID-19, teacher education, assessment, transdisciplinary collaboration, peer mentoring

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Background

Educators in the field of special education are frequently called upon to serve on transdisciplinary teams to provide services to children with special needs. However, students are rarely provided with authentic opportunities to experience transdisciplinary practice before they are expected to do so as professionals. Several years ago, the principal investigators of this research study, professors from three separate disciplines, embarked upon a collaboration which would involve transdisciplinary collaboration of their respective students. The three professors represented disciplines which often intersect while providing assessment, treatment, and support to young children with disabilities in early childhood settings: Exceptional Education (“ExEd”), Psychology (“PSY”), and Speech-Language Pathology (“SLP”). Although these professionals are frequently found on child study teams or Individualized Education Plans (IEP) teams, their higher education coursework and training historically has occurred solely in silos (i.e., the process whereby information, goals, tools, priorities, and processes are not shared with others). Upon entrance into their chosen vocation, early career professionals are expected to spontaneously possess the collaboration skills necessary to successfully interact with others and to effectively service children with special needs.

Hence, the investigators designed a shared service-learning assignment, whereby students were placed into transdisciplinary teams and assigned to one of two early childhood programs. One center was university supported and included children from the community as well as the children of students, faculty, and staff from its campus. The second center was located within a transitional housing facility which provided support and services to single-parent families as they worked towards reentry into their communities after combating mental illness, substance abuse, homelessness, or poverty. Each team of students included at least one member from each of the three disciplines: PSY, SLP, and ExEd. The Exceptional Education teacher candidates were graduate students who were already practicing clinicians within the field of special education whereas the PSY and SLP students were undergraduate students who had not yet entered their field.

Each team was responsible for implementing a universally accepted early childhood developmental screening tool to young children in the aforementioned childcare centers, which had the dual benefit of providing a service to the childcare center staff and families and also for providing the college students with a valuable educational opportunity. The *Ages and Stages Questionnaire-3* (ASQ-3) screening tool was selected for various reasons, namely its frequent use in early childhood settings by a variety of professionals, and its utility in terms of simplicity of implementation and favorable reliability and validity outcomes (Bricker et al., 1999). The ASQ-3 is commonly administered by special educators, psychologists, and speech-language pathologists so it provided authentic and valuable experiences for the university students involved in this study. Additionally, the researchers partnered with a regional chapter of a national initiative, Help Me Grow (HMG). Help Me Grow’s mission is to ensure that all children receive reliable and valid universal screenings to monitor development in the areas of communication, gross motor, fine motor, problem solving, and personal-social functioning. To achieve this goal, HMG selected the ASQ-3 as its instrument of choice. The researchers and HMG began partnering in 2014 which allowed university students to administer the ASQ-3 and report results to HMG. The project involved various components.

The researchers each spent about three hours of classroom time to train their students in the implementation of the ASQ-3. The training session included a thorough overview of the importance of early identification in young children for best outcomes as well as “mock” scoring sessions whereby the

students observed video-taped segments of young children at various ages and were asked to score the ASQ-3 in accordance with the behaviors and skills the young children demonstrated. The training videos were part of a collection of over 50 videos which had been created by earlier cohorts of the project. The training videos depicted a transdisciplinary team administering the ASQ-3 screening to a young child with an accompanying voiceover narration describing each step of the assessment process.

As an additional component of the classroom-based training, students were provided with a project handbook, which discussed the professional skills, behaviors, and dispositions expected of them while engaged in community screenings. Included in this handbook were behavioral expectations in terms of professional demeanor, dress, code of conduct, and communication. The ExEd students, who were already practicing teachers within the field of special education, were asked to serve as role models and mentors to ensure that the highest of professional standards were demonstrated while the transdisciplinary teams were interacting with children and stakeholders in authentic childcare settings.

Post-training, the students were placed into teams with each discipline represented at least once with the ExEd students acting as mentors and team leaders. The researchers felt it was important for students within each discipline to become familiar with the roles and responsibilities of their group mates' disciplines. To do this the investigators created short video tutorials, such as "What is a special education teacher?" Each discipline was discussed in terms of training and professional responsibilities, along with a description of a typical school day of that practitioner. All students were required to watch each tutorial and answer a series of questions to assess comprehension. The investigators then required the team members to begin the collaborative process by getting to know each other and planning for the ASQ-3 screenings.

The students were responsible for meeting before administering the screenings to acquaint themselves with each other, discuss each of the three professions, review the ASQ-3 and required materials and tasks, and decide who would assume the lead on each screening. Students who were not leading the screening had responsibilities of readying materials for all items on the ASQ-3, recording the score for each item, or recording anecdotal field notes. Each transdisciplinary team screened three children at a minimum, which allowed every student on the team to experience each role once. The scores from each screen were then entered into a universal database maintained by the publishers of the ASQ-3. Scores were reviewed and analyzed by professionals from HMG, who then contacted each child's parent to convey results. HMG conveyed results to parents and linked them to community support as appropriate.

The steps in the post-assessment process were shared with the students with intentionality. It was important for the students to realize that their efforts of this project culminated into tangible recommendations for parents and families as many children were referred for additional evaluations and support if deemed appropriate by the ASQ-3 findings. For assessment purposes within the university's coursework, students were responsible for conducting an oral case presentation, submitting a written developmental assessment paper, and self-reflective journals. To assess the effectiveness of this project, the researchers distributed pre and post surveys which were used to collect data regarding student perceptions about transdisciplinary collaborations. These data were analyzed using both quantitative and qualitative methods which resulted in a mixed-methods research study.

During the Spring semester of 2020, which was Year Six of this project, the ASQ-3 screenings were administered according to schedule by the mid-point of the semester. Since the ExEd students were employed teachers, all teams were scheduled to complete their screenings during breaks in the schedules of the local school districts. About two-thirds of the teams completed their screenings during a school break week in February 2020. The remaining one-third of teams were scheduled to complete

their screenings during a week in April 2020. Then, life was upended on our university campus as was the case across the country. Our institution is public and part of a state-run system. At a press conference on Wednesday, March 11, 2020, the State's Governor declared that in three days' time, Friday, March 13, 2020, would be the final day students or faculty would be present on campus. Depending upon the timing of class meetings, some professors were able to see their students for one final class: others not at all. The student break was also extended from one week to two to allow faculty an extra seven days to transition to remote instruction.

All university sponsored service-learning and related activities were halted. Spring break essentially dissipated for instructors, as they scrambled to transition courses to remote instruction by the first week of April 2020. Additionally, the project's partnering childcare centers closed their doors at 5:00 p.m. on March 13, 2020. Consequently, the researchers were faced with a troubling predicament. It was apparent that the screenings scheduled for April could not be administered in person as the students returned to their respective homes once the campus was shuttered. Additionally, the childcare centers were also closed due to the pandemic although the university center ultimately reopened in late April 2020, for six to eight children only, whose parents were community-based essential workers.

An emergency troubleshooting and planning meeting ensued. The researchers realized that innovation and flexibility were critical components to the solution while it was still imperative to maintain the original rigor and intent of the project for the remainder of the students. The researchers considered various alternatives, but the challenge remained: how to convert a project that was designed for face to face interaction to a remote learning activity? Eventually, their minds returned to the treasure trove of videos that had previously been used strictly for training purposes.

The researchers reviewed the videotapes to locate the footage that would best serve the purposes of the project. They searched for videos that would align to the original intent as much as possible. Therefore, they sought videos that were clear and illustrative, but still required the students to carefully observe the child's behavior to answer the items on the ASQ-3 protocol. It was also important to maintain the integrity of the original screening experience as much as possible including providing a diverse group of children for the students to screen. This was a critical component of the revamped project because the children from the childcare centers screened in the original service learning project represented various races (e.g., Asian American, African American, European American) as well as various socio-economic groups, including families experiencing homelessness, poverty, and food insecurity. Videos were selected that represented children of various ages (10, 12, 18, 30 and 48 months), included children of three different races and various socio-economic groups. The final essential element was to replicate the assignment to ensure that the original project goals remained intact.

Initially, the project had four primary goals which included: (a) familiarizing students with the developmental screening process used to identify young children who could benefit from intervention services; (b) explore the effectiveness of using a service-learning project to enhance student interest in participating in transdisciplinary collaborations in their future professions; (c) examine the impact of a peer teaching model for training students to work with young children with special needs; and (d) provide opportunities for students to develop professional behaviors and skills within the context of authentic, community-based sites. These four goals were embedded within the original project and were also integral components of the re-envisioned post COVID-19 assignment.

For both the original and revised versions of the project, the investigators turned to the literature base to determine what previously published studies had established in terms of the project goals. It was apparent that no research study resembling the one at hand had been conducted within a university

setting or student preparatory program before. However, the literature did yield noteworthy results gleaned from previous studies which helped to guide and inform this study. Unfortunately, many of the studies located were a bit dated, despite good faith efforts to find the most recent research available. The results of the literature review, categorized by each of the four project goals, follow.

Familiarity With Early Childhood Screening Tools

Approximately 17% of children in the United States have behavioral or developmental problems and 20-25% of children have psychosocial risks that have the potential to negatively impact their academic performance (Glascoe & Trimm, 2014). In 2006, the American Academy of Pediatricians released a policy statement recommending that all children be assessed using a validated and universal screening instrument before the age of 36 months. Research examining the benefits of early intervention has repeatedly and emphatically demonstrated that the earlier development delays are identified and addressed, the better the child's short and long-term outcomes may be (Anderson et al., 2003; Bailey et al., 2005). Unfortunately, although we acknowledge the benefits of early identification, in the United States a woeful 20-30% of children are identified with developmental delays before entering an academic setting (Brothers et al., 2008). Researchers have discovered that the foundational academic skills, such as reading and writing, are adversely impacted when a child's developmental delays are not identified or addressed before beginning school (Rosenbaum & Simon, 2006). While early identification and intervention have been documented as having positive outcomes in terms of academic achievement, behavior, and educational attainment, (Karoly et al., 2005), professionals often lack the necessary training and experience to identify indicators of language, behavioral, social or mental health concerns in young children and are therefore unable to design appropriate curriculum to address those needs (Gallagher et al., 2009).

Transdisciplinary Collaboration, Education, and Learning

The intended purpose of transdisciplinary collaboration is to bring together professionals from markedly different educational training programs and encourage them to support each other while learning novel instructional practices and theoretical approaches from each other as they engage in work taking place in authentic settings (Nash, 2008). In the field of early childhood special education, transdisciplinary models of assessment and service provision are frequently implemented (King et al., 2009). Yet, a gap in the research was noted regarding transdisciplinary collaboration within the training programs of educators or related service providers. Ludwig and Kerins (2019) reported that 75% of surveyed study participants within a speech-language pathology training program indicated they had received no formal training regarding collaborative or transdisciplinary practices.

This lack of training was surprising to discover, as Zraick et al. (2014) determined that transdisciplinary collaboration supports students as they cultivate their own individuality within their chosen profession. Similarly, Herrick et al. (2002) determined that students who receive transdisciplinary training within their educational programs are more apt to enter into their chosen profession with knowledge of the scope of practice, philosophies, and language of their own discipline in addition to those frequently used in other fields. The importance of transdisciplinary collaborations is realized as research demonstrates better and improved outcomes for children as recognized by stakeholders such as professionals and families. Research into parental perceptions indicated family

members felt the information that resulted from a transdisciplinary assessment was far more valuable and comprehensive than those received from individual assessments implemented by a sole provider (Myers et al., 1996). The findings of this literature review reinforced the notion that although it is widely accepted that transdisciplinary collaborations yield more positive results than the work of sole providers, the scarcity of that training within college preparatory programs is concerning.

Implementation of Peer Teaching Models in Training College Students to Work With Students With Disabilities

Teacher candidates in college preparatory programs are expected to engage in mentored field placement opportunities, such as junior participations or student teaching. In each of these scenarios, teacher candidates are supported and mentored by experienced and seasoned professionals in the field of education who can provide guidance and suggestions in how to interact with young children. These mentoring experiences allow for the organic growth and development of a pre-service teacher who can then segue into practice of working with children with a range of ages and populations. This peer mentoring replica is an effective instructional model, as it is necessary to possess a strong understanding of best practices to mentor another (Whitman, 1998). Prior research has found peer mentoring to be an effective instructional practice for training less experienced colleagues, regardless of level of expertise or personality type (McKeachie et al., 1986). There is little research investigating the effectiveness of a peer training model in preparing professionals to work with young children in academic settings, even though studies have demonstrated it is a valuable and authentic alternative to the more traditional approach of college-based lecture (Thomson et al., 2014).

Provision of Authentic Community Opportunities to Assist in the Development and Demonstration of Professional Behaviors and Skills

Dispositions are currently being recognized in the field of teacher education as being equally as critical to effective teaching as knowledge and skills. In fact, the National Council for Accreditation of Teacher Education (NCATE) included professional dispositions as an integral facet of teacher education programs given that "educators are expected to develop the characteristics of a professional and model professionalism every day" (Kramer, 2003, p. 22). Professionalism is defined as "an ideal to which individuals and occupational groups aspire, in order to distinguish themselves from other workers" (Pratte & Rury, 1991, p. 60). Professionals are expected to have specific knowledge unique to their disciplines which they utilize to make sound judgments, specialized training, characteristics that are unique to their field, and standards to which they are accountable.

In the past, professionalism was taught by role-models (Cruess et al., 2008; Kenny et al., 2003; Wright et al., 1998) or by providing students with a list of defined professional dispositions (Swick, 2000) but others have argued that neither approach alone is sufficient for the development of professional dispositions (Cruess & Cruess, 2012). Increasingly, researchers and educators have recognized that both approaches must be combined for students to internalize the behaviors to form professionalism (Ludmerer, 1999). However, it is important to note that a good deal of this research has come from the field of medicine and not education or teacher preparation. Thus, it is the responsibility of teacher education programs to be proactive in developing teaching strategies designed to enhance professionalism in their students and to conduct well-designed research studies to disseminate this knowledge.

Method

Participants

This research study involved university students from Exceptional Education, Psychology, and Speech-Language Pathology (see Table 1 for participant characteristics). The university students conveyed their perceived effectiveness of participating in a peer mentoring, transdisciplinary research study that focused on the importance of early childhood screening and the demonstration of professional dispositions. All participants were provided with an overview of the study and were made aware that participation was voluntary and did not impact their course grade or standing within the university. Institutional Review Board (IRB) approval was obtained, informed consent letters were signed, and all students were guaranteed the protections the university affords to human subjects willingly participating in research.

Table 1

Demographic characteristics of Spring 2020 study participants

	ExEd n = 10	PSY n = 25	SLP n = 20
Age	M = 26.8 SD = 3.97	M = 21.96 SD = 1.72	M = 22.75 SD = 4.89
Gender (Female/Male)	9/1	22/3	20/0
Race			
% White	60%	32%	70%
% Hispanic	0%	4%	0%
% African American	10%	56%	30%
% Asian/Pacific Islander	30%	4%	0%
% Other	0%	4%	0%

Setting

The training of the university students took place on their campus. Some transdisciplinary groups also opted to meet to discuss their collaborative efforts during a joint “meet and greet” pizza party held on campus. As previously mentioned, the screenings were administered in two childcare programs. One group of children were screened within the early childhood program on campus providing services for the children of community members, and university students, faculty, and staff. The second group of children were screened at their transitional housing facility located within an urban community not far from campus.

Data Collection

Qualitative and quantitative data were collected using a variety of vehicles. Pen and paper surveys were utilized, pre-study. Electronic questionnaires were implemented via a common online survey tool, post-study as the researchers no longer met with students in a face-to-face format. Both the pre- and post-study surveys consisted of 5-point Likert-type rating scale items designed to assess students’ overall evaluation of the service-learning project (1 item), their perceptions regarding developmental screening

(1 item) and transdisciplinary collaborations (4 items). Additional 5-point Likert-type rating scales items were used to assess students' perceptions of their own professional behaviors and skills (5 items) both before and after their participation in the service-learning project. In addition, students were asked to answer various open-ended questions before and after the service-learning project. During the pre-project and post-project survey, all students were asked if they had completed service-learning in the past and if they would want to participate again and why. In addition, exceptional education students were asked a set of five open-ended questions on the post-project survey to assess their perspectives of being a peer mentor during the service-learning project. Also, during the post-project survey, psychology and speech-language pathology students were asked five open-ended questions on their perspectives of what they learned during the service-learning project specifically related to collaboration, working with children and families, and their future careers.

Study participants also provided their feedback and perceptions of the project through guided reflection. At four points during the semester, students were asked to respond to structured prompts that asked them to reflect about their professional behaviors, comfort level with developmental screening and working with young children, the extent to which this project was informing their career aspirations and their perceptions about their own performance on the project. The first set of reflection prompts were completed at the beginning of the semester after students were introduced to the project but before they received any training. The second set of prompts was completed after training but before the developmental screening took place. The third set of prompts was completed immediately after completing the developmental screening and the final set of prompts was completed at the end of the semester when students were asked to reflect on how the overall project tied into the course content.

Data Analysis

This research study employed a mixed-methods design to obtain an additional richness and complexity of results. Quantitative measures of student perceptions regarding the developmental screening process and transdisciplinary collaborations were collected at the beginning of the semester prior to beginning the project and again at the end of the semester after completing all elements of the project using a survey consisting of a series of 5-point rating scale items ranging from strongly disapprove to strongly approve. Students were also asked about their perceptions regarding professional skills developed or strengthened as a result of the project using additional 5-point rating scale items administered at the end of the semester.

To assess perceptions about the effectiveness of the peer teaching model, students in Exceptional Education were asked to indicate whether they felt the peer mentoring experience was positive and whether they were more comfortable assuming a mentoring role after the completion of the service-learning project. To examine the goals of this project qualitatively, students were given open-ended questions to answer before and after completing the service-learning project. Students were asked about their perceptions regarding participating in service-learning projects, the benefits and difficulties working in collaborative groups, the professional skills they developed by participating in this project, and their experience with peer mentoring. To analyze students' responses the second investigator employed various coding methods to find the primary qualitative results of this study. First, the second investigator completed holistic coding following recommendations by Saldaña (2015). For holistic coding, the second investigator read through all student responses and highlighted parts of responses that were meaningful and portrayed the student's perspective. In addition to highlighting the meaningful

text, the investigator provided a short notation that captured the summary/primary point of the student's response. Following holistic coding, the investigator went back through the highlighted portions of texts and the notations to derive a descriptive coding scheme that included code names and corresponding operational definitions. Once these codes and definitions were completed the investigator went back through the students' written responses and applied codes when appropriate. Finally, the investigator compared all written excerpts that were coded with the same code and analyzed them for their similarities and differences. The commonalities derived from this analysis formed the results of the qualitative analysis. The study's results are reported individually by each project goal, both quantitatively and qualitatively, below.

Results

Perceptions Regarding the Developmental Screening Process

Quantitatively, after completing the service-learning project, students indicated that they were more comfortable working with young children, $F = 4.03, p < .001$, and implementing universal screening tools, $F = 90.19, p < .001$, than they had been prior to beginning the service learning project. However, students who completed the service-learning project prior to the transition to remote learning indicated that they were significantly less comfortable implementing universal screening tools than students who completed the service-learning project after the transition to remote learning (see Table 2). This may be due to the fact that the students, working alone, had to be individually responsible for understanding the ASQ-3 and how to implement it. Conversely, the pre-COVID participants were able to rely upon group members.

Qualitatively, students described that by participating in this service-learning project they were able to gain more knowledge about the following: (a) child development, (b) assessment process, (c) completion of developmental screenings, and (d) the roles and responsibilities of their future profession. For example, one SLP student stated:

As a student, I got a sense of what it might be like for SLPs who work in schools when they have to push into a classroom. I had to communicate with the teacher in the room, as well as overcome the challenge of other students distracting the child that I was there to screen. These are both relevant issues that SLPs who work in school settings are exposed to daily.

A Psychology student reported:

So far, the material we're learning in class is a lot on types of assessments and different ways to test for delays or disabilities. Doing the ASQ-3 is directly related to that. We've been able to recognize the differences between screenings, and assessments like norm referenced or criterion. We've been able to see how a screening like the ASQ-3 can lead to further intervention, and we've also learned risk factors that could increase a child's likelihood to have a developmental delay.

This was similar to an Exceptional Education student who provided this response:

This was the first time I had the opportunity to assess a student in an early childhood setting. I have completed similar assessments for elementary aged children for their reevaluation CSE meetings however this experience was quite different as I did not know the child. It made me think about what steps I could take to make the assessment have the most successful outcome.⁴

⁴ "CSE" stands for Committee on Special Education, which is often referred to as "Multidisciplinary Team/MDT" in some states.)

Table 2

Differences between Students who Completed the Service-learning Project Prior to the Transition to Remote Learning (Pre-COVID-19) and Students who Completed the Alternate Project after the Transition to Remote Learning (Post-COVID-19)

Item	PreCOVID19 (N= 33)		PostCOVID19 (N= 19)		F	p
	M	SD	M	SD		
Overall Evaluation of Service Learning Project						
Effectiveness of learning in authentic community-based settings	4.16	.72	4.47	.25	3.61	.025
Perceptions Regarding the Developmental Screening Process						
Comfort implementing universal screening tools	4.13	1.06	4.56	.78	3.56	.026
Perceptions Regarding Transdisciplinary Collaborations						
Comfort working with individuals from other disciplines or professions	4.66	.73	4.28	.56	4.23	.04
Interest in working with professionals from other disciplines once degree is completed	4.65	.76	4.28	.57	4.24	.04
More prepared for collaboration with professionals from other disciplines	4.25	.48	4.95	.20	14.4	.005
Prefer to learn only with peers from my own profession	2.21	1.3	2.33	1.37	.71	.22
Perceptions Regarding the Development of Professional Behaviors and Skills						
Maintain the confidentiality of protected personal information	3.69	.46	4	0	2.81	.04
Take responsibility for acting in a professional ethical manner	3.69	.48	3.99	.23	2.79	.039
Manage Time Effectively	3.76	.49	3.56	.86	.73	.27
Deal with Criticism Constructively	3.62	.55	3.44	.62	.46	.58
Dress in a Professional Manner that is Appropriate for a Specific Employment Setting	3.85	.44	3.94	.24	.41	.61

Note: Rating scale ranged from 1 to 5

For students who completed the service-learning project after the transition to online instruction, they discussed that if they were able to complete the assessment process in-person they would have been more comfortable interacting with parents and children for the assessment process. For example, one psychology student wrote, "I think if I was able to work directly with the public, I think I would have

learned to become more comfortable working with families and children”. Similarly, a SLP student reported, “I think if I completed the original project I would feel confident to administer the ASQ-3”.

Perceptions Regarding Transdisciplinary Collaborations

Quantitative results indicated that after completing the service-learning project, students noted that they were more comfortable working with individuals from other disciplines or professions, $F = 2.12, p < .02$, than they had been prior to beginning the service-learning project. Although there were no significant differences in their preference for learning with students outside of their discipline, students who completed the service-learning project prior to the transition to remote learning were significantly more comfortable working with individuals from other disciplines or professions, were significantly more interested in working with professionals from other disciplines once their degree was completed and felt more prepared for collaboration with professionals from other disciplines than students who completed the service-learning project after the transition to remote (see Table 2).

Similar to the quantitative results, qualitative analysis revealed that students were much more interested in working in transdisciplinary groups in their future careers. While the response rate for questions about transdisciplinary collaborations were low ($n = 13$), eight students stated that their perspective about the importance of transdisciplinary work changed by participating in this service-learning project. In addition, nine out of 13 students stated that they felt more prepared to collaborate with individuals from other disciplines after completing the transdisciplinary developmental screenings. For the four students who answered no for this question, they stated that their perspective did not change since they already felt comfortable collaborating with others from various disciplines and knew that this aspect would be important in their future careers.

Most of the students who completed the modified assignment after the transition to online learning mentioned that they did not learn tangible collaboration skills as the modified project did not require them to collaborate with students from other disciplines. For example, an SLP student responded:

I think I would have gained more collaborative skills if I was able to complete the original project. Since I was unable to work with an individual with a different major, I was unable to share my knowledge and unable to hear a different perspective based off of their knowledge in a different area.

Perceptions Regarding the Development of Professional Behaviors and Skills

Students who completed the service-learning project prior to the transition to remote learning rated themselves lower in “taking responsibility for acting in a professional, ethical manner,” and “understanding the importance of maintaining the confidentiality of protected person information” (see Table 2). There were no significant differences for “managing time effectively,” “dealing with criticism constructively,” or “dressing in a professional manner that is appropriate for a specific employment setting.”

During qualitative analysis it was determined that students primarily discussed the benefits of this service-learning project in terms of the various professional skills they developed. These professional skills included: (a) screening skills (39%), (b) leadership (22%), (c) collaboration (20%), and (d) communication skills (27%).

In terms of screening skills an Exceptional Education student stated, "I have learned to become more aware in identifying various characteristics of a child from a screening perspective." Similarly, a psychology student replied, "How to successfully give and read developmental screenings." In addition, an SLP student reported, "I gained the skill of being able to complete the ASQ effectively."

When discussing gaining leadership skills, an exception education student wrote, "I think that I have gained a better understanding of myself. I also believe I have become more confident in taking initiative." Comparatively, a psychology student listed these as the skills they gained by participating in this service-learning project, "Independence, leadership, better communication." Also, an SLP student listed these as skills she learned during this project, "leadership, communication, professionalism."

For the theme of collaboration, students typically spoke about how they felt like they were better able to work on a team effectively after completing this project. Specifically, an Exceptional Education student said, "I gained confidence in my ability to lead and work with peers and professionals." Similarly, a psychology student wrote, "The skills I've gained while completing this project are communication, teamwork, perseverance and motivation." An SLP student said that she increased her collaboration skills as she is "able to work with different personalities."

Regarding communication skills, students typically did not elaborate on the specific communication skills they gained, rather they listed gaining better communication as part of the other skills they gained by participating in this service-learning project.

These experiences were not shared by the students who completed the project after the transition to remote learning. Most of the students expressed that they were not able to practice or develop skills related to collaboration, communication, and problem-solving once the project was moved to remote instruction. For example, an SLP student stated, "I feel as if I would I have gained more communicative abilities in terms of interacting with other team members and the actual children I would have conducted the ASQ with." This was similar to another psychology student who said, "I think I would have gained more skill in areas like communication and teamwork in person. I also would have been able to work with clients in the real world which would have been beneficial." Also, an Exceptional Education student wrote, "I think I would have improved communication and leadership skills if I was able to complete the original project."

Perceptions Regarding the Peer Mentoring Role

Exploratory analyses were conducted examining whether the graduate students in Exceptional Education felt the peer mentoring experience was positive and whether they were more comfortable assuming a mentoring role after the completion of the service-learning project. Chi-square analyses indicated that students who completed the service-learning project prior to the transition to remote learning were more likely to indicate that the peer mentoring was a positive experience than students who completed the project after the transition to remote learning as indicated in Table 3. There were no significant differences in how comfortable they felt assuming a peer mentoring role as a result of their participation in the service-learning project.

Qualitative data regarding the peer mentoring experience was collected from two different groups of Exceptional Education students over two years. When answering the question: "Was this peer mentoring experience a positive one for you?" 79% of the Exceptional Education students answered in the affirmative. Students were asked to provide rationale for their response to this question. Typically, Exceptional Education students stated that peer mentoring was a positive experience as it allowed them

to practice collaborative and leadership abilities that they have not had the chance to use in naturalistic settings. For example, one Exceptional Education student stated, “It really allowed me to grow in my leadership abilities and really brought forward everything I’ve learned.” Similarly, another student stated, “I feel more comfortable assuming a mentor role now that I have had more practice being a leader during this service-learning project.” Another student also wrote, “this was a great way to begin getting comfortable with other disciplines but to me it was more of me using my skill set to mentor them and guide them through the assessment.” For the three Exceptional Education students who were unable to complete their screenings face-to-face due to COVID-19 restrictions, they stated that the peer mentoring was not as positive an experience as they would have liked. These students discussed that while they may have met with their group once before the screening, they were unable to complete the screenings in a group which hindered their ability to be a mentor and group leader.

Table 3

Evaluation of Peer Teaching Model and Service-Learning Project by Graduate Students in Exceptional Education

Item	PreCOVID19 (N= 6)		PostCOVID19 (N= 4)		χ^2, p
	Yes	No	Yes	No	
Was peer mentoring experience positive?	6	0	2	2	.05
More comfortable assuming a mentoring role?	6	0	3	1	.197

Discussion

As demonstrated by the results section above, participants in this research study provided rich commentary and perspective in terms of how they viewed developmental screenings, transdisciplinary collaboration, development of professional behaviors and skills, and the role of peer mentoring with their education. Given the sudden and unanticipated disruption to our original project, we were particularly interested in the impact that our modifications had on our student learning objectives. Clear patterns of difference emerged when viewing the quantitative and qualitative results of participants in comparing pre-COVID and post-COVID group perspectives. Although the researchers hypothesized that perspectives regarding the assessment experience would differ from the pre-COVID cohort to the post-COVID group, it was impossible to determine to what extent the participants realized those differences and were able to articulate the impact of them. Upon review of the findings, results clearly indicated that the participants were able to identify the differences and discuss them in an eloquent and informed manner. The researchers digested this information and used it to frame their instructional practices and strategies for redesigning the project. It is possible that repercussions from the pandemic linger in higher education longer than anticipated and it is equally possible that life resumes to a new normal. In either scenario, it appears that the strategies suggested are educationally sound and rigorous, so they would serve the project well.

After each component of the research study has been discussed, ideas for reconfiguring the potentially still-virtual assignment to closer replicate the original are presented below. Additionally, the researchers have realized the important role the experienced, in-service Exceptional Education teachers play in this assignment and have devised strategies to capitalize on their skills while employing them as leaders in the revised assignment.

Perceptions Regarding the Developmental Screening Process

As suspected by the researchers, students who completed the ASQ-3 assessments in-person, pre-COVID, felt the experience was meaningful and valuable to them, regardless of their discipline, for a variety of reasons. Students reported that the experience of providing a service (colloquially known as “pushing in”) in a classroom was valuable to them as it mirrored what they will be expected to do upon entrance to their profession and while working with a child on their caseload. Students also remarked that they appreciated the authenticity of assessing a child in real-time, as prior to this experience, all their knowledge of early childhood assessments had been derived solely from class lecture material. Students who completed the modified assignment, even at this early stage of their careers, were able to articulate that the service learning project would have afforded them with more direct contact with parents and children, enriching the assessment experience and their own professional growth. Even the “seasoned” Exceptional Education participants noted that the skills required to screen a very young child differ greatly from assessing a school-aged child and realized that their post-COVID replacement assignment caused them to miss out on this valuable opportunity. Another Exceptional Education student remarked that completing the original, pre-COVID assignment would have afforded them with more confidence in administering the screening tool. Although the post-COVID assignment attempted to mimic the attributes of the original assignment as closely as possible, it is evident there were some aspects of the pre-COVID assignment that were impossible to replicate with the modified, post-COVID experience, unfortunately. These findings underscored the importance of redesigning the project to afford more value to participants if it is implemented remotely in the future.

Perceptions Regarding Transdisciplinary Collaborations

All participants from the pre-COVID group indicated a greater interest in working with peers from other professions. However, students who completed the service-learning project in its original form reported an increased comfort level in working with peers from other disciplines. It is interesting but not surprising to note that post-COVID respondents unilaterally reported less comfort, less interest, and lesser feelings of preparedness in working with peers from other disciplines than did the pre-COVID cohort. The researchers were largely unsure of how respondents would reply but their responses were one more indication in the differences in experiences and perceptions between the two groups. Unfortunately, although the replacement assignment attempted to replicate the value of the pre-COVID project, it was obvious when reviewing both quantitative and qualitative results that the differences between the two experiences were significant with the post-COVID students feeling they had missed out on a valuable opportunity. Again, despite valiant efforts by the researchers to retrofit the assignment to meet the unprecedented and challenging demands caused by the realities of COVID, participants clearly felt the revised assignment fell short of the opportunities experienced by their classmates participating in the pre-COVID assignment.

Perceptions Regarding the Development of Professional Behaviors and Skills

The participants of this research study noted an increased confidence in their professional skills, in most cases regardless of when they completed the project. In particular, the Exceptional Education students noted an increased awareness of the importance of leadership and a greater confidence in providing

feedback and constructive criticism to peers in a skillful manner. Pre-COVID participants in all disciplines noted a perceived improvement in their problem-solving, communication and collaboration skills. Almost all the post-COVID group responses noted no perceived change in these skill areas once the project transitioned to the virtual assignment. This feedback was of particular interest to the researchers and will play a meaningful role in the redesigning of this project for future semesters, regardless of in-person or virtual implementation.

Perceptions Regarding the Peer Mentoring Role

The Exceptional Education students assumed a peer-mentoring role in the project for several reasons. The Exceptional Education students were enrolled in a graduate studies program so were older and often possessed a greater level of maturity than the other participants. Nearly all of the Exceptional Education students were working in the field of special education and many of them were lead teachers, comfortable with their role of modeling appropriate behaviors and delegating responsibilities to their classroom teams while interacting with children and encouraging active engagement. Additionally, many of the Exceptional Education teachers had prior experience in administering assessments or screening instruments to children in structured settings; some of those experiences related directly to the ASQ-3. To ask the Exceptional Education teachers to serve as peer mentors for their group mates seemed like a logical and natural expectation and one which would also hold value for them, particularly when considering the adage “to teach once is to learn twice”. However, the data clearly demonstrated a marked difference in experience from the pre- and post-COVID cohorts. When asked, 100% of the pre-COVID Exceptional Education participants indicated that the peer mentoring component of the project was perceived as positive. Similarly, 100% of the Exceptional Education students noted that they felt more confident in assuming a leadership or mentor role. Comparatively, only half of the special education teachers reported that the mentoring experience was perceived as positive although 75% did indicate they felt more confident in assuming a leadership role among peers from other disciplines.

Limitations

The most obvious limitation in this study was the small group of participants that participated in the post-COVID project, approximately 33% across all disciplines. The Exceptional Education cohort was appreciably small at ten participants overall and four within the post-COVID cohort. Unfortunately, the limited sample size of post-COVID participants was unavoidable as the project was intentionally designed for completion fairly early in the semester, with the later weeks acting as a safety net for those participants with conflicts impacting their earlier participation. Additionally, the participants in the study were largely female so the sample lacked some diversity in terms of gender representation. Interestingly, however, the only male early childhood Exceptional Education student to ever participate in the study actually participated in the semester impacted by COVID. This indicates a lack of gender diversity in early childhood special education as a whole rather than as a specific limitation of this study. Lastly, a limitation should be noted in terms of data collection. The pre-project surveys were distributed in person, via a pen/paper presentation, during class time within each of the three courses. Once the campus was shuttered as a result of the pandemic, the post-project measures were distributed virtually, via a software survey tool. Multiple reminders were necessary to ensure full participation once the students were required to leave campus as many returned homes and certainly had more pressing

matters on their mind during the uncertain early days of the pandemic. Results may have differed if pre and post surveys were administered in the same way.

Conclusion

The primary purpose of this study was to investigate the impact of a service-learning project on university students' perceptions of the importance of early childhood screenings, transdisciplinary collaboration, professional behaviors, and peer mentoring. However, a secondary purpose of the study unwittingly bubbled to the surface and that was to investigate the impact of a global pandemic and a transition to remote instruction on the perceived value of an assignment designed for in-person implementation. Our lessons learned were plentiful. As a result of participant feedback and hours of careful deliberation, several suggestions arose in terms of future implementation of this project. At the time of writing, the pandemic is still in full force, with no immediate end in sight. Even if the pandemic is controlled, many P-12 administrators have indicated a reluctance to quickly reintroduce student volunteers to their schools. The prevailing thought is that staff and students will return to school feeling a bit shell-shocked and raw after the COVID-19 experience. Many schools have decided to address social-emotional wellness upon return and put academics on the back burner for a period of time, to allow all to experience a feeling of school community again. For all these reasons, it is possible that the service-learning project will need to be redesigned even once schools reopen. Therefore, the researchers are thoughtfully planning the next iteration of this assignment to ensure it is as successful as possible. The following sections discuss possible ways that the assignment could be reconfigured moving forward. Many of these options include increasing the leadership role fulfilled by Exceptional Education students. As noted earlier, the modified version of the service learning assignment replaced community-based, real time administration of the ASQ-3 with viewing videotaped footage of previously administered screenings. One option to improve this aspect of the project is to offer students the option of screening a young child within their family. If pandemic precautions persist, and families are quarantining together, this option will not jeopardize the health of the student or child. The screener would then implement the ASQ-3 employing a live-streaming technology as many free options are readily available, such as FaceTime, Google Duo, or Blackboard Collaborate. This would allow all group members to participate remotely while assigning roles and responsibilities to group mates just as if they were in person. Such responsibilities would include one person scoring the ASQ-3 using the protocols, one recording anecdotal observations while the Exceptional Education student modeled strategies for increasing engagement with the young child. The other group members would take on this role later in the screening process, after the teacher modeled the practices to facilitate more participation from the young child.

Another option to modify the service-learning assignment would be to require the students to watch the collection of videos that were employed for the emergency Spring 2020 COVID assignment, but to watch them collaboratively as a group, similar to a watch party. This collective viewing could take place via any of the free options noted above, such as FaceTime or Google Duo. The instructors could create a series of "stop and discuss" prompts for the students to pause the video, and allow them to discuss ways to increase child engagement, or problem solve a scenario, with the Exceptional Education teachers taking on a leadership role during these discussions. This option would increase collaboration and more closely mirror the original delivery of the assignment while providing the teacher to share strategies to work with a noncompliant child, for example.

Another option is to implement a mixed reality classroom with simulated students as there are several readily available to provide students with a virtual opportunity to develop their screening skills. Again, this would allow students to collectively implement an ASQ-3 screening with the Exceptional Education teacher modeling engagement and assessment skills. However, these programs are expensive as they involve the use of trained actors to serve as avatars, so grant funding would need to be pursued to defray the cost.

The researchers also considered the other aspects of the service-learning project, including the components intended to increase professional skills, collaboration, and communication. The second author had designed a series of online modules intended to serve as self-reflective exercises while examining personal communication styles, personality types, and collaboration preferences among her students. These modules could be incorporated into the assignment, and students could be required to meet remotely to discuss their individual results while engaging in self-reflection.

Another component that could be incorporated into the service-learning project would include the instructors creating a series of vignettes or scenarios in which the ASQ-3 screeners encounter an obstacle while assessing a young child such as distractibility, non-compliance, or lack of responsiveness. The students could collectively propose ways to combat these obstacles with the seasoned Exceptional Education teachers offering suggestions based upon their past experiences.

In a similar vein, the researchers could compose scenarios that pertained to the professional behavior of the students and ask group members to offer feedback. One such scenario might be that a student noticed that a group mate arrived at the screening site clearly unprepared to work with a young child or dressed inappropriately for a professional setting. Participants could be asked to role play and offer suggestions for how to tactfully approach the situation in a professional manner.

Clearly, it is the hope of all humankind that the pandemic is controlled, and life resumes back to more normal conditions both on and off university campuses. Regardless, the researchers feel that their service-learning project has been enhanced as a result of these unfortunate circumstances and are fully prepared to implement the strategies outlined in this article to offer students an improved version of the service-learning project irrespective of service delivery, whether in-person or virtual.

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