

Occupational Therapy and Art Education: Interprofessional Collaboration for Inclusive Remote Learning

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Abstract

Interprofessional collaboration is considered best practice in all areas of health care, and interprofessional education (IPE) activities are an essential part of preprofessional education programs. IPE activities typically occur between healthcare profession students but not between programs outside of healthcare where professionals are likely to collaborate, such as occupational therapy (OT) and schoolteachers. Here we describe an innovative IPE activity between OT and Art Education students who collaborated during the COVID-19 pandemic to apply theories from each discipline to create remote asynchronous inclusive art workshops during the pandemic. Art Education majors developed the workshop curricula, and OT students developed strategies to modify the activities to facilitate participation for children with disabilities. The collaboration between the students allowed both groups to be introduced to each discipline's objectives, modalities, and approaches while enhancing understanding of the distinct value that each provides within the education setting, thus increasing the likelihood of developing stronger interprofessional relationships in the future. The project sought to address other learning objectives, including researching and applying best practices for asynchronous learning, adapting activities for specific participation or learning needs, incorporating adaptations using Universal Design for Learning principles, and preparing family-friendly resources in a remote format.

Keywords: interprofessional collaboration, occupational therapy, art education, asynchronous art, inclusive COVID-19 education, UDL, adapted art

Introduction

Interprofessional collaboration is considered best practice in all areas of health care by the World Health Organization (WHO) (2010) and has been identified by the Accreditation Council on Occupational Therapy Education (ACOTE) as an essential part of Occupational Therapy (OT) education (ACOTE, 2012; Handley-More et al., 2013). The WHO defines interprofessional education as students in varying healthcare professions learning “about, from, and with each other” to improve health outcomes (WHO, 2010, p. 10) and proposed a call to action for policymakers to commit to and champion interprofessional education and collaboration. The Interprofessional Education Collaborative (IPEC), comprised of 15 healthcare profession associations, defines core competencies for interprofessional collaborative learning experiences in healthcare education programs with a primary focus on population health (IPEC, 2016).

Health profession programs widely use the framework and guidelines proposed by the WHO and IPEC. Numerous examples of interprofessional collaboration educational (IPE) activities among health profession programs throughout the literature exist. In their systematic review of the literature on IPE education in OT education, Watford et al. (2021) found that 95% of 19 studies that were reviewed reported levels of measured improvement or positive outcomes. Browne et al. (2021) reported that in their longitudinal study of graduate students in health science administration, nursing, OT, and clinical psychology, students had significantly better attitudes toward interdisciplinary teams after engaging in IPE experiences. These positive attitudes were maintained for up to 78 months. Mills et al. (2020) similarly found improved attitudes and confidence regarding interprofessional collaboration among OT, speech therapy, and dietitian students who engaged in a 3-hour simulation-based IPE activity.

In addition to its importance in health care and occupational therapy education, interprofessional collaboration is also considered best practice for art educators and is one of the key professional skills measured on the Candidate Preservice Assessment of Student Teaching (CPAST), endorsed by the Council for Accreditation of Educator Preparation (CAEP). Burdick and Causton-Theoharis (2012) suggested that art teachers can significantly support students with disabilities in the art classroom if knowledge is disseminated to create a respectful and empowering team environment. Derby (2013) also emphasized that the field of education should begin to acknowledge the importance of quality art instruction for students with physical, visual, and multiple disabilities. Although students with high-incidence disabilities may experience difficulties in creating art, their needs differ from those with physical disabilities. Coleman et al. (2015) stated that art educators need to include adaptations within their educational spaces, including assistive technology, to support the needs of students with physical, sensory, and multiple disabilities in the art classroom. One way that adaptations can be made to art education for students with disabilities is through collaborative sharing among special education professionals and art education teachers (Coleman et al., 2015). Collaborative learning

experiences provide a higher and more engaging level of professional growth (Schlaack & Steele, 2018; Shabani, 2016). With the inclusion of collaboration across disciplines and professionals, students also improve in related skills such as communication, active listening, and even empathy (Knight, 2009).

Interprofessional Collaboration in Preprofessional Education

The examples of research on IPE activities found in the literature, including those noted previously, typically involve students in healthcare majors that use a medical model, such as collaborations between students in nursing, OT, physical therapy, and speech therapy (e.g., Browne et al., 2021; Spencer et al., 2019; Suarez et al., 2014). However, OTs who work in the school system typically operate under an educational model requiring them to collaborate with general classroom teachers, special educators, and specialized teachers such as those who teach physical education, music, or art. According to Handley-More et al. (2013), the literature shows that collaboration between OT practitioners and schoolteachers is minimal. Research suggests that positive collaborative experiences during preprofessional education for teachers frequently result in improved outcomes for students with disabilities and may increase collaborative skills necessary for K-12 educational settings (Farrand et al., 2019). Therefore, creating IPE opportunities for students in OT educational programs and preservice art teachers is important to develop the skills needed for successful collaboration in future professional roles in the school system.

Zaid et al. (2021) examined the perceptions of special educators toward occupational therapy students in Malaysia. They found that teachers needed clarification of the role of OT in the classroom. Still, once they had the opportunity to work together, they concluded that OT is beneficial for both regular and special education and that collaboration helped them to meet their teaching goals. Dillon et al. (2021) describe using principles from a model originally developed to guide social workers in successful interprofessional collaboration as a guide to interprofessional collaboration activities in a school setting. This interdisciplinary collaboration model includes five core components, starting with interdependence. It is based on the principle that professionals need to understand the distinction between their roles and those of the other team members and that they depend upon one another to accomplish goals (Bronstein, 2003).

When applied to an educational setting, interdependence requires that all members of the educational team, including educators and service providers such as occupational therapists, not only have an understanding of each other's roles but that team members are dependent upon each other to achieve their goals relative to meeting the varying learning needs of students with disabilities (Dillon et al., 2021). The second core component is newly created professional activities, which are collaborative activities that expand the understanding of each team member by combining and thus maximizing their expertise to meet a common goal (Bronstein, 2003).

Applied to an educational setting, this component might include educators and occupational or physical therapists working as a team for specific populations, such as the population of students who receive a special education referral (Dillon et al., 2021). The third component, flexibility, allows for the blurring of roles or boundaries to remove any sense of real or perceived hierarchy among members of a collaborative team, which in an educational setting might include one team member meeting with parents to share information about the other team members' roles and responsibilities. Collective ownership of goals, the fourth component, is the shared process of identifying and achieving goals which Dillon et al. note reflects the activities of an Interdisciplinary Educational Program (IEP) team. Finally, the fifth component, reflection on the process, occurs as the team members take time to reflect, discuss, and problem-solve, using feedback to improve the efficacy of the collaboration (Bronstein, 2003). Dillon et al. recommend applying this component via meetings among team members to discuss student progress, refine programming elements, and bond with each other.

While it is clear that interprofessional collaboration is strongly valued in healthcare settings as recommended by organizations such as the WHO and IPEC, and that interprofessional collaboration educational activities are beneficial to improving attitudes and confidence regarding collaboration among students in healthcare profession programs, activities to facilitate interprofessional collaboration among health care professionals who work in educational settings are needed. This paper describes an innovative IPE collaboration between Occupational Therapy students and Art Education majors at a large urban university of 22,000 students outside Baltimore City. The University holds a Carnegie Community Engagement Classification, defined as a "symbiotic relationship between the schools that provide higher education, and the local as well as national and global communities" (<https://nerche.org/carnegie-engagement-classification/>). There are seven colleges within the University, including the College of Health Professions (CHP) and the College of Fine Arts and Communications (COFAC), including undergraduate and graduate programs where students engage in community-based learning experiences as part of their educational training.

For our collaboration, students worked together in a remote format to apply theories from each discipline to create asynchronous inclusive art workshops for families during the COVID-19 pandemic in March 2020, as they could not participate in face-to-face community-based experiences. The collaboration used all five of the components identified by Bronstein (2003) to prepare master's level OT students in a Pediatric Occupational Therapy Lab class for collaboration with specialized school personnel and introduce undergraduate Art Education Majors to the OT discipline while providing inclusive art activities to families in the surrounding communities of Baltimore County and Baltimore City. The collaboration also reflected the Carnegie Community Engagement Classification, which according to Collins et al. (2017), is demonstrated at our University through curricula that connect 'research' and 'civic' responsibility.

Prior to the start of the COVID-19 pandemic, a faculty committee at the University was planning community-based events to recognize the 30th anniversary of the Americans with Disabilities Act (ADA) and the 20th anniversary of the Oscar award-winning documentary titled *King Gimp* (Hadary & Whiteford, 1999), which followed the life of University alumnus Dan Keplinger, a renowned artist with spastic quadriplegic cerebral palsy who grew up near the university and later attended and graduated with a Master's in Fine Art from the COFAC. Public events planned included Public/Private Conversations, a retrospective of Keplinger's work curated by J. Susan Isaacs, a panel discussion with Dan Keplinger and three TU faculty members who were critical to his-and the documentary's success, a student panel discussing the continued relevancy of ADA and a series of community-based art workshops to be created and led by Art Education majors. The art workshops would include various methods for creating Expressive-Self Portraits, a major focus of Dan Keplinger's work. A group of occupational therapy students in a class taught by a faculty member on the planning committee that included learning about advocacy and inclusion were tasked with identifying community-based organizations to participate in the art workshops. All these activities and events were in planning stages prior to the start of the Spring 2020 semester with the expectation that students would work with family groups in a face-to-face setting; once the COVID-19 shutdown occurred, the only way to continue with the project was to shift to developing asynchronous workshops.

In both the art education and OT classes, the collaboration expanded upon existing class assignments, meeting the pre-determined curricular objectives and learning goals for each class and meeting national accreditation standards for both groups. The primary curricular objectives and learning goals for the art education students were to practice collaborating with specialized resource personnel, research and apply best practices for asynchronous art lessons, and plan for and incorporate adaptations for specific learners while incorporating principles of Universal Design for Learning (UDL) a framework to support learning for all individuals regardless of skills, ability, or areas of need, to increase access to and participation in all areas of curriculum, including art education (CAST, Inc., 2021). For the OT students, the primary curricular objectives and learning goals were to apply fundamentals of occupational therapy theory and practice to children, adolescents, and their families in natural environments, articulate principles, and be able to design and train others in the application of adaptations and compensatory strategies to enhance performance in context and to practice collaboration with school personnel to develop skills in providing school-based OT intervention.

Collaboration between occupational therapists and art educators is valuable because students attending art classes in person or virtually may receive direct or indirect special education services from school-based occupational therapists via Individualized Education Programs (IEP) and 504 plans. Therefore, art educators are likely to engage in some form of collaboration with OTs with a common goal of making participation accessible to all students. To support students

with IEPs, art educators are tasked with differentiating instruction for some students while incorporating principles of UDL, which assumes that there is variability in all learners and encourages teachers to plan and design the curriculum and environment to teach the range of students in their classrooms using three overarching principles: planning for and encouraging multiple forms of engagement, representation, and expression (CAST, Inc.,2021). Occupational therapists use principles of activity analysis to identify the demands of a given activity, including factors related to the activity itself and factors within the environment, as well as the performance skills that are required to engage in it, including motor, process, and social interaction skills (AOTA, 2020). Based on assessing the activity demands and the participants' performance skills, occupational therapists may recommend methods to adapt the activity, the environment, or the way in which the participant engages (AOTA, 2020).

Procedures

The purpose of this IPE was for Occupational Therapy students to collaborate with Art Education students to modify Family Arts Workshops to allow children and youth with disabilities to participate in the workshops while introducing disability awareness to participants without disabilities. Seven groups of 2-3 art education majors in the class, Methods of Teaching Art, developed curricula for the remote asynchronous art workshops that explored the theme of expressive self-portraits to be provided to families in the community during the COVID-19 pandemic shutdown in March 2020. Each workshop provided an engaging way to create expressive self-portraits inspired by common themes found in the art of Dan Kiplinger. The art education teams researched other artist exemplars, selecting a diverse group of contemporary artists to further expound upon the central topic, and then each group developed a unique activity for the participants to create expressive self-portraits. Many of the artist exemplars highlighted in the workshops had various disabilities, and/or their work addressed themes of accessibility. Art activities included collages, punch needling, mosaics, expressive self-symbols, and music-inspired self-portraits. The art students created PowerPoint slides that included background information on the given artist exemplar and subsequent slides with step-by-step verbal, written, and visual directions for completing each activity (see Figure 1).

Expressive Collage Self-portrait



Materials and Process

- Scissors
 - Glue
 - Paper (act as a base)
 - Printed images
 - magazines
 - Old books
1. Teach students about artists examples
 2. Explain what materials are needed to create the expressive self-portrait.
 3. Print images or find images from magazines.
 4. Cut out the selected images
Compose your collage on the base paper.
 1. Glue your collage pieces onto the base paper

FIGURE 1. Sample art activity: Expressive collage self-portrait.

Once the curricula were developed, the PowerPoint slides were shared with the Pediatric OT lab class, who used one class meeting to complete their portion of the project. Small groups of 3-4 OT students performed activity analysis to identify the motor, sensory, and cognitive requirements of each of the seven art activities. Then they identified compensatory strategies and/or methods to adapt the activities to allow inclusive participation. The OT students then

created their slides with the recommended adaptations and compensatory strategies and added these to the existing PowerPoints using parent and teacher-friendly “jargon-free language” to ensure that their recommendations were clear and able to be implemented by those outside of the profession. For example, for the collage activity, which requires fine motor coordination and strength, OT students recommended adaptations, including using adapted scissors for participants who cannot grasp scissors and glue sticks for participants who lack hand strength or coordination to squeeze a glue bottle (see Figure 2). For the punch needling activity, which requires fine motor precision to hold a needle and embroidery hoop, recommendations for adaptations included using simple pencil grips to build up the width of the needle and using a table clamp to hold the embroidery hoop (see Figure 3). For the art workshops, the OT students recommended environmental modifications such as using a table lamp to light the work surface and placing brightly colored paper or mat on the work surface to provide contrast between it and the art materials (see Figure 4).

Motor Impairments and adaptations

- Trouble moving arms/hands
- Trouble gripping/manipulating materials

Using a stick glue would be more universal and eliminate the need for squeezing and manipulating the squeeze bottle making it easier for children with decreased grip strength

****If child has decreased strength it will be better to do art on table and not on easel/wall**

-Adaptive grip, can be used on utensils and glue sticks. Reduced need of hand control/fine motor movements and grip strength

-You can also use a rubber band to create a DIY version of this

FIGURE 2. ADAPTATIONS FOR EXPRESSIVE COLLAGE SELF-PORTRAIT.

Examples: Punch-Needling Adaptations for Children with impairments in hand function



FIGURE 3. Adaptations for punch needling.

Adaptations for Visual Processing Skills

- Outline the child either with the paper on the ground or taped to the wall
- High contrast paper for either wall, ground or table depending on the color of the surface
- High contrast paint depending on the color of the paper
- Allow for a clamp light to help enhance the ability to see their work
- Provide a mirror for child to use to visualize their self-reflection



High Contrast Placemats



Tabletop mirror



Clamp light

FIGURE 4. Sample environmental modifications for expressive self-portraits.

Once the revised presentations were completed with the addition of the OT students' slides, the PowerPoints were sent back to the art education majors as a modified version of their initial

curricula that included the OT student recommendations. The OT students included pictures for reference to make their recommendations clear to all users, as seen in Figures 2-4. The entire process was completed remotely, with the OT students' contact information provided for answering any questions about their recommendations. Each art education team was tasked with communicating their ideas about materials and processes for their workshop.

The art education teams started creating their asynchronous workshops using the suggested adaptations. The workshops were created using the audio recording feature in PowerPoint. Each workshop was limited to ten slides or less, with no more than 3 or 4 slides to explain their workshop's concepts, materials, and processes to a non-art audience. Art education students embedded short multimodal step-by-step demonstrations of various art techniques and media via the Jumprope App on the PowerPoint slides. Demonstrations included narrated videos, still images, and written directions. This was especially important for younger students, students who may have shorter attention spans, or students who may struggle to understand concepts through only text-based materials. Workshop participants can easily pause and replay each step-by-step demonstration as many times as they need to understand the process fully. The Jumprope App, used exclusively on smartphones, was an excellent, accessible tool for students looking to expand their knowledge and demonstrate their skills with a shareable and engaging learning experience.

Art education students learned about and incorporated principles of UDL as well as the adaptations that the OT students recommended. For example, students researched the readability of fonts and decided on a common sans serif one for all the workshops for the workshops to be user-friendly. They also decided to work with a pastel theme to accommodate visually impaired learners. The students found it important to include their faces on the title slides as a visual aid to go with the voice heard on the slides (see Figure 5). The art education students were able to implement the suggested modifications by photoshopping certain background colors and creating a unified theme across the slides. Each member of the art education teams created a teacher example or prototype for their workshop. Each workshop incorporated principles of UDL and strategies to modify activities for children and youth with disabilities. Art education students also included their names and contact information in case there were questions. The project reinforced and stimulated essential learning for preservice art teachers and OT students as it provided necessary collaboration with specialized resource personnel that art educators may encounter in their future schools. When the asynchronous workshops were completed, they were uploaded to Vimeo, and two were released on Facebook each week. The community-based organizations originally identified by OT students to participate in the in-person art workshops were alerted of their online availability.

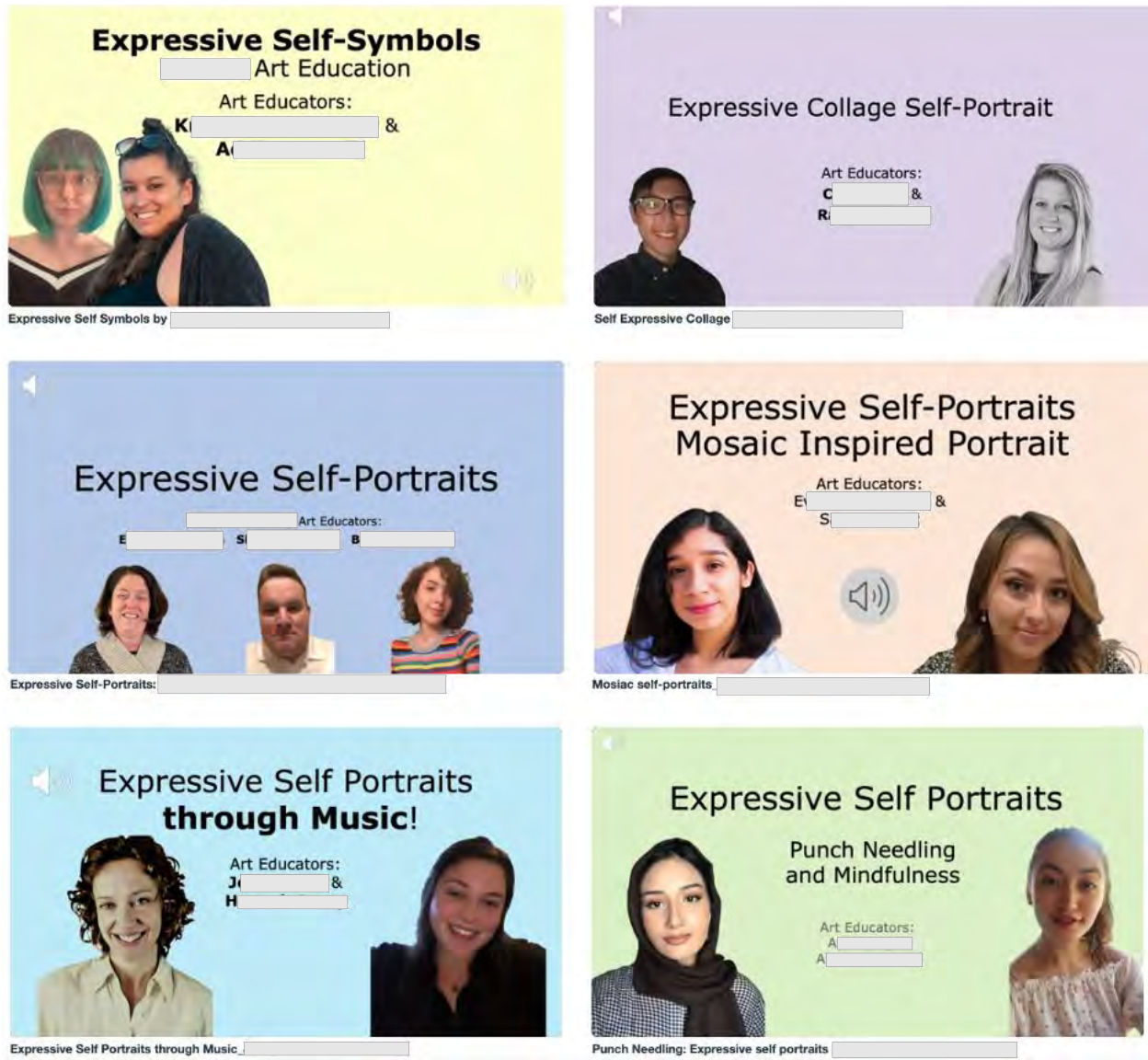


FIGURE 5. Sample title slide with art educator faces.

Discussion

The collaboration between the students demonstrates a clear example of WHO's definition of interprofessional education regarding students learning "about, from, and with each other" as both the OT students and art education majors learned about the objectives, modalities, and approaches of each discipline. The collaboration also demonstrated the application of the university's commitment to and classification of community engagement by connecting research and civic responsibility during a global pandemic. Further, all five principles of Bronstein's (2003) interdisciplinary collaboration model were also reflected in the collaboration. Interdependence occurred as the students needed to fully understand their roles and each other's roles to develop accessible and meaningful art curricula. The collaboration represented the

principle of newly created professional activities, as these groups of students had never had the opportunity to work together on a shared objective. As such, this newly created professional activity allowed both the OT students and the art education majors to better understand the distinct value that each provides within the education setting, which increases the likelihood of developing stronger interprofessional relationships in the future. This, in turn, will result in improved experiences and outcomes for children and their families. Flexibility and collective ownership of goals was demonstrated in students from both majors using each other's work to reach the common goal of developing the workshops. Finally, reflection on the process occurred as the students and course instructors reflected on and discussed the collaborative process.

There were numerous benefits to the collaboration as well as lessons learned by both the students and the instructors. Both the OT students and art education majors benefitted from applying principles learned in class to a real-life context while acquiring an increased understanding of each discipline's roles, objectives, modalities, and approaches. The students got the practical experience and learned the importance of using "jargon-free" language understandable to teachers, parents, and schoolchildren, especially in an asynchronous format. Additionally, both groups of students benefitted from researching and applying best practices for asynchronous learning and preparing family-friendly resources for multi-age groups in a remote format. Finally, the students benefitted from hands-on practice in adapting activities for specific participation or learning needs in context while employing principles of UDL.

Student feedback about the collaboration was unanimously positive. One student commented about the role each group of students played in educating each other:

It was a great opportunity to educate each other on what our fields can offer. We could educate on the adaptations OTs can suggest... and the art education students could educate us on a variety of creative mediums that can be incorporated through interventions for our clients.

Another student similarly noted what she learned from working with students in a different discipline and how this helped her understand how the principles of her profession are applied in practice:

This project was beneficial... to develop interprofessional collaboration skills I will need to use in the future. After completing this project, I was more aware of some of the artistic mediums used in art education, understood the purpose of choosing those mediums, and could see how these mediums could therapeutically benefit a client. Overall, I thought it was fun! It was interesting to look at the applicability of occupational therapy.

Finally, a third student noted the authenticity of the experience, which she found to be enlightening:

This collaboration with the OT students was enlightening. As student teachers we are familiar with the need to consider Universal Design for Learning when planning activities. However, designing a workshop with special educational needs front and center was a challenge, and - consequently - a deep and authentic learning experience. The input from OT students was like having something familiar translated into a new and exciting language, demonstrating how to view accessibility as a process of opening doors to students of all abilities. It was a great opportunity to incorporate adaptations with accessible technology.

Limitations

The primary limitation of this interprofessional collaboration activity is the lack of formal pre- or post-assessment of the experience. While we collected qualitative data via student written feedback, we did not use any objective measurements which would have contributed to our findings regarding the strength and success of the collaboration. The lack of formal pre- and post-assessments was because this activity developed organically during the COVID-19 pandemic. As such, we were able to successfully incorporate the IPE activity into our existing course curricula, which may validate its worth in terms of its authenticity relative to regular classroom learning activities. We recommend that future collaborations include pre- and post-surveys using a Likert scale to assess students' attitudes about interprofessional collaboration, such as the *Readiness for Interprofessional Learning Scale* (Parsell & Bligh, 1999).

Another limitation is that because we quickly pivoted to remote delivery, we did not develop a tool to receive feedback from the art workshop participants, so we are unsure how many families took part in the art activities and how they were received by the children and families for whom they were intended. In the future, if workshops are offered asynchronously again, we would recommend asking participants to complete a brief post-survey with Likert-scale questions to rate their experience. It might also be useful to provide participants with a method for sharing their art projects by uploading pictures to a Facebook page or providing an email address to send pictures of the finished products to the students and/or faculty. Finally, the IPE activity was limited by the fact that all the collaboration occurred remotely and asynchronously due to the COVID-19 shutdown and because the schedules of the OT students and art students did not allow for synchronous meetings. However, this limitation required that both groups of students convey information in language understandable to those outside their respective professions while also being parent- and child-friendly, which likely contributed to the educational benefits of the experience.

Conclusion

Interprofessional collaboration is integral to the healthcare model, and IPE activities are commonly used in healthcare education programs. Our unique IPE activity provided the opportunity for collaboration between occupational therapy students and art education majors, two professions that are likely to work together in school settings. The collaboration met the WHO definition of interprofessional cooperation while successfully incorporating all components of Bronstein's (2003) interdisciplinary collaboration model and reflecting the University's Carnegie community engagement classification. All students responded favorably to the collaboration and noted the potential benefit to their future professional careers. Furthermore, we demonstrated that successful interprofessional collaboration could occur in a remote, virtual environment and can easily be incorporated into an existing curriculum while meeting course and accreditation standards and objectives and upholding University initiatives.

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