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An Interprofessional Peer Teacher Training program for health professional students: 'face to face' versus 'online only'.

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An Interprofessional Peer Teacher Training program for health professional students: 'face to face' versus 'online only'.

Abstract

In 2020, following the disruption of COVID-19, we rapidly moved the interprofessional Peer Teacher Training (PTT) program, traditionally delivered via blended learning to 'online only' format. Consisting of seven modules, the PTT program is designed to provide health professional students with opportunities to develop skills in teaching, feedback, assessment, teamwork and communication, in preparation for peer teaching and future practice. This study sought to compare 'blended learning' with 'online only' delivery. 'Blended learning' format, included a one-day face-to-face session, requiring 9 facilitators. Students participated in small group learning activities, and were formatively assessed on their teaching and feedback skills. 'Online only' delivery occurred across three weeks, using asynchronous and synchronous activities, requiring 11 facilitators. Students completed a post-course questionnaire. Data were analysed using descriptive statistics and thematic analysis. Eighty-five students completed the program; 36 in 'blended learning' and 49 'online only' format, from six disciplines (health sciences, medicine, nursing, pharmacy, oral health and public health). All (100%) 'blended learning' and 67% 'online only' participants completed the questionnaire. Both sets valued the online reading, discussion boards, videos, with opportunities to practice teaching skills, give and receive feedback. They reported an increased understanding of the roles of other disciplines. However, the 'face-to-face' component had some associated benefits, including a more positive attitude towards interprofessional learning and intention to teach. While 'online only' delivery of the program provided an effective alternative to the traditional 'blended learning' format, additional 'real-time' sessions may improve student engagement.

Practitioner Notes

1. 'Online only' delivery of teacher training provides an effective alternative to 'blended learning' format.
2. Opportunities for 'real time' participation, with formative assessment and feedback increases engagement.
3. Clearly structured online modules and provision of simple teaching frameworks assist students to apply what they have learnt to different contexts.
4. Face-to-face sessions bring associated benefits, promoting a more positive attitude towards interprofessional learning and intention to teach.
5. Ensuring the provision of opportunities for Peer Teacher Training alumni is an important next step.

Keywords

COVID-19, teacher training, interprofessional, online learning, blended learning

Authors

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Introduction

The Peer Teacher Training (PTT) program was developed in 2016 at the University of Sydney as an interprofessional, blended learning (face-to-face and online), modular program to provide senior health professional students with opportunities to develop skills in teaching, feedback, assessment and communication in preparation for peer assisted learning activities, and future health professional practice. In its traditional blended learning format, students are provided with theoretical background delivered online, and opportunities for active participation in small group interprofessional learning teams during a one-day face-to-face session (Burgess et al. 2017). The blended learning format of the PTT program has been previously described (Burgess et al. 2017) and adapted for implementation internationally (Karia 2020).

More than 300 senior health professional students had completed the blended learning program prior to the unprecedented disruption caused by COVID-19. However, this disruption provided the motivation to create a pedagogically sound, creative solution to adapt our traditional ‘blended learning’ PTT program to an ‘online only’ format. As university educators, we have a responsibility to ensure that opportunities continue to be made available for health professional students to develop professionalism skills relevant to their future careers (Irby & Wilkerson 2003). Evidence suggests that formal teacher training produces positive outcomes in terms of competency and further engagement in education (Burgess et al. 2014; Marton et al. 2015). Graduates with prior teacher training demonstrate greater effectiveness and enthusiasm for teaching, and remain more active in upskilling themselves, compared to those who do not (Hill et al. 2009; Kloek et al. 2016).

We therefore sought to reframe teacher training opportunities by integrating theory with practice online, through both asynchronous and synchronous activities, and provision of appropriate assessment methods. To our knowledge, there are no other teacher training programs for health professional students delivered completely online. A recent systematic review of formal peer teacher training programs for health professional students was published in 2018 (Burgess & McGregor 2018). Nineteen programs were identified globally, including USA (7/19), Germany (4/19), Australia (4/19), Netherlands (4/19), United Kingdom (1/19) and Canada (1/19). However, all reported programs were described as being delivered either via blended learning or face-to-face, with none delivered via ‘online only’ (Burgess and McGregor 2018).

The aim of this study was to explore and compare students’ perception of the PTT program delivered using the traditional ‘blended learning’ format and the new ‘online only’ format.

Methods

Course design

The PTT program consists of seven modules, listed below, and described in Table 1. Detailed descriptions of each module have been previously published.

Module 1: Introduction to the Peer Teacher Training program.

Module 2: Feedback in the clinical setting (Burgess et al. 2020a)

Module 3: Planning and delivering a teaching session (van Diggele et al. 2020)

Module 4: Facilitating small group learning in the health professions (Burgess et al. 2020b)

Module 5: Key tips for teaching in the clinical setting (Burgess et al. 2020c)

Module 6: Teaching a skill (Burgess et al. 2020d)

Module 7: Effective clinical handover (Burgess et al. 2020e)

Table 1

Description of Peer Teacher Training program modules

Module name	Module description
Module 1: Introduction to the Peer Teacher Training (PTT) program	This module provides a brief introduction to the PTT program, with opportunities to critically reflect on past and current ‘good’ and ‘bad’ teaching experiences; and the foundation for skill development in the area of effective feedback in the clinical setting.
Module 2: Feedback in the clinical setting	This module explores the role of feedback within the learning process, the barriers to the feedback process, and practical guidelines for facilitating feedback, with opportunities to practice with peers.
Module 3: Planning and delivering a teaching session	This module introduces the central concepts of teaching plan development and delivery. Participants are provided with opportunities to develop their skills in planning to deliver a teaching session and providing written feedback to their peers.
Module 4: Facilitating small group learning in the health professions	This module provides participants with an overview of approaches and tips to improve learner engagement when facilitating small groups, and the practice in teaching healthcare topic to peers.
Module 5: Key tips for teaching in the clinical setting	This module provides participants with an overview of approaches and key tips for teaching in the clinical setting. Although there are many competencies developed by students in the clinical setting, our tips for teaching focus on the domains of medical knowledge, interpersonal and communication skills, and professionalism.
Module 6: Teaching a skill	This module explores how skills are learned, ways to improve skills performance, determining competency, and the provision of effective feedback. Participants are required to teach a non-

	healthcare skill, and provide and receive feedback.
Module7: Effective clinical handover	Using ISBAR (Identify, Situation, Background, Assessment, Recommendation) as a framework, the purpose of this module is to highlight key elements of effective clinical handover. Students are encouraged to practice with their peers.

Blended learning format

In February 2020, the PTT program was delivered in its traditional ‘blended learning’ format (online and face-to-face). Students were provided with access to all online material for two weeks prior to attending a one-day face-to-face session.

Facilitators: An interprofessional team of nine facilitators, including two educationalists, three clinicians from pharmacy (n=1) and medicine (n=2), and four senior student PTT alumni from pharmacy (n=3) and nursing (n=1) assisted with facilitation of the face-to-face delivery. Details are provided in Table 2.

Assessment and feedback: Formative assessment and feedback occurred throughout the face-to-face class. Students were required to attend class prepared to engage in interactive large and small group learning activities. In their small groups (four to five students per group), students presented a pre-prepared 5-minute teaching session on a healthcare topic and a 5-minute skills teaching session on a non-healthcare topic. These activities were formatively assessed using prepared marking rubrics. Students were provided with peer and facilitator feedback. Students were also formatively assessed and provided with comments on their feedback ability. Using clinical scenarios in the large group classroom, role play was used to practice clinical handover, using ISBAR as a framework.

Online only format

In October 2020 the program was delivered completely online across three weeks. ‘Online only’ students were required to contribute to multiple discussion boards, submit an online teaching plan, a video of themselves teaching a five-minute skills session and providing and receiving peer feedback. In addition, students participated in a 1.5 hour synchronous Zoom session.

Facilitators: An interprofessional team of eight facilitators, including two educationalists, and six clinicians from medicine (n=2), pharmacy (n=1), nursing (n=1), dentistry (n=1), physiotherapy (n=1), provided asynchronous feedback for online module discussion boards and required activities across three weeks. A total of 11 facilitators, including two educationalists, one senior health professional student, and eight clinicians from medicine (n=4), pharmacy (n=1), nursing (n=1), dentistry (n=1), physiotherapy (n=1), facilitated the 1.5 hour synchronous Zoom session. Details are provided in Table 2.

Assessment and feedback: Formative assessment and feedback occurred throughout the online program, and in the Zoom session. Online, students were required to contribute to discussion boards, submit a video of themselves teaching a five-minute skills session, and give and receive

peer feedback. Students were required to attend the Zoom session prepared to engage in an interactive small group activity (4 to 5 students per group). In their small groups, students presented a pre-prepared 5-minute teaching session of a healthcare topic requiring approximately 2 hours of pre-class preparation. The activity was formatively assessed using an online prepared marking rubric. Students were provided with feedback from their peers and the assigned small group facilitator. Students were also formatively assessed and provided with comments on their feedback ability.

Certificate of completion

At the completion of each PTT program, students received a certificate to evidence their commitment to development of teaching skills.

Study design

Recruitment

For each iteration of the program, senior students from The University of Sydney, Faculty of Medicine and Health (medicine, pharmacy, health sciences, nursing and dentistry) were invited by email to take part in the PTT program, and were required to register online.

Data collection and analysis

We followed a similar study design to our previous published study (Burgess et al. 2017). Quantitative and qualitative data were collected from participants via post-program questionnaire. At the end of each program (blended learning and online only), the relevant participants were asked to voluntarily complete the survey, delivered online via Qualtrics. The questionnaire was based on three key themes, including:

Participants' perceived ability regarding the learning outcomes for each module. For example, "*I am able to carry out a short teaching session to students*".

Participants' intention to take part in future peer tutoring activities, such as "*I am likely to volunteer to tutor peers this year/next year*".

Participants' attitudes towards interprofessional learning. This was measured using questions from the Readiness for Interprofessional Learning Scale (RIPLS) (Parsell & Bligh 1999). For example, "*Shared learning with other healthcare students has helped me to think more positively about other health professionals*".

For closed items, we used a five-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). Participants were also asked to respond to open-ended questions that related to the most useful aspects of the PTT program, suggested improvements and any positive or negative aspects of working with other health professional students.

Quantitative data were analysed using descriptive statistics. Thematic analysis was used to code and categorise qualitative data, and build an understanding of the students' experience. A portion of the data was read by three authors (AB, CvD and JB) to identify initial themes. Following

negotiation of meaning between these authors, a coding framework was developed and applied to the full data set by the first author (AB) (Braun & Clarke 2013).

Ethics approval

The University of Sydney Human Research Ethics Committee approved the study. Consent for participation was obtained from participants to enable us to include their data from this study.

Results

Registration and demographics

In total, 131 students registered for the PTT program in 2020, and 85/131 (65%) completed the program. Of the 85 participants, 36 (42%) completed the program in blended learning format, and 49 (58%) in 'online only' format. Students were from six disciplines: health sciences (n=27, 32%), medicine (n=22, 26%), nursing (n=19, 22%), pharmacy (n=11, 13%), oral health (n=5, 6%), and public health (n=1, 1%).

Blended learning format

Registration and demographics

In total, 58 health professional students registered for the PTT program (see Table 2). Of the 58 who registered, 36 (62%) successfully completed the PTT program. This included 23 health sciences students [physiotherapy (n=8), diagnostic radiography (n=7), occupational therapy (n=6), speech pathology (n=2)]; pharmacy students (n=7); medicine students (n=3); nursing students (n=2); public health student (n=1).

Online only format

Registration and demographics

In total, 73 health professional students registered for the October online PTT program (see Table 2). Of the 73 who registered, 49 (67%) completed the program, including students from medicine (n=19), nursing (n=17), oral health (n=5), pharmacy (n=4), and health sciences (n=4). Health science students included those from rehabilitation counselling (n=2), physiotherapy (n=1) and exercise physiology (n=1).

Table 2

Summary of program information - 2020 PTT programs

Mode of delivery and date	No. of Participants registered	No. of Participant numbers completed	Health professions represented	Facilitators
Blended learning (face-to-face and online) February 2020 Face-to-face class 9am-4pm Royal Prince Alfred Hospital	58	36 (62%)	Health sciences (23) (including 8 physiotherapy, 7 Diagnostic Radiograph, 6 Occupational Therapy, 2 Speech Pathology) Pharmacy (7) Medicine (3) Nursing (2) Public Health (1)	Senior facilitators (providing short lectures, and guidance to students). 2 educationalists 1 pharmacist 1 medical practitioner 1 medical intern (program alumni) Senior student facilitators (PTT alumni): 3 senior pharmacy students, 1 senior nursing student
Online Delivered across 3 weeks October 2020 With one 1.5hr zoom session on teaching a healthcare topic, giving and receiving feedback	73	49 (67%)	Medicine (19) Nursing (17) Oral health (5) Pharmacy (4) Health sciences (4) (including 2 rehabilitation counselling, 1 physiotherapy, 1 exercise physiology).	Online (Canvas) across 3 weeks 2 educationalists 2 medical practitioners 1 pharmacist 1 dentist 1 nurse 1 physiotherapist 1.5 hr Zoom session 2 educationalists 5 medical practitioners 1 dentist 1 nurse 1 physiotherapist 1 senior medical student
Total	131	85 (65%)	Health Sciences (27) Medicine (22) Nursing (19) Pharmacy (11) Oral Health (5) Public Health (1)	

Post-course questionnaires

Of the 36 students who completed the program via blended learning, all (100%) completed the post-course questionnaire. Of the 49 students who completed the program via ‘online only’, 33 (67%) completed the post-course questionnaire.

Responses to closed items

Student experiences of learning outcomes

Student responses to questions regarding program outcomes are provided in Figure 1. For each of the models of delivery, the learning outcomes were achieved by the majority of participants.

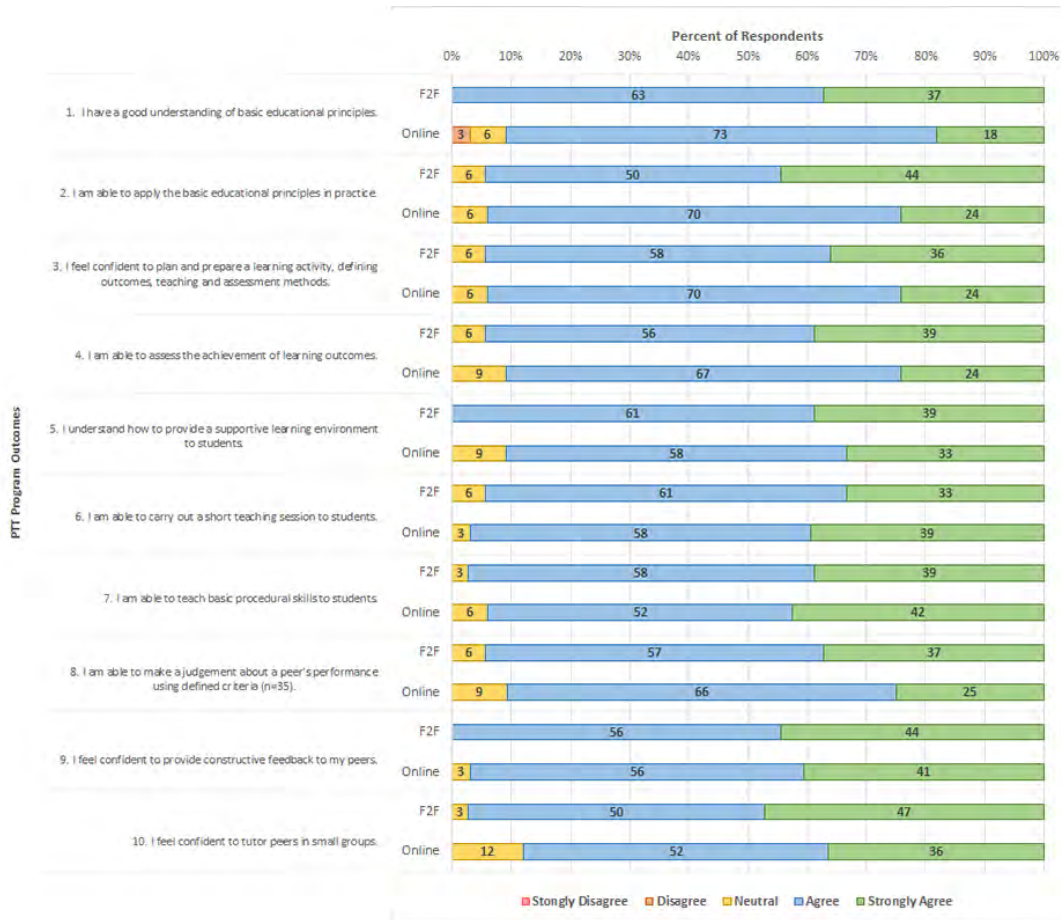


Figure 1

Participants' perceptions of PTT program outcomes Face to Face (FTF; N=36) and Online (N=33) post-course evaluation

Student intentions to participate in peer teaching and preparedness to practice

Student responses to questions regarding their intention to participate in peer tutoring activities are provided in Figure 2. There is a notable difference in student responses, with face-to-face participants showing greater confidence and intention to teach and assess peers and in the future health professional practice.

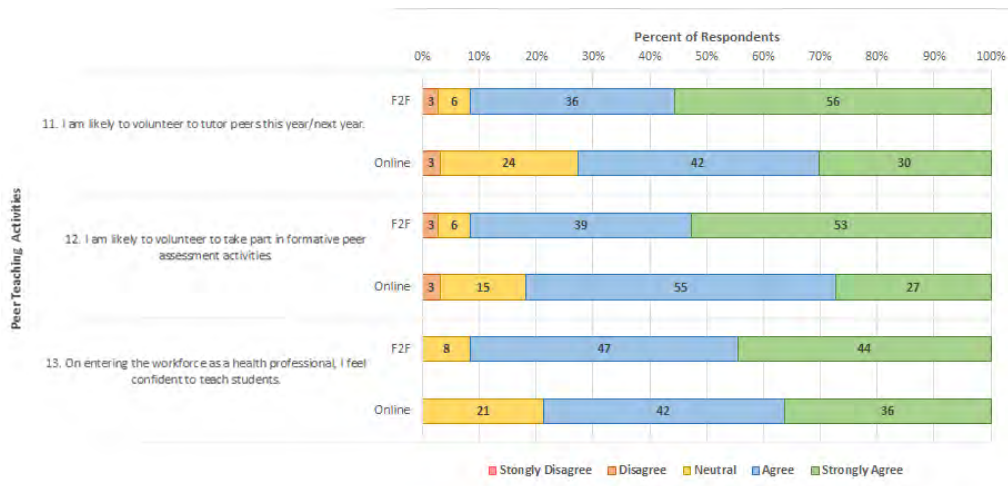


Figure 2

Participants' intention to participate in peer teaching activities Face to Face (FTF; N=36) and Online (N=33) post-course evaluation

Student attitudes towards interprofessional learning

Student responses to questions regarding attitudes towards interprofessional learning are provided in Figure 3. Face-to-face participants responded more positively than online participants regarding their attitudes towards interprofessional learning.

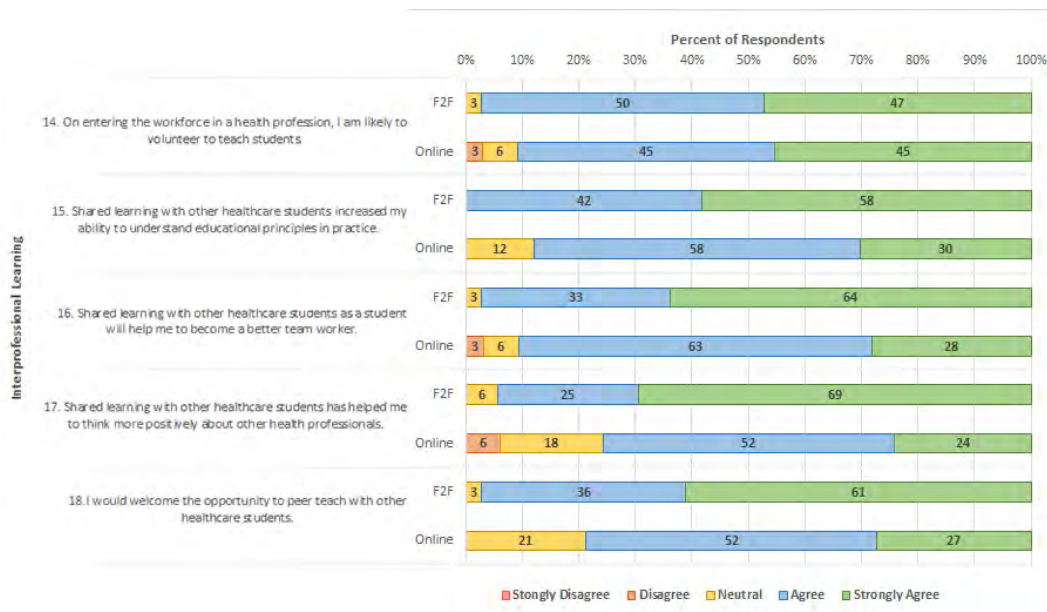


Figure 3

Participants' perception of interprofessional learning Face-to-Face (FTF; N=36) and Online (N=33) post-course evaluation

Responses to open-ended questions

Participant responses to open ended questions are displayed in Tables 3 and 4. Qualitative data presented in Table 3 includes students' perceived "most useful aspects" and "suggested improvements" to the PTT program. Responses from both blended learning and online only participants suggest that students appreciated the interactive nature of the PTT program, with multiple small group sessions and opportunities to apply theory and practice newly acquired skills in a friendly environment, and receive feedback from both peers and faculty. Students valued the opportunity to learn and apply structured frameworks that they can transfer to the workplace, and the provided video examples, including frameworks to plan a teaching session (OAS model) (van Diggele et al. 2020), give and receive feedback (Pendleton's model) (Pendleton et al. 2003), teach a skill (Peyton's model) (Walker & Peyton 1998) and communicate handover (ISBAR) (Finnigan et al. 2010). Although both 'blended learning' and 'online only' students found the online modules concise and well structured, some students felt additional online modules would be valuable. 'Blended learning' participants suggested a reduction in the duration of the 'face-to-face' session, while 'online only' participants suggested additional opportunities for real-time interaction, and a reduction in the number of discussion boards. Both sets of students valued the flipped classroom model, where they came to either face-to-face class or the online Zoom session prepared to engage with their peers.

Table 3

Open-ended responses from 'blended learning' and 'online only' participants to most useful aspects and suggestions for improvement

What did you find to be the most useful aspects of the Peer Teacher Training program?		
Theme	Examples of comments	
	Blended learning (online and face-to-face)	'Online only'
Interactive nature of small group sessions and the opportunity to practice, with facilitators providing clear instructions on teaching techniques	<ul style="list-style-type: none"> • Small group teaching, lots of experience providing feedback to others, friendly facilitators. (medicine) • The teaching session for us to practice and getting feedback from peers and facilitators on how to improve. (physiotherapy) 	<ul style="list-style-type: none"> • The 5-minute teaching activity was a good way to engage with other students and allowed us to put the skills we had learnt into practice. (medicine) • Supportive teaching staffs, unambiguous and directive structure of the program with helpful modules. (nursing)
Provision of frameworks and models to use in future teaching (Peyton's four step approach to teach a skill, Pendleton's feedback model, ISBAR for clinical handover), with opportunities for practice	<ul style="list-style-type: none"> • Having clear simple models for preparation and delivery of teaching and giving and receiving feedback. (occupational therapy) • The Peyton's four step approach is really helpful in deep understanding of teaching and helps me teach in a more logical way and the assessment tool also helps me a lot to give efficient peer review and assessment. (physiotherapy) 	<ul style="list-style-type: none"> • The clear models that can be applied in practice. Pendleton for providing feedback, Peyton for teaching a skill. These are useful tools I can take forward into my practice. (nursing) • I definitely learnt numerous new skills throughout the program. I especially found the different models that were utilised e.g. Pendleton's model, Peyton's approach etc. extremely useful to use as a base framework and guidance to form my own lesson plans, lessons etc. (medicine)
Learning how to constructively give feedback, with opportunities for practice	<ul style="list-style-type: none"> • The model introduced giving feedback and the opportunities to try the skills being taught. (occupational therapy) • Learning how to give feedback in a constructive and kind way that prevents defensiveness. (occupational therapy) 	<ul style="list-style-type: none"> • Learning about Pendleton's feedback model and practising it was helpful. (medicine) • Being able to use quick and easy frameworks to apply during teaching e.g. Pendleton's model of feedback or ISBAR etc. (medicine)

<p>Receiving immediate feedback from peers, with opportunities to practice and apply the feedback</p>	<ul style="list-style-type: none"> • Receiving feedback instantly from peers and chance to practice. (physiotherapy) • The feedback which was given helped improve my confidence and encouraged me further. (pharmacy) 	<ul style="list-style-type: none"> • Peer feedback and teaching of useful techniques to incorporate into my future teaching practices. (medicine) • Introduction to fundamentals of teaching, eg lesson plan structuring, feedback process, and then opportunity to apply theory. (medicine)
<p>Participants appreciated learning and applying a method to plan and structure a lesson</p>	<ul style="list-style-type: none"> • The methods on how to plan and execute the lesson plan. (pharmacy) • Learning about structuring a teaching session. (exercise physiology) 	<ul style="list-style-type: none"> • Learning how to make learning plans, give feedback, practise giving feedback, and teach a practical skill. (medicine) • Preparing a lesson plan with a specific structure gave me confidence that I would be capable of same in future. (medicine)
<p>Participants appreciated the opportunity to engage with students from other disciplines</p>	<ul style="list-style-type: none"> • I enjoyed the interdisciplinary approach and working with people who have different experiences. (occupational therapy) • Learn different insight of other health care professional students. I enjoyed hearing about topics from other disciplines. (physiotherapy) 	<ul style="list-style-type: none"> • The combination of disciplines made to be a supportive group where we understood where every discipline focuses on when approaching patient health and providing feedback. (dentistry) • Enjoyed the multidisciplinary environment. (medicine)
<p>The flipped classroom model provided students with the opportunity to prepare well prior to the real-time sessions</p>	<ul style="list-style-type: none"> • Engaging students to prepare beforehand and deliver presentations. (medical imaging) • The preparation is very useful and helped me become confident when engaging in the activities. (nursing) 	<ul style="list-style-type: none"> • Defining the models in giving feedback, lesson planning and skill teaching was very helpful and consistently embedding it into our content and assignments helped cement that practice in our minds. (medicine) • Practicing putting what we learned into action - through the 5 minute teaching and the final video. (medicine)

<p>Participants noted the benefits of learning from their peers as well as faculty, and participating in discussion boards</p>	<ul style="list-style-type: none"> • It was great opportunity to learn from staff as well as other students with different knowledge. (nursing) • Teaching peers. (pharmacy) 	<ul style="list-style-type: none"> • I enjoyed participating in discussion boards and reading the submissions of other students. (dentistry) • Discussion boards, videos. (rehabilitation counselling)
<p>Participants valued the succinct and concise online modules, videos, and helpful teachers</p>	<ul style="list-style-type: none"> • Teaching materials provided e.g. lecture notes/slides. (pharmacy) • The theory was very interesting despite it being quite simplistic. The repetition was very helpful in learning how to apply it. (medicine) 	<ul style="list-style-type: none"> • Online modules to work through were concise and very useful. The simple structured parts that gave me the information I needed around teaching and feedback. (medicine) • The course outline, the simplicity of it and how helpful all the teachers were. The entire program was great! Especially all the helpful videos! (pharmacy)
<p>The ‘blended learning’ participants described the face to face activities as ‘fun’</p>	<ul style="list-style-type: none"> • All the activities are inviting to all of the group, it's very helpful and fun. (diagnostic radiography) • Good experience! Very applicable and useful. Good content! Teaching a skill was very fun!!! (pharmacy) 	
<p>The ‘online only’ participants appreciated the flexibility the program offered</p>		<ul style="list-style-type: none"> • Able to learn and engage at my own pace. (rehabilitation counselling)
<p>What suggestions would you make for improvement in the Peer Teacher Training program?</p>		
<p>Both groups of students suggested that there should be additional small group activities</p>	<ul style="list-style-type: none"> • I would suggest more activities for future training programs. It will help facilitators incorporate more skill development components. (diagnostic radiography) • More time during small group discussion (occupational therapy) 	<ul style="list-style-type: none"> • If there could be an opportunity for it to be more interactive in real time such as a designated time we would answer the questions or have a discussion would help boost engagement (pharmacy) • The program overall was fantastic, the only thing I would suggest would be to have more face-to-face interaction such as the

		Zoom session we had (oral health)
The ‘blended learning’ participants suggested a shorter face-to-face session	<ul style="list-style-type: none"> • Did not need a full day to achieve all the activities. The program can be shorter. (occupational therapy) • Make the whole session shorter, as it can be completed much quicker i.e. the skills demonstrations in total could be done in 25 min. (physiotherapy) 	
The ‘online only’ participations suggested a reduction in the number of discussion boards, and additional tasks, such as multiple choice questions		<ul style="list-style-type: none"> • I think too many reflective / discussion boards. Would prefer additional activities to put theory in to practice (i.e. develop lesson plan). (medicine) • Maybe instead of as many forums, instead having MCQs that also test some of the theory covered. (oral health)

Qualitative data presented in Table 4 includes students’ responses to the “most positive aspects of working with other health professional students”, and “any negative aspects to working with other health professional students”. Both ‘blended learning’ and ‘online only’ participants valued the interprofessional context, sharing their experiences, seeing both the differences and similarities across the health professions, and learning from other disciplines. Although both ‘blended learning’ and ‘online only’ participants were positive regarding the interprofessional aspect, they felt that it was sometimes difficult to understand different terms and topics when communicating with students from other health professions.

Table 4

Open-ended responses from ‘blended learning’ and ‘online only’ participants to the most positive aspects of working with other health professionals, and any negative aspects.

What did you find to be the most positive aspects of working with other health professionals?		
	Examples of comments	
Theme	‘Blended learning’ (face-to-face and online)	‘Online only’
Both groups of students mentioned that the course allowed them to	<ul style="list-style-type: none"> • Getting to know them and their working nature really allowed me to understand 	<ul style="list-style-type: none"> • Learning how different disciplines still indeed experience the same aspects of

<p>see the similarities across the health professions, and realise the elements common to all disciplines</p>	<p>how similar our roles are in terms of patient care and how we can utilise the same skills to manage patient care. (diagnostic radiography)</p> <ul style="list-style-type: none"> • Understanding what we had in common. (speech pathology) 	<p>learning and cover core principles and we can use this commonality as a basis to collaborate. (medicine)</p> <ul style="list-style-type: none"> • Knowledge from different areas. Breaking assumptions about other professions. (nursing)
<p>Both groups of students appreciated learning different approaches to teaching used by the different disciplines</p>	<ul style="list-style-type: none"> • Different perspectives on topics and teaching. (occupational therapy) • Getting better perspective of the communication and its importance between different professions in healthcare. (diagnostic radiography) 	<ul style="list-style-type: none"> • Learning different teaching approaches used in other health professions. It was a good dynamic. Allowed us to understand different types of teaching experiences. (nursing) • How eager we all were to learn and learning different styles of teaching from others was a definite plus! (pharmacy)
<p>Both groups of students felt they gained a greater understanding of the roles and practice of other disciplines</p>	<ul style="list-style-type: none"> • Developing an awareness of other health professions and their roles in team. (medicine) • Knowing knowledge from other disciplines. Knowing their insight and views.... I love learning about their disciplines as well as figuring out how we could work together. (medical imaging) 	<ul style="list-style-type: none"> • Got to see how health issues are targeted by different disciplines. (medicine) • Gained different perspectives and better understood professions expectations and concerns. (medicine)
<p>Learning and sharing their own experiences with other disciplines, and adjusting their approaches to communication</p>	<ul style="list-style-type: none"> • Learning a patient clinical history from diff perspectives and develop a more holistic understanding of patient settings. (medical radiation) • It gives the opportunity to networks with other health professional students, as well as being able to practise the communication skills with people who don't already know what you are talking about. (occupational therapy) 	<ul style="list-style-type: none"> • Is understanding that everyone is different and that they provide different perspectives to the approach of feedback. (dentistry) • I got to learn more of their perspectives, their approach and understanding of certain topics and enabled me adjust my teaching to cater for them. (medicine)
<p>Students appreciated the opportunity to meet and network with students from other disciplines</p>	<ul style="list-style-type: none"> • That it helps students connect and understand what different disciplines can bring into the session. (nursing) • How fabulous to work with others as a team, learn together and help each other 	<ul style="list-style-type: none"> • Despite being held online, the PTT course provided an environment that encouraged discussion between the different professions. (medicine) • It was nice to get to meet some people from other faculties

	for better understanding. (nursing)	before we enter the workforce together. (medicine)
Students suggested that in learning the roles of other health professionals, they could also identify knowledge and skills that were transferable across disciplines	<ul style="list-style-type: none"> • Learning other professionals' roles and learning transferrable skills from them. (occupational therapy) • Helps others understand the role of other healthcare professional as they have different expertise and knowledge. (pharmacy) 	<ul style="list-style-type: none"> • I enjoyed meeting some in the zoom teaching session and learning about their topics. (medicine) • Able to gain different perspectives from others in relations to the learning/teaching process. (Rehabilitation counselling)
The variety of topics taught provided deeper engagement in learning and teaching	<ul style="list-style-type: none"> • Learning topics from other health professional students. (physiotherapy) • Able to share different topics and skills. (diagnostic radiography) 	<ul style="list-style-type: none"> • Different backgrounds and knowledge levels meant we could all learn something different from each other (medicine) • They have a different perspective, and made for good practice teaching as they had not encountered the topic I chose, whereas other med students would have. (medicine)
Building future relationships with other disciplines and helping to develop a respect and trust for the work of other professions	<ul style="list-style-type: none"> • Knowing that other students are lovely and friendly helps to build future relationship with them with confidence. (pharmacy) • Real life experience when later on entering the work field. (pharmacy) 	<ul style="list-style-type: none"> • It was the good opportunity to interact and know their perception of diverse branches of health care professionals. We also got to know how each and every health care professionals were enthusiastic on their work and we got opportunity to thank and inspire them for their contribution as a team in health care. (nursing) • The most positive aspect would be seeing everyone respecting each profession and being able to see different perspectives of health care students (oral health)
Were there any negative aspects to working with other health professional students?		
Some students (from both groups) felt there were different levels of knowledge and training of each profession	<ul style="list-style-type: none"> • Gaps in knowledge and lack of understanding in certain topics. (pharmacy) • Coming to terms with different ideas from each other that may take time to explain and understand. (physiotherapy) 	<ul style="list-style-type: none"> • Some were very junior compared to where I am in my training, but I don't think this is necessarily a bad thing. (medicine) • Different knowledge from different educational background, can be difficult to understand or relate to. (nursing)

Discussion

We sought to compare delivery of the Peer Teacher Training (PTT) program in ‘blended learning’ and ‘online only’ format, across three domains: 1) experience of PTT program learning outcomes, 2) intention to participate in teaching and preparedness to practice, and 3) attitudes towards interprofessional learning. Our results suggest that both groups of participants felt able to achieve most of the learning outcomes through provision of relevant literature, being able to actively participate during the face-to-face class or Zoom sessions and online activities, formative assessment and feedback from peers and faculty. However, ‘online only’ participants expressed a need for additional synchronous activities, with increased opportunity to practice new teaching skills and receive additional feedback. Additionally, our results indicate that ‘online only’ participants felt less confident to undertake teaching activities, both as students and on entering the workforce. While both participant groups indicated that their learning was enriched through the interprofessional context, this was more evident in the ‘blended learning’ context, where students attended the face-to-face session.

Participant experiences of the PTT program learning outcomes

Most participants reported a good level of confidence in their ability to teach and assess students using defined criteria, with little variation between ‘blended learning’ and ‘online only’ participants. Participants also appreciated the many formative assessment opportunities, with multiple sources of feedback – a unique feature of the PTT program. Recent systematic reviews of teacher training programs for health professional students identified lack of participant assessment and feedback as a common deficit (Dandavino et al. 2017; Burgess & McGregor 2018). Both groups of participants reported that the online pre-learning prepared them for the real-time sessions. They highlighted the benefits of learning and applying frameworks, such as, the ‘OAS’ model to plan teaching, Peyton’s model to teach a skill, Pendleton’s model for feedback, and ISBAR to communicate clinical handover. They noted these frameworks could be applied across disciplines and to “multiple clinical situations” to prepare and deliver their teaching. A highlight for all participants was the small-group sessions with opportunities to practice teaching and to give and receive feedback. However, online participants indicated a need for additional synchronous sessions. This is in line with evidence that supports the value of small group peer learning, where participants are engaged and involved in building their own learning experience (Kitchen 2012; Graffam 2007).

Participant intentions to participate in teaching and preparedness to practice

Fostering a desire to learn and teach encourages lifelong learners, who continue to refine their teaching skills (Schumacher et al. 2013). We identified a greater intention to teach and assess both at University, and on entering the health professional workforce by ‘blended learning’ participants. This finding supports literature suggesting that face-to-face activities provide greater benefit in terms of enjoyment and skills development compared to online activities (Cook & Steinert 2013; Kennedy 2019). A study of clinician educator online training found that although flexibility is increased, the face-to-face activities play an important role in developing relationships with peers and teachers (Wearne et al. 2011). This suggests that additional ‘real-time’ activities should be provided. Furthermore, to ensure practice opportunities for skills development, it will be important to provide appropriate opportunities for relevant practical teaching experience.

Participant attitudes towards interprofessional learning

Both groups of participants reported their experience of the interdisciplinary aspect of the PTT program as positive, and reported an increased appreciation and respect between disciplines, and a desire to teach and collaborate with each other. However, this was more evident in the ‘blended learning’ participants who had multiple opportunities for active participation in small groups during the face-to-face class. Students reported sharing and learning different teaching pedagogies used within the different disciplines. They valued learning about the perspectives of each discipline, their roles and responsibilities, and in particular, the differences and commonalities in the knowledge and skills of various disciplines. Although a willingness of network members to share their knowledge is key to success of such programs (Hean et al. 2003), there were some perceived difficulties regarding communication between disciplines where background knowledge and skills may differ.

Limitations

PTT program participants were recruited on a voluntary basis, which may have biased our results, which may not be applicable to our wider student population, or to other university settings. Further, although overall, there was an 85% (72/85) response rate to the post-course questionnaire, there was a greater response rate from the ‘blended learning’ participants (100%) compared to the ‘online’ participants (67%). It is possible that the data may have been skewed by the selection bias of those who chose to engage with the program afterwards being more likely to be those who had a positive experience of it.

Conclusion

Our findings indicate that both the ‘blended’ and ‘online only’ learning formats provided excellent frameworks for students to develop their teaching skills in an interprofessional context. Both groups of students found the online materials to be well structured, with relevant literature and multiple short videos as examples to assist preparation for small group in-class or synchronous online activities. These activities provided opportunities for students to learn topics, roles and perspectives of other disciplines; practice skills in teaching and the giving and receiving of feedback. Notably, our results indicate that ‘blended learning’ delivery may be improved by reducing the duration of the ‘face-to-face’ session. Conversely, ‘online only’ delivery may be improved by additional ‘real-time’ small group activities – an advantage of which may be strengthening students’ perception of interprofessional activities. While we acknowledge that we have lost valuable face-to-face interactions, we have made a rapid and successful transition to adapt the design and delivery of our PTT program to the current contextual circumstances available to us. In doing so, we have improved our readiness for long-term disruption to meet the important need to prepare our students as future clinical educators within an interprofessional workforce. The next step will be to ensure provision of opportunities for alumni of the PTT program to teach their fellow students.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

References

- Biggs, J. 2003. *Teaching for Quality Learning at University*. 2nd ed. Berkshire, UK: Open University Press.
- Braune, V, Clarke V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2); 77-101.
- Burgess, A, van Diggele, C, Roberts, C, Mellis, C. 2020 (a). Feedback in the clinical setting. *BMC Medical Education*, 20: 460.
- Burgess A, van Diggele, C, Roberts, C, Mellis, C. 2020 (b). Facilitating small group learning in the health professions. *BMC Medical Education*, 20: 457.
- Burgess A, van Diggele, C, Roberts, C, Mellis, C. 2020 (c). Key tips for teaching in the clinical setting. *BMC Medical Education*, 20: 463.
- Burgess, A, van Diggele, C, Roberts, C, Mellis, C. 2020 (d). Tips for teaching procedural skills. *BMC Medical Education*, 20: 458.
- Burgess, A, van Diggele C, Roberts, C, Mellis, C. 2020 (e). Teaching clinical handover with ISBAR. *BMC Medical Education*, 20: 459.
- Burgess, A, McGregor, D. 2018. Peer Teacher Training for health professional students: a systematic review of formal programs. *BMC Medical Education*, 18:264.
- Burgess, A, McGregor, D, Mellis, C. 2014. Medical students as peer tutors: a systematic review. *BMC Medical Education*, 14:115.
- Burgess A, Roberts, C, van Diggele, V, Mellis, C. 2017. Peer Teacher Training program: interprofessional and flipped learning. *BMC Medical Education*, 17:239.
- Cook, DA, Steinert, Y. 2013. Online learning for faculty development: A review of the literature. *Medical Teacher*, 35(11):930–937.
- Dandavino, M, Snell, L, Wiseman, J. 2017. Why medical students should learn how to teach. *Medical Teacher*, 29(6):558-565.
- Darling-Hammond, L, Holtzman, D, J, Gatlin, SJ, & Vasquez Heilig, J. 2005. Does Teacher Preparation Matter? Evidence about Teacher Certification, Teach for America, and Teacher Effectiveness. *Education Policy Analysis Archives*, 13:42.
- Eva, KW. 2020. Strange days. *Medical Education*, 54(6) 492-493.
- Finnigan, MA, Marshall, SD, Flanagan, BT. 2010. ISBAR for clear communication: one hospital's experience spreading the message. *Australian Health Review*, 34(4):400–404.
- Graffam, B. 2007. Active learning in medical education: strategies for beginning implementation. *Medical Teacher*, 29(1):86-103.
- Hean S, Cowley S, Forbes A, Griffiths P, Maben, J. 2003. The M-C-M' cycle and social capital. *Social Science and Medicine*, 56(5):1061–1072.
- Hill, E, Liuzzi F, Giles, J. 2009. Peer-assisted learning from three perspectives: student, tutor and co-ordinator. *The Clinical Teacher*, 7(4):244-246.
- Irby, DM, Wilkerson, L. 2003. Educational Innovations in Academic Medicine and Environmental Trends. *Journal of General Internal Medicine*, 18 (5):370-376.
- Karia, C, Anderson, E, Hughes, A, West J, Lakhani, D, Kirtley, J, Burgess A, Carr, S. 2020. Peer Teaching (PTT) in Action. *The Clinical Teacher*;17(5):531-537.
- Kennedy, MM. 2019. How we learn about teacher learning. *Review of Educational Research*, 43(1):138–162.
- Kitchen, M. 2012. Facilitating small groups: How to encourage student learning. *The Clinical Teacher*, 9(1):3–8.
- Kloek, AT, van Zijl, ACM, ten Cate, OT. 2016. How a teaching rotation in medical school affects graduates' subsequent careers. *Perspectives on Medical Education*, 5(6):325–331.

- Marton, GE, McCullough, B, Ramnanan, CJ. 2015. A review of teaching skills development programmes for medical students. *Medical Education*, Feb;49(2):149-160.
- Parsell, G, Bligh, J. 1999. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education*, 33(2):95–100.
- Pendleton, D, Schofield T, Tate P, Havelock P. 2003. *The new consultation: developing doctor-patient communication*. Oxford: Oxford University Press 14.
- Schumacher, DJ, Englander, R, Carraccio, C. 2013. Developing the Master Learner: Applying Learning Theory to the Learner, the Teacher, and the Learning Environment. *Academic Medicine*, 88(11):1635-1645.
- van Diggele, C, Burgess, A, Mellis, C. 2020. Planning and preparing a small group teaching session. *BMC Medical Education*, 20:462.
- Walker, M, Petyon, JWR. 1998. Teaching in theatre. In: Peyton JWR, editor. *Teaching and learning in medical practice*. Rickmansworth: Manticore Europe Limited p. 171–180.
- Wearne, S, Greenhill, J, Berryman, C, Sweet, L, Tietz, L. 2011. An online course in clinical education - experiences of Australian clinicians. *Australian Family Physician*, 40(12):1000-3.