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ABSTRACT

Demand for clinical placements in physiotherapy education continues to outstrip supply. Peer assisted learning, in various formats, has been trialled to increase training capacity and facilitate student learning during clinical education. There are no documented examples of measurable or repeatable peer assisted learning models to aid clinicians in implementing these strategies.

The aim of this research was to develop a repeatable and quantifiable peer assisted learning model of clinical education for paired undergraduate physiotherapy students. Additionally, the project aimed to evaluate the impact of clinician engagement in the model development process on their self-rated ability to facilitate peer assisted learning.

A series of four workshops was conducted to facilitate development and refinement of a peer assisted learning model by physiotherapy clinical educators. The workshops introduced relevant peer learning principles and a range of clinically relevant educational tools to educators. Consensus was targeted on the tools and approaches that would underpin the peer assisted learning model. A survey investigating participants' self-rated ability to facilitate components of peer assisted learning was administered prior to, and on completion of, the workshop series.

Educators agreed on a model to facilitate student peer interaction in clinical reasoning, observation of performance, risk identification and mitigation, and feedback and coaching. Tools to evaluate student and clinical educator outcomes were developed. On completion of the workshops, participants reported significantly more confidence in their ability to facilitate peer assisted learning.

Development of a peer assisted learning model of clinical education that is acceptable to clinical educators was achieved through stakeholder involvement from concept stage. Assessment of educator knowledge and confidence, combined with critical review of stakeholder feedback at multiple stages in model development, appeared effective in conveying ownership of the model to clinical educators and identifying the support required for confidence in facilitating peer assisted learning.

INTRODUCTION

It is widely recognised in the health professions that learning in the authentic practice environment is valued by students, clinicians, and academics for developing skills and attributes for professional practice (Ernstzen, Bitzer, & Grimmer-Somers, 2009; Ryan, Toohey, & Hughes, 1996; Speech Pathology Association, 2005; World Confederation of Physical Therapy, 2011). With health professional student numbers increasing world-wide, appropriate clinical education is increasingly difficult to source and provide (Rodger et al., 2008). Universities and health services might benefit from a "multiple student to clinical educator" model if this could be achieved without compromising placement quality. However, there is little high-level evidence supporting effective and acceptable methods of clinical education when clinical educators have concurrent responsibility for more than one student in the workplace.

In the allied health professions, students must be work ready at the point of graduation. Allied health practitioners deliver interventions that carry risk of harm. For example, encouraging mobility of a painful joint carries the risk of symptom aggravation; rehabilitating mobility carries the risk that the patient might fall; and manual handling techniques must be adjusted to minimise risk of harm to both the practitioner and patient. Perhaps because of these risks and responsibilities in care delivery, educators tend to supervise students intensely and often in a one to one educator to student ratio. Clinicians report that multiple students are burdensome, a notion which has been supported by a study of physiotherapy students (n = 36) and clinical educators (n = 31) that reported the clinician satisfaction and overall facility productivity gains (as measured by a combination of the mean clinical educator patient care time, mean clinical educator time spent in other activities, and mean student direct patient care time) were greater in a 1:1 model than a 2:1 model when compared with the no-student baseline (Ladyshewsky, Barrie, & Drake, 1998). To address barriers of this nature, the design of any model of clinical education should be endorsed by both student and clinical educator, and maintain or improve educational and clinical performance outcomes relative to alternative models.

Students of physiotherapy and other health professions are challenged by clinical education (Laitinen-Vaananen, Talvitie, & Luukka, 2007) and report feeling under-prepared for the demands of the practice environment (Katinka et al., 2005). Peer learning may enhance the learning opportunities for students by adding peer feedback to that provided by the clinical educator, providing opportunities for explicit discussion of decision making processes, enabling sharing of challenges to 'normalise' the perception of difficulty in adjusting to learning in a challenging environment, and adding "social" support (Secomb, 2008, Skøien, Vagstol, & Raaheim, 2009). In addition to the potential for increasing student satisfaction with clinical education, peer assisted learning has the potential to increase capacity for workplace education by creating a framework for education of students in a "multiple student to educator" ratio.

Empirical evidence of effects of various "multiple student to educator" models on student, educator, and patient outcomes is limited (Lekkas et al., 2007; Moore, Morris, Crouch, & Martin, 2003, Roberts et al., 2009; Strohschein, Hagler, & May, 2002). Qualitative investigations into

physiotherapy education have concluded that the company of another student on placement reduces student anxiety and aids learning (Baldry-Currens, 2003; DeClute & Ladyshewsky, 1993, Skøien et al., 2009). However, previous reports do not provide a structure, reproducible framework, or specific tools for physiotherapy education that enable objective measurement of the effects on learning outcomes in clinical placements. A systematic review of 12 (mainly qualitative) studies of clinical education of health science students by Secomb (2008) concluded that learning outcomes were enhanced by peer teaching and learning. There was little description or evaluation of the amount or type of peer assisted learning in the included studies. The effects of peer support on learning outcomes is likely to be influenced by many factors, including how the program is actively facilitated, and prior, potentially pre-clinical, initiatives that create a context that enables peer learning (Boud, 1999).

Moving from a 1:1 student to educator model to a 2:1 model brings challenges. Educators may feel that this is shifting them away from a system in which they are relatively comfortable and into a supervisory framework within which they will have less control. Success in managing change requires stakeholder ownership and a shared vision regarding the potential for gain in adopting change (Fisher, 2005; Kotter, 1995). Essential to implementation of our peer assisted learning model was identification and utilisation of facilitators to develop strategies to address barriers. In establishing this project, multiple stakeholders who would be involved in implementation were brought together to design a feasible and acceptable model. In consulting the literature on participatory research (Cargo & Mercer, 2008), empowerment of participants was identified by researchers as essential to the success of this project.

This paper describes both the process for developing a peer learning model for physiotherapy clinical education and the elements of the model that evolved. It also describes the evaluation of the self-rated confidence of the clinical educators in facilitating peer assisted learning before and after engaging in the development process.

METHOD

Design
A scoping exercise was undertaken with physiotherapy clinical educators to engage them as stakeholders in the process of developing a suitable model of peer assisted learning and ascertain interest in participation. When interested stakeholders were identified, four two-hour workshops were arranged at monthly intervals. The design of the workshops and the key concepts and potential activities that could be included in the model were developed by the research team, drawing on existing practice and health education literature. A participatory research design was utilised (Cargo & Mercer, 2008).

The aims of the workshop series were to identify and select teaching and learning activities to facilitate peer assisted learning and to determine the number of activities that would be feasible and acceptable in a typical week of student placement. It was hoped that this collaborative process would improve participants' confidence as facilitators of peer assisted learning. Participants were recruited from a range of areas of practice and service

delivery settings, and with varying levels of experience, to optimise the feasibility and applicability of the final model. Audiotaped participant discussion in the workshops, participant written feedback, and facilitator reflective debrief forms were reviewed by the research team after each workshop. This enabled development of suitable objectives for subsequent workshops and tailoring of workshop methods.

Participants & Setting

All physiotherapists working in a large health service network in Victoria, Australia who provided clinical education as part of usual duties were eligible for inclusion (n ≈ 30). Clinicians provided education to physiotherapy students enrolled in programs that prepared them for entry to the profession on graduation. The health network included five distinct hospital campuses and community health and rehabilitation centres. The network has a dedicated collaboration with a local university in preparing students for professional practice. Across the network, approximately 70 physiotherapy students take in excess of 3,000 placement days annually.

Measurement instruments

A participant workshop satisfaction survey was used to enable participants to comment on what they liked about each workshop and areas that could be improved. They also rated the "usefulness" of each workshop on a 5-point Likert scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*, see Figure 1) and could provide free text feedback. Participants self-rated their perceived ability to facilitate peer assisted learning on a pre- and post-workshop survey (Table 4).

At the end of each workshop, facilitators and observers individually completed a debrief form to capture reflection on the main issues or themes that arose, information gained, questions emerging, concerns, problems or challenges, general atmosphere, and group dynamics. Each workshop was audio-taped and reviewed to consider responsive strategies for subsequent workshops.

Procedure

The Southern Health and Monash University Human Research Ethics Committees approved the study. Permission was sought from the physiotherapy managers to seek volunteers from their staff for the project. The project's principal investigator provided information regarding the project to clinical education coordinators and key contacts at the network hospitals in a face-to-face meeting in September 2010. The key contacts were senior physiotherapists who held a team leader role within a clinical area or a student education portfolio at a particular site. Subsequently, all clinical educators from each of the five sites were provided with information regarding the project via email and invited to participate. Participants signed informed consent prior to study commencement.

Participants were asked to complete an anonymous survey of their self-rated confidence to facilitate peer assisted learning prior to commencement of the first workshop. In workshops, participants contributed ideas and discussed experiences. They identified areas where they wanted additional information, expressed concerns and uncertainties about implementation, and discussed solutions to potential issues in refining and developing a model. Attempts

were made to limit passive participation during the workshops by providing participants with pre-reading and incorporating practical activities into the workshops.

Participants reviewed teaching and learning tools and activities from published literature and current practice that could be used to facilitate peer assisted learning. The tools/activities presented for discussion were:

- A peer feedback book
  - Where performance-based comments by the student peer are entered (e.g., to note that a particular behaviour is observed).
- An educator feedback book
  - Where performance-based comments by the clinical educator are entered (e.g., when a particular behaviour is observed).
- Peer observation and feedback
  - A template was designed by the research team to encourage the student peer to provide feedback in line with assessment targets of the Assessment of Physiotherapy Practice Instrument (Dalton, Davidson, & Keating, 2011). The template would guide student peer feedback after observing patient assessment and/or intervention and incorporated methods recommended in the Pendleton model (Pendleton, Schofield, Tate, & Havelock, 1984).
- A verbal feedback triad
  - A three-way conversation between a clinical educator and student peers about an interaction between a patient and a student that was observed by the peer and the clinical educator.
- The "Summarise, Narrow, Analyse, Probe, Plan, Select" (SNAPPS) method (Walpaw, Walpaw, & Papp, 2003)
  - A tool adapted by the investigators to guide students in presenting case information to a clinical educator. In the peer assisted learning model this tool was completed by the pair of students in collaboration.
- The complexity-risk matrix (Kneebone, Nestel, Vincent, & Darzi, 2007)
  - A tool adapted by the investigators to guide students to map complexity and risk in clinical situations. In the peer assisted learning model this tool was completed by the pair of students in collaboration.
- The reflective practice template
  - A tool designed by the principal investigator to guide critical reflection on a patient interaction or experience.
- The "Introduction, Situation, Background, Assessment, Recommendation" (ISBAR) method (Marshall, Harrison, & Flanagan, 2009)
  - A tool designed to improve the quality of information exchange between health professionals (e.g., in a handover situation).
- The Advanced Trauma Life Support (ATLS) five step teaching method (George & Dodo, 2001)
  - A five-step method for teaching psychomotor skills.

The strengths and weaknesses of the tools and activities for use across different settings were actively debated. Elements were ruled in or out of the planned model based on unanimous agreement between clinical educators. When the tools and activities to be utilised were finalised, participants were asked to develop consensus on the minimum frequency of application or use of the identified elements.

Each workshop had two facilitators and one or two observers. Participants completed the anonymous post-workshop survey of self-rated confidence to facilitate peer assisted learning after workshop IV.

Analysis

Workshop attendance and participant demographics are presented in Table 1 and Figure 1. Recordings of workshop discussions were transcribed verbatim on completion of the fourth workshop. Two members of the research team independently coded the transcripts using thematic analysis (Huberman & Miles, 2002). Themes were determined by common identifications. Likert scale responses to the pre- and post-workshop survey items were analysed using a two-sample Wilcoxon rank-sum Mann-Whitney U test.

RESULTS

Demographics

Workshops were open for any physiotherapy clinical educators to attend, and attendance at all four workshops was not compulsory. Therefore, a range of participants attended each workshop (12-17, see Figure 1). Attendance was recorded in a de-identified manner so a total number of participants across the four workshops was not able to be calculated (many participants attended multiple workshops). Fourteen participants chose to provide their demographics via an online survey and the results are presented in Table 1. The majority were aged 25-30 years and most had less than three years of experience as a clinical educator (Table 1).

Satisfaction

The "usefulness" of the workshop material was rated highly, and ratings appeared to improve after the first workshop (Figure 1).
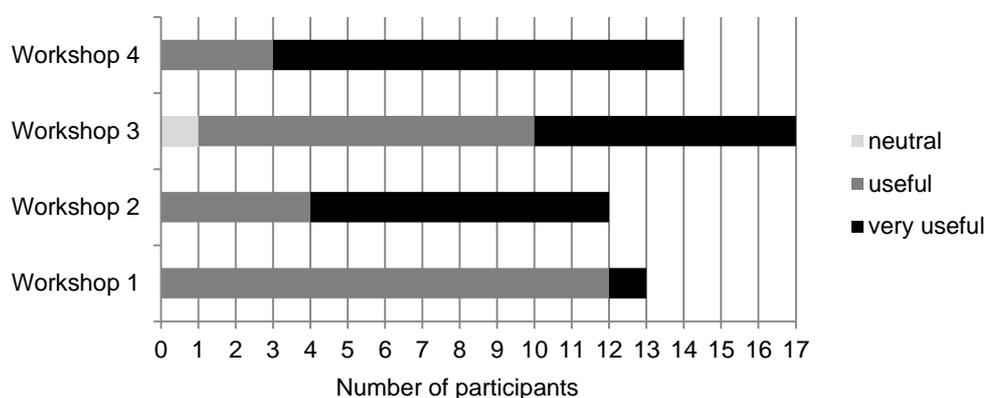

Figure 1. Clinical educator workshop attendance and "usefulness" rating.

Table 1
Clinical educator demographics

Demographic	Range	n	%
Age	20-25	4	29
	25-30	8	57
	30-35	1	7
	35-40	0	0
	40-45	1	7
	Total	14	100
Experience in clinical practice (years)	< 1	0	0
	1-3	5	36
	3-5	5	36
	5-10	3	21
	> 10	1	7
	Total	14	100
Experience in clinical education (years)	< 1	3	22
	1-3	7	50
	3-5	2	14
	5-10	2	14
	> 10	0	0
	Total	14	100
Confidence in clinical education	Not confident	0	0
	Neutral	6	42
	Somewhat confident	4	29
	Confident	3	22
	Very confident	1	7
	Total	14	100
Number of workshops attended	0	0	0
	1	8	58
	2	2	14
	3	2	14
	4	2	14
	Total	14	100

Workshop content

The objectives of workshops II, III and IV were revised prior to each workshop, based on the feedback from the previous workshop (Table 2). It became evident that participant priorities were driven by interest in model content and how it would impact on their work practices. Peer assisted learning (educator to educator) was deliberately employed as a strategy for engaging participants in workshops, as clinical educators were encouraged to learn from one another's' experience and ideas. Table 2 shows the workshop modifications that evolved through participant feedback and observation of workshop dynamics.

Table 2
Original and revised clinical educator workshop objectives (workshops I-IV)

No.	Planned (original) objectives	Revised objectives (as delivered)
I	• Define peer assisted learning • Discuss advantages and disadvantages of a range of peer assisted learning strategies in clinical education • Identify potential barriers to cooperative learning in clinical education • Discuss principles of effective "active" observation of clinical performance and how they would be taught to students • Demonstrate principles of effective peer feedback and discuss how they would be taught to students	• Define peer assisted learning • Discuss advantages and disadvantages of a range of peer assisted learning strategies in clinical education • Identify potential barriers to cooperative learning in clinical education • Identify key facilitators to effective peer assisted learning
II	• Demonstrate Advanced Trauma Life Support (ATLS) technique as it would be taught to peer learners • Demonstrate and teach models designed to evaluate clinical communication as it would be taught to peer learners • Demonstrate and teach the use of a reflective practice tool, as they would teach it to students in a peer assisted learning context	• Identify domains of clinical practice that could be developed in a peer assisted learning model of undergraduate physiotherapy education • Identify clinical teaching activities that could be used in each domain • Identify clinical education tools that could be used to structure the peer assisted learning model • Explain the application of the Feedback Book as a tool to use in the peer assisted learning model
III	• Identify key determinants of clinical reasoning in novice practitioners • Demonstrate and teach models used for the presentation of clinical case information and clinical reasoning as it would be taught to peer learners to structure their case presentations • Teach the concept of risk management in clinical practice using a risk management tool as they would teach it to students in a peer assisted learning context	• Review two SNAPPS tools completed by students to decide how the tool could be used in a peer assisted learning context • Perform a risk assessment using the complexity-risk matrix to identify degrees of risk and complexity in clinical practice and relevance to clinical education • Discuss how tools will be applied (frequency, instructions, etc.) in the peer assisted learning model
IV	• Design a placement timetable that incorporates use of peer assisted learning strategies • Identify strategies that can be used in the event of educator or student absence in a placement incorporating peer assisted learning strategies • Identify items and learning objectives on the Assessment of Physiotherapy Practice (APP) that are related to performance in peer assisted learning activities	• Explain the components of the peer assisted learning model and list the minimum requirements • Understand the intended use of the tools in the peer assisted learning model and how to introduce these to students • Explain the data collection requirements of the supervisor and student in the peer assisted learning and traditional 2:1 models • Identify the features of a sub-optimal peer relationship • Discuss approaches to management of sub-optimal peer relationships

The peer assisted learning model

The peer assisted learning model developed during the workshop series is presented in Table 3. The model incorporates practices and frameworks that clinical educators considered to be realistic and applicable in practice. Clinical educators in the workshops stressed the importance of maintaining or improving student outcomes while reducing the burden of direct student supervision on their workload. Clinical educators selected the tools and activities based on the following criteria that they identified as important:

- Suited student pairs (rather than single students)
- Easy for students to use
- Did not rely on intensive input from the clinical educator
- Provided meaningful learning experiences for the students
- Applicable across work areas and health care settings

These criteria led to the modification of a number of the tools and processes, including the development of checklists and standardised instructions to aid clinical educators and students implementing the model in the clinical environment. Workshop participants raised concerns that written feedback from clinical educator to student could be seen by the student's peer if a common feedback book was used. Consequently, separate educator/student and student/student feedback books were agreed on. Participants also identified "ground rules" for acceptable content of verbal feedback triads; personal and professional behaviour issues were to be addressed on a one to one basis. Participants set targets of facilitating peer interaction across the key areas of i) feedback, ii) clinical reasoning, and iii) risk identification. This would be achieved by students completing the chosen tasks or activities in pairs, at a time and frequency (Table 3) that was determined by unanimous agreement between clinical educators over the course of the four workshops.

Table 3
The peer assisted learning model

TOOL/ ACTIVITY	Feedback				Clinical Reasoning	Risk identification
	Peer Feedback Book	Educator Feedback Book	Peer Observation Form	Verbal Feedback Triad	SNAPPS	Complexity-Risk Matrix
MINIMUM FREQUENCY	2 per student per week	2 per student per week	2 per student per week	1 per pair per week	3 per pair per week	2 per pair per placement (5 weeks)

Thematic Analysis of Workshop Transcripts

Three themes were evident in transcripts: concerns about "process and logistics," "student outcomes," and "clinical educator outcomes." Themes evolved from uncertainty surrounding the processes, logistics and impact on clinical educators in workshop I, to strategies for optimising student and educator outcomes in workshop IV.

Workshop I revealed a large degree of uncertainty. Concerns about the process ranged from no knowledge of peer assisted learning to how it would

actually work: "I feel like we need to know what peer assisted learning is first, and we need to leave the research part out of it for the moment," and "everyone can make it work in different ways but once we know the core of what's required it will be easier to extrapolate it to what we do." Other comments related to specific aspects of process, with early identification by participants of elements that would need to be standardised: "There will have to be some consistency across areas in terms of the tools," and "what do people think about setting a minimum number of PAL activities that they might want to aim for during each day in a PAL block?" Despite the uncertainty, the majority of participants were positive about participating in the project: "I think it's exciting that we are collaborating as a research team and a clinical team to come up with it together," and "it is good to get everyone in the same room talking about different ways to supervise students full stop."

In workshop II participants were asked to reflect on and discuss traditional approaches to student education and how these could be utilised in a peer assisted learning model. Participants identified teaching and learning activities currently undertaken by clinical educator and student, and discussed how these could be completed by student peers "either watching their supervisor or another student." Participants noted that these interactions could be structured to optimise student outcomes: "[The students] need to articulate what were the things that were good or bad or could be improved on in that session." Concerns were raised about how students would react to peer feedback: "I don't know how the students would feel… well I don't know how comfortable they would be," and "I think it should be at the students' discretion as to what degree they want to take on board the feedback from another student."

In workshop III participants were asked to discuss and reach decisions about the tools and frameworks to be included in the final peer assisted learning model. Selection of the tools and frameworks largely centred on: a) maximising student outcomes by targeting peer activities that were meaningful, realistic, and likely to enable learning, and b) maximising educator outcomes by designing tasks that were relevant to developing competence across a range of practice areas: "The reflective practice worksheet is not something that the students would do between each other. It might be more of a private student thing so maybe it doesn't fit," and "the SNAPPS can be useful in a lot of different ways."

In workshop IV participants were encouraged to raise concerns regarding planned peer assisted learning processes and potential impacts of the model on student and/or educator outcomes. Sub-optimal peer relationships and their effect on both student outcomes (satisfaction and learning) and educator outcomes (satisfaction and workload) were of concern to many participants: "What if you get two students who are a different mix [of skill levels] or demonstrate different knowledge?" and "they might be good friends and they have difficulty giving each other honest feedback." Participants were encouraged to discuss strategies for management of sub-optimal peer relationships, including educator modelling of productive behaviours: "You can sit them down and say if you're struggling to give feedback, here is my feedback and these are the sort of things I want you to look out for when you next give feedback."

Clinical educators (n = 14) who participated in the model development sessions reported significantly more confidence ($p < .01$) to facilitate six out of the eight identified peer assisted learning components on completion of the workshops. In a larger sample or without the alpha adjustment required for 95% confidence, a positive change in confidence would have been concluded for all assessed elements (Table 4).

Table 4
Clinical educator self-rated confidence to facilitate components of peer assisted learning. (Q1 – 25th centile value, Q3 – 75th centile value)

Item I think I am able to:	Pre Median (Q1,Q3)	Post Median (Q1,Q3)	*p* value (rank sum)
Define peer assisted learning	3 (2,4)	4 (4,4)	.002*
Incorporate peer assisted learning activities in to my teaching	3 (2,4)	4 (4,4)	.003*
Detail the evidence of peer assisted learning to my colleagues	2 (2,3)	4 (3.25,4)	.006*
Recognise barriers to cooperative learning	4 (3,4)	4 (4,4)	.07
Minimise barriers to cooperative learning	2.5 (2,3)	4 (3.25,4)	.006*
Teach principles of active observation	2 (2,3)	4 (3.25,4)	< .001*
Use principles of effective feedback delivery	4 (3,4)	4 (4,4)	.07
Effectively teach the use of a tool to guide reflective practise	3 (2,3)	4 (4,4)	< .001*

*$p < .01$

DISCUSSION

This study advances peer assisted learning research in undergraduate physiotherapy clinical education (Baldry-Currens, 2003, DeClute & Ladyshewsky, 1993, Skøien et al., 2009) by providing a repeatable model that unambiguously describes activities designed to facilitate peer assisted learning for use in clinical settings. It also provided a platform for setting the number of peer assisted learning activities for testing during a clinical placement, which is critical in the context of repeatability, measuring adherence to the model, and model evaluation. This study also provides an exemplary model for engagement of stakeholders in education initiatives.

Clinical educator participants identified that the key driver for developing a clinically applicable peer assisted learning model was to reduce the burden of multiple student placements for clinical educators while maintaining or improving student outcomes. This is not unexpected, given that the role of clinical educator is generally perceived by clinicians to be complex, time consuming, and stressful (Baldry-Currens & Bithell, 2000; Higgs & McAllister, 2007; Spencer, 2003; Napthine, 1996). Previous research indicates that clinical educators perceive clinical education as time consuming and that it reduces opportunities for professional development and quality improvement projects (Sevenhuysen & Haines, 2011). It was therefore critical that the model was acceptable to clinicians and was not perceived as adding to their workload. Clinical educators agreed that peer assisted learning did present an opportunity to reduce educator burden and increase student autonomy. The

model would include tools and activities that student peers could complete together without the direct supervision of the clinical educator.

During the workshops, clinical educators identified potential benefits for the student in utilising a structured peer assisted learning model. These included making the student experience more equitable and consistent as they move across clinical areas and increasing transparency in relation to the educational approach to clinical placements: "It will organise and standardise the process." This has not been identified in previous research and has likely arisen due to the multi-site nature of the project and the fact that the clinical educators varied in areas of expertise and levels of experience. Student peers providing social support to one another was discussed as a potential benefit for the student and the clinical educator. For the students it could provide companionship, informal opportunities to question and reflect, and reduce reliance on educators to provide information, advice, counselling, and pastoral care. Benefits such as these have been reported to have occurred in previous peer assisted learning research (Baldry-Currens, 2003; DeClute & Ladyshewsky, 1993, Skøien et al., 2009; Secomb, 2008).

Interestingly, there was little discussion about the educational advantages of utilising peer assisted learning, despite the relevant pedagogic literature being presented to clinical educators in the first workshop. This suggests that reported outcomes of peer assisted learning such as development of leadership skills, teaching, feedback, and evaluative judgement skills (Secombe, 2008) were not considered a priority by the clinical educators. The tools and activities chosen by the clinical educators focussed on areas that they considered to be useful in developing "competency," such as risk identification and clinical reasoning. This provides an interesting insight into the clinical educators' decision making and what they privilege when considering student competency and clinical education. This is an area for research attention.

The most frequently raised concern about the implementation of peer assisted learning was the potential for sub-optimal peer relationships. This concern was related to two key concepts: a) managing competition and difference (ability, learning styles, confidence levels, and absence), and b) quality control. Uncertainty in managing competition and student difference is consistent with the perceptions of clinical educators reported by Baldry-Currens and Bithell (2003). The quality control issue predominantly related to accuracy of peer feedback but included concerns regarding the accuracy of the information or instruction that is shared between students and the effect this could have on students' learning outcomes. This finding has also been reported in previous literature (Zavadak, Dolnack, Polich, & Van Volkenburg, 1995) and is not surprising given that clinical educators report they feel heavily responsible for students' learning outcomes (Sevenhuysen & Haines, 2011).

An important finding in this project was the improved engagement of participants in the model development as demonstrated by a shift from simple process/logistical concerns to generation of potential solutions to consideration of complex sub-optimal peer relationships. This shift is in line with processes described in literature regarding change management (Prochaska & DiClemente, 1982) and represents the participants moving

through the phases of contemplation and determination to the action phase. The increased engagement was represented in the workshop transcripts, but was also confirmed by the increased attendance and "usefulness" rating across the four workshops. This level of engagement was achieved by responding to the continual critical review of stakeholder feedback and adjusting the content of the workshops, and the model itself, based on this feedback. It was also achieved by allowing "space" for participants to raise concerns and discuss potential solutions for these concerns. Workshop IV, which particularly focussed on sub-optimal peer relationships, received the highest usefulness rating.

Clinical educators who attended the workshops reported increased self-rated confidence to facilitate peer assisted learning in the clinical setting. This is essential given that health professionals frequently cite that they require more professional development and educational support (McAllister et al. 2008, Baldry-Currens & Bithell, 2000; Cross, 1992; Strohschein et al., 2002) and more education on peer assisted learning specifically (Baldry-Currens & Bithell, 2003). Without confidence to utilise the peer assisted learning strategies, it is highly unlikely to be implemented in an effective or sustainable way.

Limitations
The model described in this paper is a pragmatic operational framework based on what clinicians were willing to accept as workable practices within a clinical setting. The project was conducted in one health service with one group of clinical educators, which limits its generalisability. Clinical educators who participated in the model development workshops were volunteers and therefore a self-selecting group. Issues may have been missed that related specifically to clinical educators who did not volunteer. For example, clinical educators who have a particularly negative view of paired student placements may have chosen not to volunteer. There was potential for survey response bias in the post-workshop survey, as participants may have built a relationship with the key investigator through the research process and, by involvement, may have had a vested interest in the result.

The analysis of this data was also limited as we employed a non-parametric approach for unmatched data even though pre and post measures were taken from the same participants. We used this approach because the data from the pre and post assessments contained no participant identifiers. We felt that it was important for participants to complete these surveys anonymously as the questions may have revealed private self-evaluations of professional competence as an educator. As matched data analysis approaches are more sensitive than unmatched, the overall picture that the self-perceived ability of participants to facilitate peer-assisted learning was improved through participation in the workshops would not have changed.

Future Research
Further research is required to test how the peer assisted learning model developed impacts on stakeholder outcomes. Based on the issues described in our workshops, further research should consider the effect of peer assisted learning from the student perspective in terms of performance, satisfaction, and the profile of the student placement (e.g., the number of patients seen), and from the clinical educator perspective in terms of

workload, satisfaction, and confidence. There is also potential to trial the model with other professional groups via a similar participatory workshop process. Efficiencies could be gained by utilising the frameworks learnt through this research. Consultation with stakeholder groups could identify changes/refinements to the existing model according to their specific context.

As the cohesion of peer relationships was the biggest area of concern for our participants, more research is required to determine how students can be best matched in pairs or groups to maximise learning outcomes, or whether concerns about relationship cohesion are justified. Early research in this area has identified the potential for learning styles to be utilised in pairing students (Sandmire & Boyce, 2004).

Although it was not raised as a priority area by our participants, another area for future research is measurement of how peer assisted learning may impact students' ability to develop teaching and evaluative judgement skills, which are deemed key competencies for professional practice (Frank, 2005).

CONCLUSION

Development of a peer assisted learning model of clinical education acceptable to clinicians was achieved using a participatory approach from concept stage. The model developed has potential to increase efficiencies in clinical education by facilitating meaningful peer assisted learning activities that do not require intensive input from the clinical educator. The model assisted clinical educators by providing a framework to guide a paired student placement. When developing the model, it was important to consider the process and logistical issues as well as the impact on both student and clinical educator outcomes. Assessment of participant knowledge and confidence in facilitating peer assisted learning and critical review of stakeholder feedback was essential in recognising the education required and in reaching consensus on the outcome. On completion of the model development workshops, participants were significantly more confident to facilitate peer assisted learning.

GLOSSARY

Clinical educator: clinician employed by the health service who has a clinical educator role as part of their clinical position.

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