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Implementing collaborative and peer-assisted learning

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Editors' note: Many different approaches to collaborative and peer-assisted learning (CPAL), in which students and trainees learn together and may also teach each other, have been described in the healthcare professional education literature. There is considerable evidence that CPAL can enhance learning, confidence, interpersonal and teaching skills, but such approaches often require careful planning, resourcing and support to be implemented in a way which maximises these potential benefits and minimises risk. In this Toolbox article, the authors draw on their experience of implementing CPAL approaches in undergraduate health professional education, and offer advice, suggestions and practical examples for other clinical teachers who want to implement new or enhance existing CPAL initiatives. Using a recognised model of behavioural change, they encourage readers to assess and develop capability for CPAL through reflection on learner prior experiences, training and resources; create opportunities for learners to take part in CPAL by selecting the most appropriate format, structure and activities for peer interaction; and motivate learners to engage by ensuring effective orientation, guidance and ongoing evaluation and development. We hope that

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clinical teachers will be able to apply these insights and examples in their own context, and that as a result more students and trainees will learn collaboratively and develop their professional collaboration, feedback and teaching skills in this way.

Introduction

Collaborative learning (CL) has been defined as “any learning activity that includes coordinated engagement of two or more learners for the purpose of completing tasks that lead to desired learning outcomes”.¹ Peer-assisted learning (PAL) is defined as learning that occurs when “people from similar social groupings who are not professional teachers help each other to learn and learn themselves by teaching”.² Approaches that promote CL and PAL in health professional education are becoming increasingly common, varied and generally well accepted.¹ For clarity purposes the terms CL and PAL will be represented in this paper as one term: CPAL. CPAL includes activities that involve two or more learners working together for the purposes of achieving learning outcomes, with a focus on developing professional collaboration and feedback skills. CPAL may also assist students to learn how to teach.

This paper has been written for clinical teachers implementing CPAL models in health care, to assist them in overcoming the challenges which CPAL may present. Using the capability – opportunity – motivation behaviour change (COM-B) model,³ the paper will present a range of strategies that encourage active participation in CPAL to maximise the benefits for students and teachers. It has been developed based on current literature and the authors’ experience in developing and testing CPAL models of undergraduate clinical education in medicine and allied health.⁴⁻⁹

Commonly cited benefits of CPAL include improved learning opportunities, reduced student anxiety, improved problem solving and evaluation skills and a reduced dependence on the clinical teacher.^{1-2,4,6-7,9} Despite these positive outcomes, utilising CPAL in the clinical environment presents challenges^{5,10} and clinical teachers cannot simply co-locate students and expect CPAL to naturally occur.^{1,6} For CPAL to be successful, it is not enough for teachers to

have a philosophical commitment to facilitating learning amongst student peers.¹ Specific activities must be identified and effective implementation demands that teachers work not necessarily harder, but differently.¹¹

Introducing CPAL in clinical education requires thoughtful planning pre-placement and specific skills are required by clinical teachers to utilise it effectively.⁶ Both students and teachers may be resistant to CPAL because they perceive it is better to learn from the 'expert' and are often comfortable operating in a system, with defined roles, that they have learned to navigate.^{6,10}

For the purposes of this paper, a CPAL clinical education model is an umbrella term describing any multiple-student to clinical teacher model incorporating CPAL. A clinical teacher is defined as a health professional with student responsibilities as part of their clinical role.

The COM-B Model³ for implementing PAL in clinical education

The COM-B ('capability', 'opportunity', 'motivation' and 'behaviour') model³ is a behaviour change framework, developed via systematic review and expert consultation. The framework has been applied in research into changing behaviours in health, and can be extrapolated to the education context.

Capability:

To assess and develop capability to implement CPAL, it is important for clinical teachers to reflect on their own capabilities and have an awareness of students' previous exposure to CPAL and the resources required.

What is the students' previous exposure to CPAL?

CPAL is used as a strategy in many health professional tertiary programmes. It is therefore likely that students will have had some experience with CPAL (e.g. problem-based learning, clinical skills teaching, peer-assisted study sessions etc.), but may not automatically take the opportunity to use it in the clinical setting.⁸ Clinical teachers should gather information on how CPAL has been utilised by their students previously and consider how this can be translated to their context (e.g. using the problem-based learning format to research and present a case).

What resources could be available?

Clinical teachers who are new to CPAL may not feel confident in implementing the approach without further training.⁴ Reflection on their own skills and experience with CPAL will help teachers identify and address areas of education need. Although CPAL initiatives draw largely on the resources and engagement of students and teachers, it may also require input from other staff. To share the load, teachers may consider using clinicians and teachers both from within their profession and from other professions to supervise and facilitate appropriate CPAL activities to encourage cross fertilisation of ideas and strategies.

Opportunity:

Creating opportunities for CPAL in the clinical setting takes careful planning. This includes identifying activities, scheduling sessions, encouraging student autonomy and individuality, ensuring explicit teacher involvement and promoting critical reflection.

Planning for CPAL

We suggest specifically timetabling CPAL sessions, particularly early in the placement. This sets the expectation that students will work together, demonstrates that CPAL is important in the placement model and helps students to develop skills and behaviours (such as active observation and providing feedback) which may become more habitual as the placement progresses.

There are many types of CPAL which can be utilised in the clinical setting. Prior to the placement starting, clinical teachers should spend time considering what types of CPAL may be suitable for their context and the activities that could be included (see Box 1).

Typology	Example of clinical activities
Peer tutoring or teaching	Teaching a concept or skill to a peer. Researching relevant topics and teaching each other.
Peer collaboration	Working together on a task such as taking a patient history. Brainstorming ideas for diagnoses or interventions. Preparing and presenting a case together.
Peer co-operation	Dividing learning tasks amongst peers, such as components of a patient history, assessment or treatment, with everyone

	putting their findings together to achieve a joint goal.
Peer monitoring	Observing other students, without any requirement for the observer to make any judgement or assessment of the peer.
Peer observation, feedback and coaching	Students 'actively observe' other students with the objective of providing subsequent feedback (this may be more effective if a 'prompting sheet', checklist or rubric is provided). Based on the observation, students provide suggestions for enhancing or remedying performance, in addition to commentary on performance.
Peer assessment	Student peers formally assess one another against specific criteria.

Box 1: Examples of types of CPAL in the clinical setting

Encourage student autonomy and flexibility

Clinical teachers should consider how CPAL sessions will be initiated – these may be timetabled in the early stages, but as the placement progresses students may take ownership and initiate CPAL (see Figure 1).

Figure 1: Theoretical continuum of CPAL activity in the clinical setting

This pattern of engagement is more likely to encourage students to develop life-long skills in seeking and utilising CPAL to enhance performance, and to reduce the burden on teachers to 'mandate' CPAL activities. Learning with peers has been shown to encourage development of critical evaluation of self and others, or 'evaluative judgement' skills,⁷ likely to be important for self regulated practice. Structured sessions may reduce over the course of the placement, as students become more independent in their practice. See Box 2 for suggested activities and prompts for students to promote autonomy.

Activity	Key prompts for students	Examples
Orientation	<p>What are the ground rules?</p> <p>What do I need to be familiar with?</p> <p>Who are the people I need to know?</p> <p>Who will be my team?</p> <p>What CPAL opportunities have I been involved in in the past that I could apply here?</p>	<p>Confidentiality</p> <p>Safe learning environment</p> <p>Respecting others opinions</p> <p>Punctuality</p> <p>Translating teaching and learning skills to the clinical setting</p>
Observation	<p>Of teachers: What is the benchmark standard? Or what does good practice look like?</p> <p>Of peers: What was done well? What could be improved?</p>	<p>Taking a patient history</p> <p>Conducting a patient assessment</p> <p>Performing a procedural skill</p> <p>Closing a consultation</p> <p>Obtaining informed consent</p>
Information	What information do I	Summarising a patient's history

	<p>need?</p> <p>What information could add further value to the care of the patient?</p>	<p>Researching a diagnosis</p> <p>Assessing the evidence for an intervention</p> <p>Discussing the case with other health professionals in the team</p>
Collaboration	<p>What knowledge or skills can I offer?</p> <p>What can others help me with?</p> <p>Where are the gaps in my knowledge and performance?</p> <p>What are my strengths in the team?</p> <p>What do I need to work on?</p>	<p>Presenting a case</p> <p>Completing a group project</p> <p>Drafting a procedure or guideline</p> <p>Conducting a group audit</p> <p>Arranging a peer observation and feedback session</p> <p>Role-playing</p> <p>Dividing topics amongst peers and tutoring one another</p> <p>Teaching a clinical skill to a peer</p> <p>Asking a peer to demonstrate a clinical skill</p> <p>Discussing/presenting cases seen individually</p>
Reflection	<p>What went well today?</p> <p>What could be improved?</p> <p>Where do I need to focus my learning?</p> <p>How am I performing compared to the expected</p>	<p>Debriefing with peers</p> <p>Brainstorming ideas to improve knowledge and performance</p> <p>Planning for the next day/week: timetable, activities, CPAL</p> <p>Assessing (formative) self or</p>

	standard? How well are we working together as peers? What could be improved?	peers against performance criteria Discussing the peer relationship and any strategies required to optimise learning
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Box 2: suggested CPAL activities and prompts for students

Do not forget observation of the expert teacher

The direct observation and provision of feedback by peers does not necessarily mean students are ready to assess and treat patients independently. The example set by a clinical teacher remains critically important in establishing the standards required and behaviour expected for each clinical context.¹² Direct observation of 'experts' provides a benchmark against which students can evaluate their own performance and the performance of others, which will then enable them to observe and provide feedback to each other effectively.

Maintain individual student time

Students may demonstrate resistance to CPAL because they perceive it to 'take time away' from learning with an expert clinical teacher.^{5,8} Tasks conducted by individual students should still feature in CPAL placement models and learning from individual tasks can be valuable content for debriefing and critical reflection (see Box 2). Clinical teachers should ensure students receive individual (1:1) formal feedback in line with the education provider expectations.

Modify critical reflection (process and content)

Typically critical reflection is encouraged in clinical education after patient interactions. However in CPAL models, students should be encouraged to also reflect on the peer learning process itself (see Box 2). This will allow time for students to discuss any challenges, or any interpersonal issues which may arise and to identify strategies to overcome them.

How to structure successful PAL activities

When we ask students to participate in a structured CPAL activity, we are asking them to learn cooperatively. Effective co-operation¹³ occurs when students:

- Perceive they can achieve their personal goal while the peer group also achieves its goal (e.g. student A giving valuable feedback to student B may enhance student B's performance but also demonstrates student A's sound judgement skills).
- Work together but each individually contribute to the overall process to be successful in completing the task (e.g. each student completing a component of a patient assessment, then coming together to formulate a diagnosis/treatment plan).

Clinical teachers should ensure that for each activity, students are:

- Rewarded as a team and where assessment is required, marked individually.
- Helping each other to achieve learning goals.
- Expected to improve based on their own previous performance.

How to encourage active engagement in peer observation, feedback and coaching

Peer observation and feedback are key processes in CPAL.⁸ Students may require information, structure and modelling to assist them in effectively observing peers and engaging in peer feedback. Teacher-student feedback discussions can occur early in the placement with peers observing the process, on the condition that they are not sensitive in nature e.g. for issues relating to professionalism or unsafe practice, clinical teachers may elect to provide feedback on a 1:1 basis to provide a climate of trust to optimise the feedback.¹⁴ Observation of teachers facilitating feedback discussions can provide students with opportunities to:

- Reflect on their own performance as it relates to what has been observed
- Reflect on their own evaluative judgement skills compared to those of the clinical teacher
- Observe how an effective feedback discussion is structured
- Hear additional advice for improving performance which may be utilised in the future

In addition to learning through observation, it may be useful to provide students with frameworks and tools to help guide them in structuring their peer feedback sessions (see Box 3 for suggestions). Observation and feedback may also be guided by the key performance areas in a longitudinal clinical assessment (if they are used). To maximise the benefit, peer feedback discussions should include a coaching component, where peers formulate a plan for performance improvement together.¹⁵

Activity	Suggested framework/tool
Teaching a peer a clinical skill	Structured approaches for teaching psychomotor skills
Providing feedback to a peer based on an observed performance	Feedback frameworks e.g. The Pendleton model ¹⁶
Assessing a peer	Key performance areas in a longitudinal clinical assessment (if they are used)
Presenting a case to a peer	Case presentation templates e.g. The SNAPPS model ¹⁷
Sharing patient information with peer	Structured handover of clinical information tools
Reflecting on performance	Reflective practice cycles/frameworks

Box 3: suggested frameworks for students to guide CPAL

Motivate:

Motivating students to positively engage in CPAL can occur at the time of orientation, during assessment procedures and when students are given the opportunity to contribute to improvement processes.

Orientation

Explicit orientation to CPAL in addition to the usual health service orientation is a crucial component to motivate the students towards participation (see Box 4). Students and clinical teachers should set clear expectations of how the placement will work and how students will be expected to engage in CPAL. Students should be provided with information on the benefits of CPAL for them both as learners and future health professionals.

Students' previous experience with CPAL and how this can be translated to the clinical setting

Benefits of CPAL for students (based on the CPAL research in health professions education)

How CPAL tasks will be structured

How often CPAL tasks will be timetabled

Who will initiate activities being added to the timetable

How the timetable may change throughout the placement

How CPAL will contribute to the assessment of students on placement

Discussion of feedback with peers observing

Professional behaviour within the peer relationship – confidentiality, respect, honesty

Box 4: Orientation to CPAL purpose and process

Understand the assessment criteria

Clinical teachers should consider how CPAL interactions between students will be monitored and evaluated, as the clinical assessment can be an important motivation for students. Unless CPAL activities have been mandated by the education provider, it is likely that CPAL will be formative in nature. However, CPAL interactions can contribute to parts of the summative clinical assessment, under items such as teamwork and professional behaviour (if used).

Manage risk

Clinical teachers are often concerned about student incompatibility and competition but this is rarely observed in practice.⁶ Teachers can play a key role in creating an environment where collaboration is encouraged and competition is minimised, by setting up tasks as outlined in this guide. However, there may still be occasions where sub-optimal peer relationships occur and these need to be managed sensitively.

Continuously evaluate and modify PAL techniques being employed

As with any learning strategy, it is important to continuously monitor the effectiveness of CPAL throughout the placement and make modifications to the programme to cater for learners' individual characteristics, skills and preferences. Teachers may use observations of performance, student reports, feedback from other staff members, teacher and student reflections, reviews of written feedback, and other evaluation data sources to assess the effectiveness of various CPAL activities and processes.

On completion of the placement, students and teachers should be encouraged to reflect on their experiences with CPAL and consider changes they will make for the future. Students are more likely to be motivated to contribute if they know their comments and experiences are noted and acted upon.

Conclusion

Descriptive and experimental studies suggest that CPAL can be a potent learning strategy in health professional education. To implement CPAL successfully in the clinical environment, teachers are encouraged to undertake additional planning and employ specific implementation strategies. Teachers can generate sufficient capability for CPAL by assessing and building on students' and their own educational skills, particularly relating to identifying goals for performance, and observation, feedback and teaching skills. Teachers can create opportunity for CPAL to occur by timetabling specific activities, enabling student autonomy and structuring the environment and activities to maximise cooperation. Students may be motivated to engage in CPAL by providing them with information on the benefits for them as learners and future health professionals, and how CPAL can contribute to positive performance assessment. Introducing CPAL does not require teachers to step away from their teaching responsibilities in the workplace, but rather asks them to work differently. The goal of CPAL implementation is for students to reap benefits within placements, but also adopt collaborative skills and evaluative habits that hold them in good stead for their future health professional roles.

References

1. Pluta WJ, Richards BF, Mutnick A. PBL and Beyond: Trends in Collaborative Learning. *Teaching and Learning in Medicine*. 2013; 25 (S1) DOI: 10.1080/10401334.2013.842917
2. Topping KJ. The effectiveness of peer tutoring in further and higher education: a typology and review of the literature. *Higher Education*. 1996; 32(3): 321–45.
3. Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*. 2011; 6 (42) DOI: 10.1186/1748-5908-6-42.
4. Sevenhuysen S, Nickson W, Farlie MK, Raitman L, Keating JL, Molloy E, Skinner E, Maloney S, Haines TP. The development of a peer assisted learning model for the clinical education of physiotherapy students. *Journal of Peer Learning* 2013; 6(1):30-45.
5. Sevenhuysen S, Skinner EH, Farlie MK, Raitman L, Nickson W, Keating JL, Maloney S, Molloy E, Haines TP. Educators and students prefer traditional clinical education to a

- peer-assisted learning model, despite similar student performance outcomes: a randomised trial. *J Physiother*. 2014; 60(4): 209-216.
6. Sevenhuysen S, Farlie MK, Keating JL, Haines TP, Molloy EK. Physiotherapy students and Clinical Educators perceive several ways in which incorporating peer-assisted learning could improve clinical placements: a qualitative study. *J Physiother*. 2015; 61(2): 87-92.
 7. Tai J, Canny B, Haines T, Molloy EK. Building evaluative judgement through peer-assisted learning: opportunities in clinical medical education. *Adv in Health Sci Educ*. 2015; 20(5): 1-18. DOI 10.1007/s10459-015-9659-0
 8. Tai J, Haines TP, Canny B, Molloy EK. A study of medical students' peer learning on clinical placements: What they have taught themselves to do? *Journal of Peer Learning*. 2014; 7: 57-80.
 9. Tai J, Molloy E, Haines T, Canny B. Same-level peer-assisted learning in medical clinical placements: A narrative systematic review. *Med Educ*. 2016; 50(4): 469-484.
 10. Bennett D, O'Flynn S, Kelly M. Peer assisted learning in the clinical setting: an activity systems analysis. *Adv in Health Sci Educ* 2014; 20: 595-610.
 11. Topping KJ. Trends in peer assisted learning. *Educational Psychology* 2005; 25(6): 631–645.
 12. Billett S. Readiness and learning in health care education. *Clin Teach*. 2015; 12(1): 1-6.
 13. Johnson DW, Johnson RT. An overview of cooperative learning. In: Thousand J, Villa A, Nevin A, editors. *Creativity and Collaborative Learning*. Baltimore: Brookes Press; 1994.
 14. Carless, D. Trust and its role in facilitating dialogic feedback. In: Boud D, Molloy E, editors. *Feedback in higher and professional education* London: Routledge; 2012. p. 90-103.
 15. Ladyshevsky RK. Peer-assisted learning in clinical education: A review of terms and learning principles. *Journal of Physical Therapy Education*. 2000; 14(2): 15-22
 16. Pendleton D, Schofield T, Tate P, Havelock P. *The Consultation: An Approach to Teaching and Learning*. Oxford: Oxford Medical Publications 1984.
 17. Wolpaw TM, Wolpaw DR, Papp KK. SNAPPS: A Learner-centered model for outpatient education. *Acad Med* 2003; 78(9): 893-898.

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