

# Five concepts for collaborative clinical teaching

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*Editor's note: This toolbox article has an unusual structure as it is devised as a conversation between a student and a teacher. Each interaction is reviewed from the perspective of learning being a collaborative experience, with the authors drawing on adult learning theory to offer insights into the nature of clinical education. We may know something about learning theories but may have difficulties applying the theory to practice. This article offers practical ways to do this in an engaging way. The toolbox holds and discusses five learning concepts: the creation of a safe learning environment; timely feedback to promote deliberate practice; self-directed learning; the enhancement of retention of learning; and the monitoring and modelling of wellness. These five concepts are summarised nicely in Figure 1.*

## INTRODUCTION

You have a student rotating with you today. How can you ensure productivity while creating a positive learning experience for your learner? Adult learning theories and models can provide a deeper understanding of effective teaching methods, the interplay between the learning climate and successful teaching, and

how learning works. There are many learning theories to choose from, each with insights and shortcomings. Using our combined expertise as a seasoned clinical educator, Masters of Medical Education student and current medical student, we describe five high-yield learning concepts highlighting the collaborative nature of learning that have immediate applicability to clinical teaching.

Additionally, we discuss the best methods for incorporating such theories into practice (summarised in Figure 1). We set the stage for each principle with an imaginary conversation between a student and a clinical faculty member. Sharing both learner and teacher perspectives helps educators to better understand ways that faculty members can create a safe learning environment, promote deliberate

**How can you ensure productivity while creating a positive learning experience for your learner?**

The types of questions and how they are asked set the stage for the learning climate

practice, encourage self-directed learning, enhance learning retention, and monitor and model wellness for health professional students and junior colleagues.

**CREATE A SAFE PLACE BEFORE ASKING ESOTERIC QUESTIONS**

**Student:** Hi! I'm excited to work with you but I'm nervous about specific 'what am I thinking' types of questions. How will you create a safe place for me to make mistakes and ask questions?

**Teacher:** We are excited to have you! It takes bravery to share your concerns with me. I use questioning routinely to assess your current knowledge level and teach specifically to what you don't know. But I understand your concerns about the learning climate.

**Summary**

Posing questions about cases has long been used as a teaching method in medicine and the health professions, and such questioning is a useful assessment and teaching technique;<sup>1,2</sup> however, the types of questions

and how they are asked set the stage for the learning climate. Vulnerability is a key ingredient in learning: it allows the learner to take risks and to connect new learning with prior experiences.<sup>3</sup> Raised stress levels may increase the level of learning in students up to a point. But after this point, further stress interferes with learning.<sup>4</sup> Intense esoteric questioning may increase cortisol levels and thereby hinder the ability of the brain to recall and retain new learning.<sup>4</sup> Getting a question wrong can be a powerful learning opportunity to solidify knowledge through reflection on the incorrect thought process and to stimulate the reorganisation of knowledge networks, so long as the learner does not feel penalised for a wrong answer.<sup>5</sup>

**Practical application**

Create a safe learning environment by using the learner's name frequently and getting to know the learner personally. Encourage learners to ask you questions.<sup>6</sup> In evaluating a student's current knowledge level, using open-ended 'why' or 'what if' questions allows the assessment of clinical reasoning and problem-solving skills,<sup>1,6</sup> or draws the learner's attention to the important details of a case.<sup>1</sup> In group settings, waiting a full 5 seconds after posing a question ensures that each learner – not just the one with an immediate answer – is actively recalling their prior knowledge of a topic and, thus, is more likely to retain the teaching point.<sup>4</sup>

**BE DESCRIPTIVE WITH FEEDBACK**

**Student:** I feel vulnerable when getting feedback, especially when receiving corrective feedback in front of my peers. Additionally, broad generalisations such as 'you're doing fine' do not

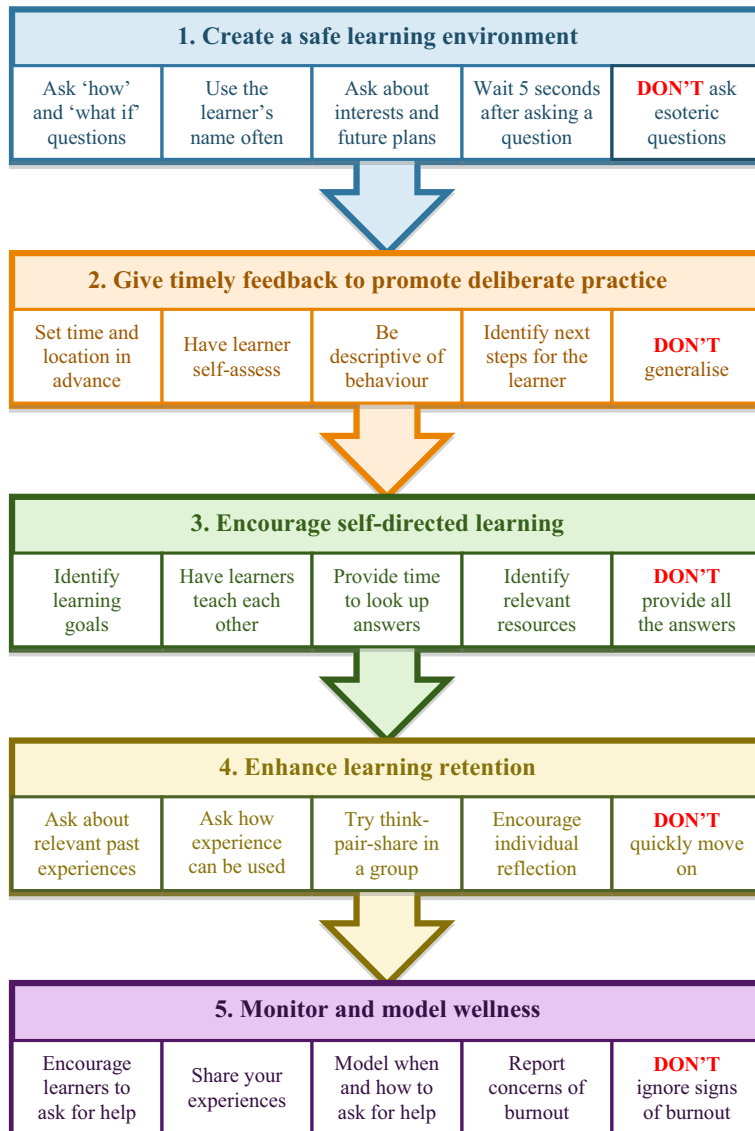


Figure 1. Practical application of five important learning theories for clinical educators

provide enough detail and leave me feeling confused.<sup>7</sup>

**Teacher:** Despite reinforcing positive behaviours, students sometimes walk away focused on the negatives, which can be mistakenly internalised as poor performance. No-one is perfect, so let's talk about how you can use corrective feedback to your advantage. This deliberate practice with frequent feedback is important for skill building.<sup>8</sup> Be sure to genuinely listen and professionally respond to feedback.

#### Summary

Feedback is not a statement of the student's value as a professional; rather its purpose is to communicate 'the difference between the intended and actual results'.<sup>9</sup> Nonetheless, feedback can be an anxiety-provoking moment for learners, although representing an important opportunity for growth.<sup>3</sup> When feedback is delivered poorly, the amygdala is subconsciously activated and focuses on negative information that could represent a threat. The consequence is a delayed honest reflection and blunted growth.<sup>4</sup> Tactfully delivered feedback is not the final step, however: the learner must be able to apply the teacher's suggestions and show progress towards a goal.<sup>10</sup> Quick check-ins during future interactions with the learner will help to reiterate the learning point and provide positive reinforcement. It is this cyclical process of deliberate practice, including goal attempts, feedback, goal revision and additional practice, in quick succession, that generates personal and professional growth.<sup>8</sup>

#### Practical application

To create a safe climate for feedback, select a private area

at a time and location set with the learner in advance. Feedback – whether reinforcing or corrective – should be timely and given shortly after the behaviour is witnessed so that the student can reflect and adjust the behaviour (if needed).<sup>9</sup> Begin by asking the learner to self-assess as the learner may already know areas in which he or she is deficient. This can open the door for you to discuss specifics using non-judgemental language that focuses on the behaviour observed. All feedback meetings should conclude with a jointly determined goal, strategy for achieving it and plan to circle back on progress as future applicable scenarios arise.

### EMPOWER STUDENTS TO MANAGE THEIR LEARNING

**Student:** I want to be responsible for my own learning, but it is sometimes overwhelming. I'm not always sure where to start. How do I decide which resources to use or which clinical questions to look up?

**Teacher:** Directing your own learning is one way to have transformative learning experiences and an important skill for your future career in the health professions.<sup>11</sup> Discovering how you learn and retain information best is extremely important in the ever-changing and advancing practice of medicine. This could be through video, reading, lecture, drawing, etc. You can optimise your learning by setting individualised goals for each rotation, sharing them with your clinical teacher and using your preferred

learning modalities to research topics.

#### Summary

Self-directed learning is a key skill to increasing learner autonomy.<sup>11</sup> In Grow's staged self-directed learning model, learners initially rely on textbooks and professors for the learning agenda.<sup>11</sup> As students mature, they begin to manage their own learning, including the exploration of topics that interest them (Table 1); however, they may not know the most efficient methods for research. Additionally, a variety of factors impact student engagement in self-directed learning: familiarity with the subject matter confidence in learning the material, and the perceived utility of learning the material at that moment.<sup>11</sup>

#### Practical application

Self-directed learning is a teachable skill. You can help your learners to grow by asking about their goals at the beginning of a new rotation. Be ready to help modify the goals so that they fit within the clinical experience and are specific enough to be achievable.<sup>12</sup> Help students to identify learning questions and give them protected time during the rotation to look up the answers. Provide guidance in selecting an appropriate point-of-care resource. Discuss the evidence and whether it applies to the current patient scenario. When there are multiple learners working with you, ask them to research and see patients together, as this provides the opportunity for near-peer teaching.<sup>12</sup>

### ENHANCE RETENTION OF LEARNING

**Student:** With so much to learn during my clinical rotations, it can feel like drinking from a fire hose. How can I be sure that everything

**Help your learners to grow by asking about their goals at the beginning of a new rotation**

Start by getting your learner to recall prior knowledge

**Table 1. A summary of Grow's staged self-directed learning<sup>11</sup>**

Grow's stage	Definition	Teaching strategies
Stage 1: dependent learner	Learning agenda set by authority figure, such as professor or textbook author	Lecture Directed observation/shadowing Written assignments
Stage 2: interested learner	Motivated learners, but with limited prior knowledge of the topic	Lectures with discussion Simulations or role-play Case-based examples/problems Reflection activities
Stage 3: involved learner	Engaged learners with both background knowledge of the topic and skills to direct learning, although still use the teacher as a guide/mentor	Facilitated group discussion Case-based examples/problems Reflection activities Team-based projects
Stage 4: self-directed learner	Independent learners able to identify knowledge gaps, create and implement a plan to close gaps, and self-assess the results	Peer teaching and presentations Independent projects

I am learning right now will be retained for when I need it in the future?

**Teacher:** I don't think there is ever a time when you know it all; we will always be reading and looking things up. How you store new learning in the long-term memory of your brain is a learned skill. The more organised connections you have surrounding a piece of knowledge, the better you will retain and recall it in the future.<sup>4</sup>

**Summary**

For new learning to be consolidated and preserved in long-term memory, it must make sense and have personal meaning. Sense and meaning can be achieved when new concepts relate back to prior learning and experiences, or when the application to future tasks is made evident.<sup>4</sup> Reflection is a key

part of transferring new learning to long-term memory.<sup>1,4</sup> Our memories store and network similar details together, but the retrieval process depends on honing in on the differences. Thus, when teaching about topics with overlapping similarities, it is important to emphasise the differences.<sup>4</sup>

**Practical application**

Start by getting your learner to recall prior knowledge. This can be as simple as asking what the learner knows about the topic or whether the learner has ever had a similar patient scenario. If the group is large enough, you can ask students to brainstorm in pairs. Incorporate clear and relevant examples or use case-based scenarios in your teaching.<sup>4</sup> Lastly, students should be encouraged to reflect, especially with brainstorming, on how they can apply their learning in the future or how it relates to prior experiences. This can be achieved through group discussion or individually, such as by journaling.<sup>1,4</sup>

**MODEL METHODS FOR HANDLING THE WORK**

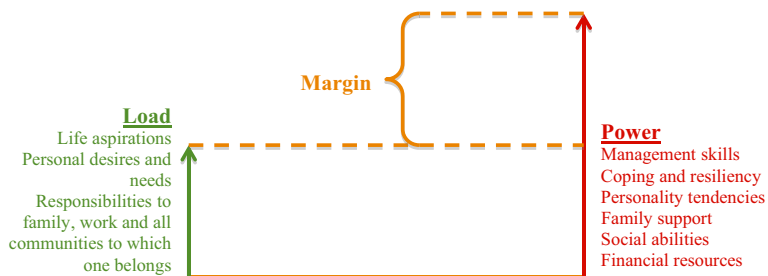
**Student:** I have already noted the culture implies that doctors should not show weakness,<sup>13</sup> and that other health professionals should not deviate from the hierarchy of medicine. With so many competing demands – patient care, home commitments, studying and self-care – it's easy to feel drained and overwhelmed. I'm worried that I may not have the resources to handle it all. I haven't heard faculty members talk about their experiences much. Do you ever feel stressed or burned out?

**Teacher:** Yes, I have experienced periods of doubt, grief and burnout. Training asks a lot of you, and asks more of you each step along the way. As your role in the health care system evolves there are different – and, yes, more – responsibilities. But while your expectations at home and at work increase, so should your skill set to deal with them. Most importantly, it is never a sign of weakness to ask for help. On this rotation you can always come to me without fear of retribution. We can work together to find the resources and solutions that are right for you.

**Summary**

McClusky's theory of margin, as cited by Merriam et al., suggests that there is a simple mathematical equation for striking a balance between the load





**Figure 2.** McClusky's theory of margin illustrates that resources (power) must outweigh stressors (load) to optimise the margin for learning<sup>11</sup>

– all those expectations that the student expressed – and power, namely all the available resources from social support to life management skills.<sup>11</sup> Ideally, each of us has a little more power than load, creating a margin to handle surprise stressors and enable opportunities for learning (Figure 2).<sup>11</sup> Burnout has become an epidemic within the medical profession, spanning all specialties and afflicting one-third to one-half of physicians.<sup>13</sup> Other health professionals are not safe from burnout, as evidenced by the substantial research in the fields of nursing and mental health.<sup>14,15</sup> Clinical educators must thus be vigilant for the hallmarks of burnout among learners: emotional exhaustion; depersonalisation of patients (often presenting as cynicism), and a low sense of personal accomplishment.<sup>13</sup> Moreover, teaching about well-being and resilience must be incorporated into the clinical learning environment.

### Practical application

Intentional modelling is the most powerful teaching method of the load–power dynamic. To intentionally model is to purposefully call attention to your actions and responses.<sup>16</sup> Clinical teachers should be more transparent when they are stretched too thin, displaying how to respond and which skills to rely upon: organisational skills; healthy coping mechanisms, learning how and when to say no, or asking a colleague

for help. Most importantly, clinical educators must create a safe environment so that when a learner is stressed, emotionally low on energy or burned out, the learner can ask for help without risk of punishment, blame or judgement.

### CONCLUSION

Adult learning theories can help clinical teachers to identify strategies to promote learning in the clinical environment. Creating a welcoming and safe learning climate is an important first step. Feedback is an essential part of deliberate practice. Coaching on self-directed learning skills helps to create lifelong learners. Applying new concepts to prior experience and future clinical scenarios enhances the transfer of learning to long-term memory. To maximise the opportunity for learning, resources must equal or outweigh the stressors. These five concepts can be applied in the clinical learning environment through the practical steps shared in this article and summarised in Figure 1.

### REFERENCES

1. Westberg J, Jason H. *Collaborative Clinical Education: the foundation of effective health care*. New York, NY: Springer Publishing Company; 1992.
2. Kost A, Chen FM. Socrates was not a pimp: changing the paradigm of questioning in medical education. *Acad Med* 2015;**90**(1):20–24.
3. Brown B. *Daring Greatly: how the courage to be vulnerable transforms the way we live, love, parent, and lead*. New York, NY: Gotham; 2012.

4. Sousa DA. *How the Brain Learns*. 4th edn. Thousand Oaks, CA: Corwin; 2011.
5. Tawfik AA, Rong H, Choi I. Failing to learn: towards a unified design approach for failure-based learning. *Educ Technol Res Dev* 2015;**63**(6):975–994.
6. Newman L, Tibbles C, Atkins K, Burgin S, Fisher L, Kent T, Smith C, Aluko A, Ricciotti H. Resident-as-Teacher DVD Series. *MedEdPORTAL Publications* 2015;**11**:10152.
7. Gillespie SM, Thornburg LL, Caprio TV, Medina-Walpole A. Love letters: an anthology of constructive relationship advice shared between junior mentees and their mentors. *J Grad Med Educ* 2012;**4**(3):287–289.
8. Ambrose SA, Bridges MW, DiPietro M, Lovett MC, Norman MK. *How Learning Works: Seven research-based principles for smart teaching*. San Francisco, CA: John Wiley & Sons; 2010.
9. Chowdhury RR, Kalu G. Learning to give feedback in medical education. *The Obstetrician & Gynaecologist* 2004;**6**(4):243–247.
10. Boud D. Feedback: ensuring that it leads to enhanced learning. *Clin Teach* 2015;**12**(1):3–7.
11. Merriam SB, Caffarella RS, Baumgartner LM. *Learning in Adulthood: a comprehensive guide*. 3rd edn. San Francisco, CA: Jossey-Bass; 2007.
12. Beach RA. Strategies to maximise teaching in your next ambulatory clinic. *Clin Teach* 2017;**14**(2):85–89.
13. Drummond D. Physician burnout: its origin, symptoms, and five main causes. *Fam Pract Manag* 2015;**22**(5):42–47.
14. Queiros C, Carlotto MS, Kaiseler M, Dias S, Pereira AM. Predictors of burnout among nurses: an interactionist approach. *Psicothema* 2013;**25**(3):330–335.
15. Lim N, Kim EK, Kim H, Yang E, Lee SM. Individual and work-related factors influencing burnout of mental health professionals: a meta-analysis. *J Employ Couns* 2010;**47**(2):86–96.
16. Jones WS, Hanson JL, Longacre JL. An intentional modeling process to teach professional behavior: students' clinical observations of preceptors. *Teach Learn Med* 2004;**16**(3):264–269.

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**Funding:** Information reported in this publication was supported by the Health Resources and Services Administration (HRSA) under award number T0BHP28567. The content is solely the responsibility of the authors and does not necessarily represent the official views of HRSA.

**Conflict of interest:** None.

**Acknowledgements:** We wish to acknowledge Keesha Goodnow, who helped to keep the project on task and provided insight from someone outside of the medical field.

**Ethical approval:** Not required.

doi: 10.1111/tct.12802