

# Students' reflections on the relationships between safe learning environments, learning challenge and positive experiences of learning in a simulated GP clinic

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Received: 2 July 2014 / Accepted: 23 April 2015 / Published online: 8 May 2015  
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**Abstract** Learning environments are a significant determinant of student behaviour, achievement and satisfaction. In this article we use students' reflective essays to identify key features of the learning environment that contributed to positive and transformative learning experiences. We explore the relationships between these features, the students' sense of safety in the learning environment (LE), the resulting learning challenge with which they could cope and their positive reports of the experience itself. Our students worked in a unique simulation of General Practice, the Safe and Effective Clinical Outcomes clinic, where they consistently reported positive experiences of learning. We analysed 77 essays from 2011 and 2012 using an immersion/crystallisation framework. Half of the students referred to the safety of the learning environment spontaneously. Students described deep learning experiences in their simulated consultations. Students valued features of the LE which contributed to a psychologically safe environment. Together with the provision of constructive support and immediate, individualised feedback this feeling of safety assisted students to find their own way through clinical dilemmas. These factors combine to make students feel relaxed and able to take on challenges that otherwise would have been overwhelming. Errors became learning opportunities and students could practice purposefully. We draw on literature from medical education, educational psychology and sociology to interpret our findings. Our results demonstrate relationships between safe learning environments, learning challenge and powerful learning experiences, justifying close attention to the construction of learning environments to promote student learning, confidence and motivation.

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**Keywords** Clinical education · Learner safety · Learning challenge · Learning environment · Learning from error · Simulated patients

## Introduction

In this article we draw on students' reflections as data to identify key features of a learning environment that contributed to consistent reports of positive and transformative learning experiences. We explore the relationships between these features, the students' sense of safety in the learning environment (LE), the resulting learning challenge with which they could cope and their positive reports of the experience itself. The importance of the LE has long been recognised (Genn and Harden 1986). It "encompasses the physical, social, and psychological context in which students learn; all interactions with faculty, staff, and peers; and the formal, informal, and hidden curricula" (Shochet et al. 2013, p. 246). The learning climate is a significant determinant of student behaviour, achievement and satisfaction and warrants investigation (Genn 2001; Seabrook 2004a). A LE conducive to a sense of safety and support for learners is essential to maximise student learning in the face of challenges (Daloz 1986; Hutchinson 2003). Recent enthusiasm has seen the creation of a safe and supportive LE instantiated in university policies and guides (World Health Organization 2009; Working group on the Otago Teaching and Learning Action Plan 2011).

Research on learning in the work place emphasises the importance of participation and meaningful interactions (Seabrook 2004b; Kendall et al. 2005; Sheehan et al. 2005; Egan and Jaye 2009). However concern for the potential harm to both students and patients restricts student participation in clinical situations, limiting students learning about the reasoning and judgment involved in taking responsibility for decisions about patient care. In addition, a clinician's first priority is the quality and timeliness of patient care and secondarily education (Egan and Jaye 2009). The use of simulation mitigates these limitations (McGaghie et al. 2010). In a previous article we described *how* we constructed the Safe and Effective Clinical Outcomes (SECO) clinic and the features which were designed to produce a challenging but safe learning environment where meaningful participation in patient care can occur (Williamson et al. 2013).

Benbassat challenged medical education to provide LEs "where errors and uncertainties are acknowledged rather than denied, and trainees are trusted and supported, rather than judged and, occasionally, derided" (2013, p. 533). Clinical learning is maximised when opportunities for meaningful and authentic patient interactions are available and students feel engaged, recognised and respected (Pearson and Lucas 2011). Pearson and Lucas also noted that learning ensued when emotion, often feelings of being challenged, was stimulated. Dornan and colleagues discussed learning as 'supported participation', that is, suitably challenging practice for the learner in a setting that enables participation and fosters a sense of competence (Dornan et al. 2007). Daloz (1986) conceptualised a matrix with high or low challenge and high or low support. High challenge and high support results in growth whereas if challenge and support are low, then the student's learning will be static. Theories that students hold about themselves, whether intellectual ability develops (incremental theory) or is fixed (entity theory), impact on how they approach challenge (Yeager and Dweck 2012). Similarly personal beliefs affect their resiliency in the face of challenge (Yeager and Dweck 2012). Students take on bigger challenges when they feel emotionally safe (Daloz 1986; Haidet and Stein 2006; Dornan et al. 2007;

Benbassat 2013), particularly at an early stage in their clinical education. These factors were intrinsic in the design of the SECO clinic.

Bleakley (2006) critiqued the ideologically driven privileging of the individual in medical education learning theories, and argued the need for learning theory to also attend to the interpersonal aspects and socio-cultural contexts of learning; this study seeks to elucidate the socio-cultural context of the LE. In a broad overview of the educational environment, Hutchinson (2003) identified a safe environment as one that allows students to feel able to experiment, speak up about concerns they have, recognise knowledge gaps and test their limits. Other researchers have examined the social and psychological elements of the LE (Kendall et al. 2005; Boor et al. 2008; Benbassat 2013). It has also been the focus of literature reviews (Genn 2001; Roff 2005). However students' perspectives on what specifically creates a safe LE are under-researched. Dyrbye et al. (2009) used a validated instrument to assess burnout in a multi-centre study; the study suggested that a relationship exists between the LE and student burnout. Researchers have also developed instruments to measure the LE generally, in terms of the 'pedagogical atmosphere' (for example Roff et al. 1997; Saarikoski and Leino-Kilpi 2002; Watson et al. 2014). However measures of the LE appeared too restrictive to capture what students identified as important features of the SECO clinic that facilitated their learning. In this article we examine the nuances of students' perceptions of the environment created in the clinic.

The SECO clinic has been running for 10 years and is consistently positively evaluated by students. This study was prompted by the depth of students' reflections on their experiences in the SECO clinic. We became interested in the relationships between safe learning environments, learning challenge and positive experiences of learning that emerged from the unanticipated emphasis students placed on feeling safe in the face of challenges. Thus we set out to investigate two research questions. What were the attributes of the LE that allowed students to feel simultaneously safe and challenged? Was there any evidence that the safety of the LE led to transformative learning?

We begin with a short description of the clinic, the methodology employed and then report on data from students' reflective essays. We draw on several theoretical perspectives to interpret what we have found: challenge support matrix (Daloz 1986); mindset (Yeager and Dweck 2012); Foucauldian notion of disciplinary power (1979) and Goffman's presentation of self and impression management (1959).

## Method

This research takes a social constructionist approach to the analysis of the essays because we believe meaning, knowledge and learning are situated (Kolb 1984; Lincoln and Guba 1985; Lave and Wenger 1991). We analysed students' reflective essays (written as an ungraded programme requirement) on their GP attachment in their first year of clinical medicine. Students were not aware of our research at their time of writing. The instruction for the 1000 word essay was, "It is up to you to decide on the focus for this essay, but possibilities include what you have gained from the experience and why, or a reflection on cases in which you didn't meet the outcomes and why this might have happened, or your thoughts on which things were helpful in enabling you to achieve particular outcomes". A description of the context in which the learning is situated follows.

## Context: Safe and Effective Clinical Outcomes clinic

In their first clinical year (year four of six) of an undergraduate medical programme, students are split into three clinical schools. At one of the schools, the Dunedin School of Medicine (DSM), class groups (19–20 students in a group) rotate through five attachments:<sup>1</sup> Medicine, Surgery, Urban General Practice, Public Health and Psychological Medicine. As part of their 5 week General Practice attachment, all students participate in five 2 h sessions of the Safe and Effective Clinical Outcomes (SECO) clinic. These occur during weeks one, three and five of in-house teaching and clinical placements with a GP. SECO is a high fidelity simulation of GP using professional actors as simulated patients and was designed to prepare students for clinical practice (for full description see Williamson et al. 2013). ‘Patient’ cases are based on real life patients’ stories; patient-actors are briefed on their background, their personality, and their medical problems adding layers of complexity to the consultation.

The SECO clinic represents a simple but fundamental paradigm shift in how student or clinical performance is assessed. Students are instructed to achieve ‘patient’-specific outcomes in domains of safety and effectiveness.

*Safe* outcomes in our scenarios are those that result in no increased risk of harm in the short or long term to either the patient or the doctor. *Effective* outcomes (the best possible for the patient in that particular scenario) are designed to be evidence-based, patient centered, context sensitive, and resource efficient (Williamson et al. 2013, p. 156).

These outcomes are implicit in each of the 70 unique, detailed scenarios and are used to measure student performance in the clinic. The clinics are the students’ first chance to take responsibility for ‘patient’ care in its entirety, albeit simulated. They work in pairs taking turns as the lead doctor and conduct a full consultation including explanation and management. At this stage they have had limited or no clinical experience. Consequently, they may experience performance anxiety in the consultation. Students are allowed to use their own resources e.g. textbooks and portable electronic devices, and clinic computers provide access to evidence-based medicine websites. Consultations are unobserved but dedicated faculty (the ‘phone doctors’) are available to give advice based on the student’s representation of the ‘patient’s’ problem. Rather than being given time limits, students are instructed to conclude the consultation when they believe they have achieved all the ‘patient’ outcomes.

Students are explicitly told there is no penalty for errors since mistakes (and successes) are opportunities for powerful learning. After each clinic, the students receive two kinds of feedback—a list of desired ‘patient’ outcomes for each ‘patient’ and patient questionnaire answers. Outcomes are listed in the form of what should be in the patient’s clinical notes and as specific answers in the patient questionnaire. Students check whether clinical notes and patient reports contain evidence that they have achieved SECO. This form of self-assessment is highly specific and the outcomes provide students with clear criteria and act as a measure of their clinical performance.<sup>2</sup> This is complemented by the scenario-specific questionnaires filled out by patient-actors who provide constructive feedback on how they found the student/consultation from the perspective of the character played (see

<sup>1</sup> Attachment denotes a group of students on a clinical run or rotation. Attachments vary in length.

<sup>2</sup> More information and example feedback form available from <http://www.otago.ac.nz/dsm-gprh/undergraduate/seco-clinic/index.html>.

Williamson et al. 2013). After each clinic, reflection on performance is encouraged by the faculty (usually the phone doctor/s) in a facilitated 90 min debrief session.

## Sample

All students in the DSM participate in the SECO clinic in their 4th year. We analysed the first and last groups' essays from 2011 and 2012. These groups were the least and most clinically experienced and were chosen to capture the range of learning experiences; we did not set out to compare groups. Our sample comprised 77 individuals equating to 50 % of all 4th year students in 2011 and 2012 at the DSM. Individuals were randomly assigned to groups by DSM at the start of each year. Our sample consisted of 41 females and 36 males, and a mix of ethnicities (45 % NZ European/Pākehā; 39 % Asian; 5 % Māori; 4 % Middle Eastern; 3 % European; 3 % Fijian) and ages (range 20–30, average age 22). Over 80 % of the sample were under-graduate entry, 14 % graduate and 5 % 'other' entry e.g. health-related/health professional experience, equity initiatives for under-represented groups (Māori or Indigenous Pacific Island graduates).

The study was approved as low risk by University of Otago Ethics Committee (D12/121). Participation was voluntary and students could withdraw at any time without any disadvantage. Written informed consent was gained by TE and JY *after* the essays were submitted and they had completed the attachment. All but three (who could not be contacted) agreed to participate. Essays were de-identified and coded denoting attachment, year and gender. Quotations are drawn only from consenting students and are verbatim.

## Data analysis

We chose immersion/crystallisation as an interpretive framework because it encompasses hermeneutics and phenomenology which was useful for interpreting the students' experiences (Borkan 1999). Immersion/crystallisation is helpful "when the research aim is one of exploration and/or discovery, when scant knowledge exists" (Miller and Crabtree 1999, p. 24). The recursive process involves "prolonged immersion into and experience of the text and then emergence, after concerned reflection, with an intuitive crystallization of the text" (Miller and Crabtree 1999, p. 23). It differs from grounded theory in that the organising and connecting phases are collapsed (Miller and Crabtree 1999).

There is no set way of doing immersion/crystallisation thematic analysis (Borkan 1999) so we began with a careful reading of the texts and as the iterative analysis proceeded, new codes and themes were identified and incorporated into the analysis making for a more comprehensive and nuanced reading. Qualitative data analysis software Atlas.ti (version 7; Berlin 2012) was used to code the essays. The essays were read by at least two researchers. Codes were initially created inductively by JY, unfamiliar with SECO and medical education, and further developed with TE, a psychologist specialising in medical education. Codes were derived from students' personal insights and comments on design features of the SECO clinic. Analytical concordance on the coding structure was established after discussion in multiple team meetings and 57 codes were created to capture the range of students' reflections. Many essays reflected similar experiences offering some reassurance of the credibility and dependability of the findings presented below (Lincoln and Guba 1985).

## Results

Of the 77 students, 40 (52 %) specifically referred to the safety of the SECO LE spontaneously. We identified several themes within the students' references to the LE of SECO and these are described below (Box 1). An incidental finding was that groups who completed their GP attachment at the beginning of the year had fewer references to the safety of the LE than the last group. We infer that this was a contrast effect because the last group had more experience of clinical LEs.

### Taking on challenges

Students experienced the clinic as realistic and were easily able to become immersed in the doctor role, taking responsibility for patients. The clinic allowed students for the first time to conduct whole consultations containing significant challenges that had to be dealt with simultaneously. Challenges included: communicating, behaving professionally, appearing or acting confidently, reasoning, decision making and developing a management and treatment plan together with the patient. Students' fears and anxieties were mitigated because there was no risk to the patient and little risk to themselves. They welcomed taking responsibility, an experience generally unavailable at this early stage of their medical career.

I have felt as though I have had some responsibility, but yet not am totally on my own (last group 2011, female 1).

...the thought of having to do a whole doctor's consultation was extremely daunting. Especially since all we have practiced up to then was history taking. It was a gigantic leap forward. I felt like we were going to be thrown into the deep end of the pool, and I would surely drown (first group 2012, female 16).

The clinics strike a good balance between making you feel as though you are in over your head and providing reassurance that assistance is only a phone call away. A patient waiting on you, multiple, adverse reactions to be avoided and having to explain a drug you have only the most basic understanding of are all tough things (first group 2011, male 17).

#### Box 1 Summary of themes

*Taking on challenges* Challenge and responsibility of performing whole consultation mitigated by safe learning environment

*Feeling supported and safe* Reduced anxiety due to being unobserved and lack of time constraints. Students felt supported by readily available sources of help and no consequences for utilising support. LE allowed full attention on the task without distraction

*Learning from error* A LE where mistakes were viewed as learning opportunities allowing for purposeful practice and improvement

*Personal development* Positive LE fostered self-belief, self-confidence, self-awareness contributing to an emergent professional identity

*Comparison of LEs* Contrast of learning in a deliberately constructed LE with other learning contexts. Opportunity to perform whole consultation, experiment and practice purposefully, unobserved with no set time frame

Challenges such as taking responsibility evoked strong emotions; many students described performing a whole consultation as “daunting”, and employed dramatic metaphors “in the deep end” and “in over your head”, suggesting they could feel overwhelmed by the task. However this feeling was mitigated by the support the LE offered and multiple chances to practice purposefully and learn from error.

### **Feeling supported and safe**

The clinic milieu influenced the students' approach to learning.

the SECO clinics proved to be a constructive learning tool. I felt lucky to have participated... in what felt like a safe and comfortable environment (first group 2012, male 10).

The environment of the clinics was relaxed and conducive to learning (last group 2011, female 17).

Design features such as having easy access to resources (textbooks, online evidence-based medicine resources), being encouraged to seek assistance (phone doctor, working with a peer) and lack of time pressure were identified as reducing anxiety, contributing to students' perception of a LE that supported them as neophytes and safeguarded their self-esteem. One student summarised his experience as follows:

SECO clinics have been a thoroughly unique experience... provided the finest balance between creating real clinical scenarios and letting us as medical students go at our own pace... allowed to think clearly with breaks and extra help to make more well-thought judgements... and it was good to work in pairs so we could bounce ideas of each other... The phone doctor was also a very important tool to reinforce that it is ok, and often necessary, to ask for help and not be penalised (last group 2012, male 3).

Students identified that working unobserved in the clinic, created a low-stress, psychologically safe environment. We infer they felt free of the negative aspects which can result from interpersonal dynamics between students and teachers in the clinical setting.

I felt like the SECO clinics best suited my style of learning in the sense that it gave me a chance to have a “real go” at sitting with a patient and uncovering their story without the glaring eyes of an examiner or the pressure situation that can sometimes occur in a hospital (last group 2011, male 16).

However once I learned that we were in the rooms away from the judgement of tutors or examiners, I was slightly less on edge about the clinic. Another aspect making the process less daunting was learning that we were only really being marked by the actor and to a greater extent ourselves (first group 2012, male 17).

The intensity students feel when being observed (and judged) is implied in the language used, which carries notions of inhibition. However one student did comment that observation and feedback from a GP tutor could add more value.

I wish that there was more feedback from people other than the actors, as I feel this would have further enhanced my training to have some feedback from tutors (last group 2011, male 19).

Being unobserved detracts from the positive as well as the negative aspects of observation.

### **Learning from error**

Students learnt by not achieving appropriate outcomes i.e. error. This was powerful and had two effects. When there were few consequences of making errors, students felt they were able to experiment and test the boundaries of their practice. As in real life, students inevitably made mistakes working in the clinic. However the ethos created and the feedback available enabled them to recognise mistakes and see them as learning opportunities.

Being involved in these clinics, I felt that there was no such thing as failure; it was all learning (last group 2011, female 18).

To learn from your mistakes you have to first admit you've made them. I believe that the SECO clinics were a very non-judging environment where you could have mistakes brought to your attention in a constructive as opposed to a confrontational way... After looking at the outcomes I realised that she actually had Pyelonephritis and the course of antibiotics I put her on may not have been powerful enough or long enough to cure her. When I reflected on the consultation I realised there were a couple of things I would have done differently...I was frustrated with myself for not being more complete in my examination and for missing a "red flag" but I learnt from this case the importance of being thorough when doing examinations (first group 2011, male 13).

Students were able to recognise their limitations and the boundaries of safe practice through the process of learning from error.

Throwing us in the deep end was great for my confidence in the long run and I soon realised this was an amazing learning opportunity where we didn't have to get everything right... Learning from these mistakes instils the message far better than what I [sic] teacher could hope to achieve. On this occasion the overarching learning point for me was the importance of relating well to my patients (first group 2012, male 17).

SECO clinics... encouraged me to actually do my best to find out what is wrong with the patient but if I struggle or feel not sure about an aspect of a patient care I can rest assured that I have support when I need. SECO clinics made it somehow normalizes the fact that after all medical students and doctors are humans so we are not expected to know everything but we are expected to be able to practice safely and be able to appreciate the limits of our abilities and seek help when appropriate (last group 2011, male 10).

The students learnt to acknowledge and manage their uncertainty around the limits of scientific knowledge and mastery of that knowledge.

### **Personal development**

Students consistently reported they developed confidence, honed their skills and enjoyed being able to take on responsibilities as a doctor. The experiences of "acting like a real doctor" (first group 2012, female 5) brought about situations where students had to consider their professional identity.

The supportive environment really fostered my self-belief (last group 2011, male 16).

The environment allowed me to feel comfortable to attempt taking on the role of a doctor (a bit of acting too perhaps?)... Being able to extend myself just beyond the limits of my comfort and knowledge, with the occasional wipe out, has been a fabulous learning opportunity (last group 2011, male 11).

I felt that I learnt a lot with respect to maintaining an open and friendly relationship with the patient while not becoming too casual and still being professional. This became evident after getting the patient feedback (first group 2011, male 15).

The reflections suggest students were gaining some self-awareness, a sense of competence and an emergent professional identity. They spoke of being engaged in their education and motivated by their experiences in the SECO clinic. The metaphors students employed to describe their experiences, such as “stretch their wings” and “wipe out”, captured ideas of growth, testing limits and self-awareness. From the students' perspectives, the task at hand is a defining moment in their career so far and holds significant weighting for their sense of “self-belief” and self as doctor.

### **Comparison of LEs**

Some students compared the SECO LE with that of other structured clinical experiences. SECO removes two key sources of pressure that student identified: a sense of being judged and working within a time limit no matter what the problem is. The perception of lack of pressure was liberating; it allowed them to think and work through the patients' problems more fully. Other students commented they gained from working with a peer.

Often, when I sit OSCEs and high pressure environments such as examinations, I don't feel as though I do myself justice with patients... feeling annoyed that I missed something, purely because of nerves. [Reference to a different module that uses video assessment] I felt that I had to watch what I said and did, as every word and move would be dissected afterwards in our feedback session. These SECO clinics really restored my confidence in communicating with patients, and I felt like we were being given a real chance to prove our skills independently, rather than being watched or restricted by teachers and clinicians. This was further enforced by my performance in our OSCE last weekend; I felt significantly more confident and managed to act professionally and empathetically in each patient scenario (last group 2011, female 14).

Having scenarios that actually involved giving information to patients has made me wonder why we had not had any practice doing it previously, as it is such an integral part of medicine (last group 2011, male 9).

The chance to practice purposefully was valued. In contrast to most other LEs, during SECO full participation in care is available to students as they are in charge of and complete the whole consultation. As an aside, ten percent of the total sample of students specifically stated in their essays they would like SECO clinics implemented in other attachments.

## Discussion

The SECO clinic was designed specifically to produce a safe but challenging learning environment. The students' reflections suggest this was successful. Our findings are in keeping with previous research about the LE (Hutchinson 2003; Kendall et al. 2005; Pearson and Lucas 2011). What our research adds are key features of a safe LE which students identified that can be deliberately incorporated into a LE. A safe LE is one that provides opportunities to learn from error through constructive feedback without judgement, with sufficient time to tackle challenges and readily available support with no penalties for requesting it. The ways in which students chose to comment on the learning environment, the challenges they were able to tackle and the rich learning which resulted, implied a contrast with other experiences.

Phrases such as “thoroughly unique” and “amazing learning opportunity” and “fabulous learning environment” support the positive links between the LE, the level of challenge that can be faced and the powerful learning that can ensue. The data exemplified that challenge coupled with support produces the best learning (Daloz 1986). Ideally, the learner should be able to choose how they approach the challenge and how, when and what support they utilise, for example whether to call the phone doctor. This promotes self-direction to learning. Perceptions of the consequences of asking for help influence students' decisions to ask for it. Teachers' perspectives on the support proffered may differ from students' views (Eva et al. 2012; Telio et al. 2014). The SECO clinic fosters the development of a growth mindset approach to learning (Yeager and Dweck 2012). This helps students to see challenges as learning opportunities, and as things that are able to be overcome with time, effort, help and learning; it also promotes resilience in the face of challenges (Yeager and Dweck 2012).

This climate generated powerful learning experiences as students struggled with the multiple challenges of whole patient care. We constructed SECO as a way of introducing whole person care earlier in the medical curricula (Williamson et al. 2013). Students reported “feeling like a real doctor” as a result of performing whole consultations. In many essays students discussed strategies which they devised to address the challenges they came up against as they faced this complex task for the first time (for example first group 2011, male 13, [Learning from error](#)). Students were reflecting on action which is a pre-requisite skill for being a practitioner who can reflect in action (Schön 1983).

Simulation eliminated risk to the ‘patient’ and reduced students' anxiety about causing harm. Being unobserved freed students from the risk of belittlement or adverse judgment at the hands of faculty. The cognitive advantage of reducing fear is that it enabled the students to concentrate fully on caring for their ‘patients’. Students had the opportunity to rehearse and experiment unfettered. Contrast this with ward rounds where students are at times quizzed in front of peers, staff and patients to the point where it can be considered intimidation or abuse (Seabrook 2004b; Rees and Monrouxe 2011). Students often experience embarrassment, blame and humiliation, affecting their well-being and learning (Seabrook 2004b; Rees and Monrouxe 2011). New Zealand research indicates the experience of humiliation is still an issue, particularly during the clinical years (Wilkinson et al. 2006). Such experiences are counterproductive (Seabrook 2004b; Benbassat 2013).

To delve deeper into why students frequently commented on being unobserved, we employ Foucauldian notions of surveillance (1979). Foucault considered the success of disciplinary power was derived from simple instruments such as “hierarchical observation, normalizing judgement and their combination in a procedure that is specific to it, the

examination" (1979, p. 170). Through assessment the student becomes a 'case' whose individuality is observed and documented then classified and ranked (Dreyfus and Rabinow 1983). Surveillance/observation limits the expression of students' subjectivities and what they can do, say or be. By removing faculty observation, the power relationship embedded in surveillance between faculty and students changed allowing students to experiment. Disciplinary power acts through the subject of surveillance becoming their own principle of subjection, that is to say, self-disciplining and some argue, docile (McHoul and Grace 1998). We put forward that self-assessment is a technology of self-discipline. Technologies of the self are a set of techniques and practices that allow individuals to produce and shape their own conduct and thoughts enabling an individual's capacity for self-regulation and the achievement of perfection and happiness (Foucault 1988). Despite Foucault attributing some degree of agency to the subject, this self-regulation is a form of control through which disciplinary power operates. Therefore the removal of observation may not fully liberate the student from surveillance. Removing surveillance may also change the dynamic between students as they work in pairs because students are encouraged to collaborate not compete. We recommend creating more opportunities for students to participate in caring for patients together as co-learning was identified as beneficial experiential learning not commonly put into practice.

Goffman's concept of impression management (1959), where individuals actively manage their communication and gestures to enact a desired representation of self can also be considered a technology of the self. Medical students must actively manage an impression of competence to successfully portray themselves as a good doctor to their teachers, patients, other students and to convince themselves (Haas and Shaffir 1977). The drive to impress teachers may be heightened because they are also potential employers (Seabrook 2004a). In order to do so, students disguise their uncertainty and maintain a front of credibility, a "cloak of competence" (Haas and Shaffir 1977, p. 71). The SECO clinics allow students to drop the disguise and act authentically in pursuit of developing competence in achieving appropriate outcomes for the patient.

At the debrief students received the list of outcomes defined for each patient and the written feedback from actors (who are trained to give constructive feedback).<sup>3</sup> Outcomes and 'patient' feedback are specific to each student and provided in written form so that students can reflect on them later. The face-to-face debrief focused on outcomes, problems encountered in achieving outcomes and ways to work through them as distinct from faculty views of their performance. The relationships between supervisor and student and the context in which feedback is given are acknowledged as important (Telio et al. 2014); however a "substantial gap in the medical education literature remains with respect to understanding the effect of context, in particular the supervisory relationship, on feedback incorporation" (Telio et al. 2014, p. 5). Our students stated a preference for being unobserved in the particular circumstance of being novices undertaking a complex task and they valued the emphasis on learning. More generally, the question becomes: how do we ensure observation contributes to learning? Future research should examine the nature of the teacher-observer relationship, both positive and negative attributes, since observation may be inhibiting learning at times. Given the constraints of the clinical workplace, research into the contexts, volume and timing of observation and feedback is needed. Simulations are a useful step towards work-based learning and clinical practice because it is easier to control the LE for variables such as feedback and support (Dorman et al. 2007; Pearson and Lucas 2011).

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<sup>3</sup> See footnote 2.

It is possible that underlying fear of failure is students' belief that they may not be capable of becoming a doctor (Liu et al. 2014). Values embedded in the culture of medicine, transmitted through the hidden curriculum, profoundly influence medical students' behaviour (Benbassat 2013). Notions such as "doctors must be perfect" and "avoidance of uncertainty" (Haidet and Stein 2006, S17) can result in students concentrating on 'getting it right'. That is, learning to perform to what they think a particular observer expects (Goffman 1959; Haas and Shaffir 1977) or giving answers that the teacher wants to hear, rather than learning for understanding and becoming a safe and effective practitioner. Focusing on getting it right may lead to students pretending, or outright lying, to cover up their mistakes (Benbassat 2013) for fear of appearing inadequate. The focus should be "how to help students manage their doubt constructively, enhancing their growth in the face of inevitable uncertainty, rather than letting it overwhelm and discourage them" (Liu et al. 2014, p. 6; see also Yeager and Dweck 2012). SECO subverts the 'getting it right' imperative implicit in the hidden curriculum (Haidet and Stein 2006) by emphasising safe and effective 'patient' outcomes for that particular patient with that particular disease in their particular context (Williamson et al. 2013) rather than someone's judgement of how the consultation was conducted.

Making mistakes provides some of the most powerful learning (Eva 2009) and many quotes illustrate this. The mind set of accepting mistakes as part of the learning process can be a significant shift for those students who have come through a very competitive medical school as is the case at Otago University. Students in SECO clinics acknowledged mistakes and were honest about their limitations because they didn't have to get everything right (Miller et al. 1961) and felt encouraged to seek help. Moreover, they rehearsed seeking help. It is an assumption that junior doctors will ask for help when they recognise they need to, even when explicitly told "don't hesitate to call" (Stewart 2007, p. 6). Perceived adverse consequences were a major driver of reluctance to ask for help (Stewart 2007). Our data suggest the students valued being supported to practice safely and seek help when they have reached the limits of their knowledge. Explicitly reframing failure as a learning opportunity may be a fruitful area to direct efforts in changing students' beliefs about asking for help because this is a significant dilemma in practice for newly graduated doctors. The clinician on the receiving end of a request for help should react positively, recognising the centrality of the patient's welfare. Acknowledging uncertainty leads to openness and honesty with learners about what can and cannot be achieved. Unfortunately constructive, individualised and respectful feedback is not always provided to medical students (Urquhart et al. 2014).

The potential value of such a LE has long been recognised. Socio-cultural learning theories posit that "environment, activity and learning outcomes are mutually constitutive" (Yardley et al. 2012, e108). Our findings illustrate the emphasis students place on support and adapting the LE to better support students will likely have an impact on student distress and burnout (Dyrbye et al. 2009). Williams and Deci (1998) suggested autonomy-supportive LEs produced medical students who were more motivated to learn, had increased self-efficacy, greater conceptual understanding and were better psychologically adjusted; such climates also facilitated more humanistic behaviour towards patients. Our students' reflections affirm these findings. The psychological authenticity (McGaghie et al. 2010) of SECO also expedites emergent professional identities. Practicing independently of tutors afforded students freedom to experiment and develop their own style (without concern for the impression they made, cf. Goffman 1959), an important stage of the learning cycle (Kolb 1984).

## Strengths and limitations

A strength of this study comes from the open ended question that invited the students' reflections, allowing them to discuss whatever they deemed most germane. The different cohorts examined afforded a comparison of a large number of students' experiences across 2 years to check for variability between individuals and their interpretations of their experiences to increase trustworthiness (Lincoln and Guba 1985). The inductive methodology allowed for unexpected data to be captured.

A further strength of the study is the specific event (consultations in the clinic, specified outcomes) on which reflection occurred and the timeliness of the detailed feedback. It has been shown that this leads to more accurate reflections and self-monitoring (Eva and Regehr 2011). It is our belief that the reflective essays accurately report what the students have learned.

Limitations include the potential of students writing reflections to please their tutors, although the sample was blind to the research at the time of writing and the work was not graded. This study was conducted within a very specific context. However we have identified some transferrable attributes of the LE. The results are consistent with studies of the learning environment of other medical education settings and therefore add to the growing body of work in this area.

## Conclusion

Our research identified features of the LE which students reflected as important facilitators to learning. These include students' perception of the LE as safe for their sense of self, which in this case was being unobserved and having freedom to progress through the problem at their own pace. The opportunity to learn from mistakes, acknowledge uncertainty, practice purposefully and reflect on their experiences was the key to transformative learning experiences. The provision of constructive support and timely, individualised feedback combined with patient outcomes assisted the students to find their own way through their clinical dilemmas. Our results demonstrate a relationship between safe learning environments, learning challenge and positive experiences of learning. Fulfilling learning experiences have the potential to motivate and sustain students through a lengthy course and better prepare them for a lifetime of learning. There is evidence that students believed deep learning occurred, advanced by the careful construction of the LE.

These findings point to four generalisable features of a LE which contribute to students being able to take on significant challenges that lead to a sense of powerful learning. These are freedom from negative judgments; mistakes treated as learning opportunities; the freedom to totally attend to the task in hand (assisted by no additional pressures such as time limits, or inability to access assistance); immediate feedback providing the means to improve practice.

These features have been operationalised in a particular fashion through the SECO clinic producing an environment for learning that encourages students to focus on achieving safe and effective patient outcomes—the fundamental purpose of practicing medicine—and less on the process of how they got there. We contend that the same features can be applied to other learning settings.

Any LE is going to be specific to its faculty, students and medical school. We recognise it will be difficult to exercise control over the many variables in a busy clinical LE such as

the workplace. We have identified a number of factors that address the issues students face in many clinical contexts. It is important to address the influence of interpersonal dynamics between teachers and students in clinical learning. Devoting attention to managing these will help optimise student learning. All LEs should be considered in light of these findings.

**Acknowledgements** We are grateful for a University of Otago, Committee for the Advancement of Learning and Teaching Grant in 2012. We wish to thank the students for their insights and permitting us to use their essays, SECO teachers Jim Ross, Kristin Kenrick, Peter Radue, Tom Swire and administrator Frances Dawson for their work in running the SECO clinic. Thank you to Associate Professor Chrystal Jaye and Jim Ross for their advice in the early stages of the project. We are grateful to the reviewers for their comments on an earlier version of this paper.

**Conflict of interest** None.

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