Learning support creates a safe space for mistakes

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The learning environment in medical school can affect student well-being. Curricula demands and the competitive culture of medical school may have a negative impact on student well-being. By creating an inclusive and collaborative learning environment, medical schools can support student well-being as well as learning and development.

A focus on outcomes (examination results) means that students lose out on the process (including learning from mistakes) that encourages life-long learning. Research on experiences of examination failure highlights that medical school culture prevents discussion of failure.[1] However, by providing safe spaces to fail, medical education might encourage growth. As a lecturer in medical education with a research interest in student well-being, I drew on research I had been conducting as part of an interdisciplinary team on student failure[2] to redesign an aspect of the year 1 curriculum at [redacted] Medical School. Curriculum redesign aimed to empower students to engage with collaborative learning rather than just focusing on attainment by introducing a learning support intervention with a proactive-developmental approach.

We know that making a mistake in a complex clinical environment may lead to patient harm but making one in medical school may lead to examination failure. In my experience, assessment design does not always reflect clinical complexity or support learning from mistakes. Using multiple choice questions to assess students broadly instruct them that there is a one answer rather than a complex clinical reality. This disconnect between assessment style and clinical complexity leads to an attainment-focused culture rather than a process-focused culture and also ignores the need for professional socialisation, in which students need to learn to be open about medical error.

1

To explore the relationship between trial and error, academic failure and making clinical mistakes, I used mindset theory,[3] building on learning from the failure project.[2] Evidence suggests that discussion of error and failure still has significant emotional impact on clinicians.[4] By recognising this emotional impact, the curriculum changes aimed to provide spaces for students to fail and experience these emotions safely, in a more collegiate environment.

Mindset theory states that someone with a fixed mindset views ability as static, and therefore understands failure as a lack of ability.[3] A growth mindset, on the other hand, views ability as acquired and therefore sees failure as an opportunity to develop. It can be learned and developed through role-modelling. Nevertheless, medical curricular spaces that encourage a growth mindset are limited.

The pressures on the medical curriculum mean that there is little space to practise getting things wrong without severe consequences. So when and how do students learn to make and accept the consequences of mistakes? While in education, evidence suggests that students want to avoid being labelled as a bad or failing student, cannot talk about failure and avoid seeking help.[1] In a clinical culture, openness about error is vital to patient safety. Feeling unable to talk about failure is in conflict with reflections on professional identity and so students must undergo social and cognitive reframing.

To facilitate this reframing, four timetabled weeks previously devoted to completing a summative assessment were re-designed as a series of formative tasks (box 1). Shifting the focus to create an inclusive and collaborative learning environment aimed to encourage a growth mindset.[3] Changes were introduced in the 2017-18 academic year and all year 1 medical students undertook the revised programme.

Most study support is delivered as a reactive-deficit model rather than a proactive-developmental one.[5] Again, this leads students in difficulties being reluctant to seek support. By working with all year 1 medical students, the aim was to encourage an association between these skills and growth rather than remediation.

Reflecting on issues including the timing of assessments, skills for independent study etc. led to a realisation that the curriculum design itself was exacerbating poor well-being. In providing a curricula space to practice unfamiliar skills, the intervention gave space to development over a series of tasks. Two key components of the revised programme were peer assessment and self-assessment. Students were previously informally encouraged to use feedback to improve future assignments, but not formally supported to do so. Using an interactive cover sheet provided a cyclic approach to development, moving students away from thinking about assignments as stand-alone.[6] Before students submit formative tasks, they are asked to comment on the strengths and weaknesses of their work. This encourages students to look honestly and focus on development rather than feeling that admitting weaknesses has negative consequences. Student-reported feedback, collected at seven points over two academic years via an anonymous mandatory survey, (box 2) showed that students found the process empowering, allowing them to develop skills and focus on process not outcomes.

By considering how institutional pressures to succeed are high, the failure project[2] started to explore how enabling students to experience and process failure could have a constructive impact on student learning with positive consequences for well-being. This was then taken forward into a medical school curriculum, reflecting on how being silent about failure means that students' best interests are not placed at the heart of educational practice. To fully develop medical students and ensure that they are ready for professional practice, more space

3

should be given to an understanding of how learning to make mistakes can lead to growth and

change.

Box 1 structure of workshops and formative tasks

Week	Workshops and structured support	Formative task	Feedback
Week 1: Finding and understanding relevant information	- Introduction to coursework - Learning skills workshop - Introduction to assessment - Introduction to searching the literature workshop - Developing and refining the right question - How to read a journal article in 10 minutes - Well-being lecture	*Annotated bibliography* Students are given a topic, then define a question to focus the bibliography. They search three academic databases, identify three academic journal papers which answer the question or provide critical insight into the topic. Students may need to read the abstracts of up to 20 academic journal papers to make their selection, and should be clear why they have included these papers rather than others. They write a 150 word critical commentary of three papers structured around three key questions.	Written, from academic staff.
Week 2: Developing writing skills	- Writing skills workshop - Reflection writing workshop - Plagiarism workshop - Introduction to referencing using Endnote workshop - Well-being lecture - Looking after your mate workshop - Peer assessment workshop	*Assignment abstract* Students were given an anonymised assignment written by a student from a previous year with the abstract removed. They were asked to read the assignment and write the abstract for it.	Written, from students. The peer assessment workshop provided a structured platform for students to give each other anonymous feedback, shifting away from a competitive culture to one that was much more supportive.
Weeks 3 and 4: Practising writing skills	None	2018-19: Short formative assignment (2000 words) 2017-18: two short formative assignments (1000 words each)	Written, from academic staff

Box 2: Student-reported outcomes

Data collected from two cohorts of students (2017-18 n = 54; 2018-19 n = 70) at seven points

via anonymous mandatory online survey

"It was an amazing learning experience, and though I felt it improved my academic writing skills - more importantly, it allowed me to put it into practice what was discussed and have an attempt at it myself, an inherently enjoyable experience." (S1, 2017-18)
"It was a good time to reflect on my work and created a space for improvement." (S2, 2018-19)
"The workshops were really effective in providing the skills to not only complete this task but for future tasks as well." (S3, 2018-19)
"It did give me a sense of independence into my own research." (S4, 2018-19)
"I found the reflection workshop useful and I enjoyed discussing ways I can improve with my peers during the workshop." (S5, 2018-19)

References

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