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# An educational intervention to increase student engagement in feedback

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## ABSTRACT

**Background:** The learner has a central role in feedback. We developed a feedback workshop for medical students grounded in two concepts: (1) Student agency in feedback and its interplay in the context of brief clinical attachments; (2) The educational alliance.

**Aims:** To determine whether a brief feedback training workshop prior to a series of two-week clinical attachments improves agentic student feedback behaviour (e.g. seeking, recognising, evaluating and utilising feedback) and student satisfaction with feedback.

**Methods:** We conducted surveys among three consecutive student cohorts undertaking three fortnightly paediatric clinical attachments. We pilot tested a workshop with Cohort 1 and implemented it for the entire Cohorts 2 ($n = 58$) and 3 ($n = 68$). Participants completed the same survey at the start and end of term, with different free-text items. Quantitative and qualitative responses were compared between groups.

**Results:** Student-reported agentic feedback behaviour increased across all outcomes except for feedback utilisation. Overall student satisfaction with feedback increased during the term in Cohorts 2 (23–65%, $p = 0.002$) and 3 (40–70%, $p = 0.003$) but not in Cohort 1 non-participating students (27–42%, $p = 0.42$).

**Conclusions:** A brief one-off student-directed feedback workshop may improve agentic student feedback behaviours (e.g. feedback-seeking) and student satisfaction with feedback.

## Introduction

Feedback is known to have a major influence on learning and achievement (Hattie and Timperley 2007). However, student dissatisfaction with feedback in the clinical context is common (Liberman et al. 2005; Dolmans et al. 2008; Van De Ridder et al. 2008; Delva et al. 2013; Urquhart et al. 2014). Feedback was traditionally viewed as the unidirectional transfer of performance information from teacher to student, defined as 'specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance' (Van De Ridder et al. 2008). In recent years feedback has been reframed as an ongoing, dialogical and relational process where students or trainees play a key role alongside teachers (Nicol and Macfarlane-Dick 2006; Price et al. 2011; Boud and Molloy 2013; Molloy and Boud 2013; Telio et al. 2015). Rather than a one-off event, feedback is now viewed as a cycle in which information about the 'gap' between a student's actual and expected clinical performance informs their learning. Within this cycle, the outcome is tested by re-evaluating performance to identify whether or not the 'gap' has been closed (Van De Ridder et al. 2008; Boud and Molloy 2013; Boud 2015).

The conceptual framework underlying the purpose of feedback has also developed in recent years. Where previously the focus was to improve performance on a particular task, the focus is now on developing learner attributes such as evaluative judgement and self-efficacy (Price et al. 2011; Boud and Molloy 2013; Boud 2015; Tai et al. 2016; Tai et al. 2018; Molloy et al. 2020). Many elements of this newer conceptualisation of feedback are a challenge in the clinical learning environment, where opportunities for sustained processes and quality relationships can be limited.

### Practice points

- A one-off feedback workshop for medical students prior to commencing a term of brief clinical attachments increased student reported seeking and receiving of feedback.
- The workshop improved student satisfaction with feedback at the end of the term.
- Following the workshop, there was a shift in students' perceptions of having a more active role in the feedback process.
- The workshop did not show a significant increase in utilisation of feedback to modify learning.
- Student agency in the feedback process was modified by teacher factors and the clinical learning context. Future feedback interventions should be directed towards these factors.

In psychology literature, individuals (learners) are seen as *'agents of experience rather than simply undergoers of experiences'* (Bandura 2001), whose personal (learning) attributes interact with environmental contexts to influence behaviour and degree of agency (Bandura 2001). In medical education, students are increasingly conceptualised as active agents in feedback, whose capacity to seek, judge and use performance information impacts short-term feedback outcomes (task performance) and longer-term outcomes (matured learner attributes) (Molloy and Boud 2013). 'Recognising, using and seeking' feedback are identified as key desirable agentic behaviours in learners (Bowen et al. 2017, p. 1310). Moreover, Eva et al. (2012) describe the process of student evaluation of feedback they receive, in which students compare external feedback to their self-appraisal. This external feedback may or may not be internalised, depending on whether it conflicts with the student's self-appraisal. Tai et al. (2018) show how this process of integrating internal and external feedback can assist the development of evaluative judgement.

The 'educational alliance' (Telio et al. 2015) is a particularly helpful model of feedback that encompasses many of the important recent theoretical developments. Based on the 'therapeutic alliance' between physician and patient, it considers feedback within an educational relationship where students and teachers play key roles as partners in learning, working together to agree on learning goals and set action plans for learning. Jointly negotiated goals by students and teachers ensure alignment and increase the likelihood of feedback being accepted so it can be incorporated into subsequent learning (Nicol and Macfarlane-Dick 2006).

Learner agency has a complex relationship with the context in which it is enacted. Billett's workplace learning theory (Billett 2006) and Bandura's work on agency through the paradigm of social learning theory (Bandura 2001) describe the reciprocal interplays between individual agency and the social (learning) context. Bandura's social learning theory is based on a *triadic reciprocal causation* involving a three-way interplay between personal factors, behaviour and the environment (Bandura 1986). Personal agency in this paradigm is modified by the environmental context and personal attributes, which are in turn shaped by the environment (Bandura 2001). Self-efficacy beliefs (that is, a person's 'belief about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives' (Bandura 1994, p. 71) are identified as particularly foundational to agency (Bandura 2001).

Billett (2006, 2008) describes a similar interplay between personal and contextual factors within the context of the workplace learning environment. He describes how a learner's individual agency is 'conditioned by what possibilities [the workplace learning environment] affords them [and is] limited by the activities their work enables' (2008, p. 40–41). How individuals interact with those workplace possibilities depends on personal beliefs, abilities and agency, which influence how they 'interpret and engage with what they experience and, consequently, how they learn' (2008, p. 39).

Numerous training programs have been developed for clinical teachers to develop skills in 'delivering' feedback, however, student dissatisfaction with feedback has persisted (Urquhart et al. 2014; Mikhail and Nour-Eldein 2016). Following the development in understanding of the learner's role in feedback (outlined above), student-directed interventions have recently begun to emerge as an alternative to teacher-centred models. However, studies of student-directed feedback interventions are currently limited. A recent qualitative study showed improvements in student perceptions about their role in feedback following a feedback literacy program, however, behaviour change was not assessed (Noble et al. 2020). Few studies have measured change in feedback-seeking by medical students. A brief (minutes long) instructional session on feedback failed to change student willingness to seek feedback (Boehler et al. 2006). A peer-to-peer feedback workshop focussing on asking, receiving and responding to feedback resulted in students reporting increased confidence and likelihood to seek feedback, however, behaviour change was not assessed (Yau et al. 2020). One study of feedback attitudes before and after a role-play-based workshop showed an improvement in students' perceived effectiveness at seeking feedback, however, results for the post-workshop group were the same as the control group, which did not receive the workshop (Bing-You et al. 1998). One study showed improvement in feedback-seeking frequency following a 90-min feedback workshop; however, increased receipt of feedback, feedback satisfaction and/or changes to subsequent learning were not assessed (Milan et al. 2011).

In its ideal form, 'feedback' is a sustained, student-centred, iterative process based in quality educational relationships. Emphasis is on co-constructed goals, performance evaluation, reflection and learning plans which serve to develop positive learner skills rather than simply improving subsequent task performance. Enacting this in the complex learning environment represented by clinical attachments is a challenge. Attachments are frequently short and may last only a week or two. The primary 'teacher' on an attachment may change frequently due to senior clinicians rarely being on the ward and the junior clinical team varying from day to day. If students are the primary constant in the ever-changing clinical learning context, their repositioning and upskilling as key players in the feedback process is essential.

We developed a feedback workshop for students grounded in the concepts of (1) The educational alliance and its emphasis on a partnership, with active roles for students and teachers, positive educational relationships and shared goals; and (2) Student agency and its interplay with context and environment, as described by Bandura and Billett. The goal of the feedback workshop was to equip students with tools to optimise their feedback and learning, even in the face of contextual challenges such as the brevity of attachments and a lack of consistent and available clinical teachers.

Our workshop was intentionally brief (30–60 min) to facilitate delivery on a busy first day of term. It is noted that shorter educational interventions have been correlated with lower effectiveness compared to longer interventions (Mansouri and Lockyer 2007; Forsetlund et al. 2009; Cervero and Gaines 2015). Nevertheless, positive outcomes in the typically short interventions of Continuing Medical Education have been identified, including through use of multiple

methods and exposures, and relevant content (Mansouri and Lockyer 2007; Forsetlund et al. 2009; Lowe et al. 2009; Cervero and Gaines 2015). We aimed to incorporate some of these elements in our workshop to minimise the possible shortfalls of a brief intervention.

This study reports on design of a feedback workshop and research regarding its efficacy. We aimed to answer the following research questions: (1) Does a feedback training workshop for medical students undertaking brief clinical attachments improve agentic feedback behaviour, including seeking, recognising, evaluating and utilising feedback? (2) Does the feedback training workshop improve student satisfaction with feedback?

## Methods

### Intervention

#### Context

The Sydney Medical Program at The University of Sydney is a 4 year graduate entry MD program. The Child and Adolescent Health specialty term incorporates three fortnightly paediatric clinical attachments, a structured teaching week (flipped classroom mode) and assessment week. Most attachments are with an inpatient team and range from tertiary subspecialty paediatrics to rural general paediatrics. Clinical time is generally spent in a combination of wards, operating theatres and outpatient clinics. Students undertaking the term are in the final 18 months of the MD degree.

#### Workshop design

Informed by the current evidence described above and student comments, HMG (faculty member and academic fellow), with KS (education academic), developed a 1 h feedback workshop for students commencing their Child and Adolescent Health clinical attachments.

The interactive workshop began with a discussion of the definition of feedback, challenging the concept of feedback as a one-off, one-way transfer of information from teacher to passive student. Rather, it situated feedback as part of a cycle of learning over which students needed to take ownership, thus encouraging student agency and self-advocacy in obtaining feedback.

In breakout groups, students were asked to reflect on previous positive and negative experiences of feedback and to identify their priorities for feedback in the future. After reporting back to the larger group, the challenges of learning and feedback in the clinical workplace (such as brevity of placements and teachers' competing demands) were acknowledged and students were assisted to identify strategies to overcome these challenges. The discussion particularly drew on the 'educational alliance' model of feedback (Telio et al. 2015), alerting students to the importance of building positive learning relationships with teachers, the dual responsibilities of learners and teachers, and the value of dialogue about learning goals and action plans.

Students were provided with specific tools to aid feedback-seeking, recognition, evaluation and utilisation. At the initial workshop, students were provided with a letter to give to supervisors that clarified expectations of student involvement and encouraged teachers to discuss and follow up on learning goals. Students were also provided with a script on which to base their initial clinical attachment discussion with teachers. This was intended to assist communication about learning goals and level of clinical involvement, as well as facilitate planning of feedback episodes. Another tool developed was a 'feedback map' (Murdoch-Eaton and Bowen 2017) to aid students' recognition of feedback episodes. The map listed the various points where verbal/written and formal/informal feedback episodes might be expected over the term.

Finally, a feedback evaluation tool (Supplemental Appendix 1) was provided with the intent of integrating student and teacher perspectives on students' goals and performance, as well as encouraging co-construction of learning plans. Recording of students' internal reflections alongside teacher feedback was encouraged, including evaluation of external feedback. The tool was guided by Eva's description of integrating internal (self) appraisal and external appraisal (Eva and Regehr 2013), as well as Telio's emphasis on jointly agreed goals and action plans (Telio et al. 2015).

#### Workshop implementation and further development

Feedback workshops were delivered by HM on day 1 of the term. The pilot workshop was optional for students. Results from pre-/post-surveys evaluating the pilot workshop were used to refine it for two subsequent iterations. The two subsequent workshops were reduced from 1 h to 30 min. As students in the pilot workshop reported that they chose not to use the letter to supervisors nor the script, these items were omitted from the subsequent workshops. Additionally, the content of the workshop was rationalised; in particular, some of the theoretical detail was omitted. The feedback evaluation tool remained very similar to its original form and was augmented with a graphic highlighting the key steps in the feedback model. The model further illustrated the principle of feedback as an iterative process that integrates internal and external feedback about the achievement of a learning goal (Eva et al. 2012) in order to generate plans for further learning (Boud and Molloy 2013; Boud 2015) (Supplemental Appendix 2). The feedback map did not require adjustment.

The third iteration of the feedback workshop was similar to the second, but with adjustments to the compulsory weekly appraisal form for clinical attachments. This was renamed as a feedback form and revised to include prompts for students to discuss with clinical teachers learning goals, action plans, their reflections and teacher feedback.

### Evaluation

All students undertaking the Child and Adolescent Health term during the three Cohorts starting July 2017 (Cohort 1), October 2017 (Cohort 2) and March 2018 (Cohort 3) were informed of the study and invited to participate in its evaluation. Students in Cohort 1 were invited to participate in the pilot workshop intervention. The workshop intervention was then implemented for all students in Cohorts 2 and 3.

The study used a pretest versus posttest design. Students were invited to complete a pre-intervention survey (Survey 1) on Day 1 of the term and a post-intervention survey (Survey 2) on the final day of the term (Supplemental Appendix 3). The paper-based surveys elicited a combination of quantitative and qualitative data.

Five-point Likert scales (from 'strongly disagree' to 'strongly agree') were used to measure overall satisfaction with feedback, satisfaction with the quantity of feedback obtained and satisfaction with the quality of feedback obtained. Questions measuring agentic student behaviour were informed by Bowen's (2017) description of 'recognizing, using and seeking' behaviours (p. 1310), and Eva's description of student evaluation of feedback (2012). They included 5-point Likert scales on level of agreement with feedback received and adjustment of learning based on feedback received, as well as a 6-point scale assessing self-reported frequency of seeking feedback. The frequency of receipt of verbal and written feedback was measured in the same way. Survey 1 and 2 presented the same scales. Qualitative data was elicited using free text responses to questions which asked about influences on feedback-seeking and either suggestions to improve feedback (Survey 1) or evaluation of the workshop (Survey 2). Student identification numbers were initially requested on the surveys to allow within-participant comparisons; however, we withdrew this request for Cohort 2 onwards due to concerns it was impacting survey participation rates.

### Analysis of quantitative data

Pearson's Chi-square tests were used to analyse the significance of changes in the proportion of students who 'agreed' or 'strongly agreed' versus other Likert scale responses, and who recorded 'weekly,' '2–3 times/week' and '4–5 times/week' versus other responses on the questions relating to frequency of feedback-seeking and receiving.

### Analysis of qualitative data

HM and KS independently undertook Directed Content Analysis (Hsieh and Shannon 2005) of the data obtained through the open-ended survey questions. Key concepts were identified and coded into categories. Coding by HM and KS were compared and consensus was reached through discussion. The theoretical frameworks outlined in the Introduction were used to guide the analysis, specifically: Telio's educational alliance (2015), Bowen's (2017) three learner feedback behaviours (recognising, using and seeking feedback) (2017), and Bandura (1997, 2001) and Billett's (2006, 2008) theories of the relationship between agency and context. In reporting qualitative data in the

Results, surveys are identified by cohort number (C1, C2 or C3) and survey number (S1, S2).

Ethics approval was granted by the University of Sydney Human Research Ethics Committee (Project number 2017/531).

## Results

Participant characteristics are listed in Table 1. Of the 66 students in Cohort 1, 11/66 (17%) completed Survey 1, ten students participated in the pilot feedback workshop and 6 of these responded to Survey 2. Of the 56 students who did not undertake the pilot intervention, 19 responded to Survey 2 (34%). The Child and Adolescent Health Faculty decided to implement the intervention, which was received by all 58 students in Cohort 2 and all 68 students in Cohort 3. Survey response rates for Cohort 2 were 40/58 (69%) for Survey 1 and 34/58 (59%) for Survey 2. Response rates for Cohort 3 were 61/68 (90%) for Survey 1 and 47/68 (69%) for Survey 2.

### Quantitative data

Results are summarised in Table 2. The full implementation of the feedback workshop for Cohorts 2 and 3 resulted in a statistically significant improvement in student reports of feedback literacy from start to end of term across all outcomes except for feedback utilisation, where the improvement was not significant.

Of note, students reported seeking feedback considerably more often, and were much more satisfied with feedback at the end of the term when compared to the start: the proportion of students who reported seeking feedback at least weekly improved from 50% to 82% ($p = 0.004$) in Cohort 2 and from 44% to 65% ($p = 0.031$) in Cohort 3. The percentage of students who were satisfied with feedback overall improved from 23% to 65% ($p = 0.002$) and from 40% to 70% ($p = 0.003$) in Cohort 2 and Cohort 3 respectively. The percentage satisfied with the quality of feedback improved from 25% to 71% ($p < 0.001$) and from 39% to 72% ($p = 0.001$) in Cohort 2 and Cohort 3 respectively. The percentage satisfied with the quantity of feedback improved from 5% to 44% ($p = 0.006$) and from 32% to 55% ($p = 0.008$) in Cohort 2 and Cohort 3 respectively.

In the surveyed group who received the pilot intervention in Cohort 1, there were statistically significant improvements from pre to post intervention for: overall satisfaction

Table 1. Participant Characteristics.

| | Cohort 1 (pilot) | | | Cohort 2 | | Cohort 3 | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | Survey 1 (start of term) | Survey 2 (no intervention) | Survey 2 (intervention) | Survey 1 (start of term) | Survey 2 (intervention) | Survey 1 (start of term) | Survey 2 (intervention) |
| Total *n* | 11 | 19 | 6 | 40 | 34 | 61 | 47 |
| Age (years) | | | | | | | |
| ≤30 | 82% | 89% | 33% | 90% | 76% | 82% | 83% |
| >30 | 18% | 11% | 50 % | 10% | 15% | 18% | 17% |
| Not specified | 0% | 0% | 17% | 0% | 6% | 0% | 0% |
| Gender | | | | | | | |
| Male | 73% | 58% | 67% | 75% | 53% | 57% | 68% |
| Female | 27% | 42% | 33% | 25% | 38% | 41% | 30% |
| Not specified | 0% | 0% | 0% | 0% | 0% | 0% | 2% |
| International student status | | | | | | | |
| Domestic | 73% | 84% | 50% | 65% | 74% | 85% | 87% |
| International | 27% | 16% | 50% | 35% | 15% | 15% | 11% |
| Not specified | 0% | 0% | 0% | 0% | 6% | 0% | 2% |

**Table 2.** Results.

| | Survey 1 (start of term) | | Survey 2 (end of term) | | | | | |
| | | | Intervention | | | No intervention | | |
| | Total N | % | Total N | % | p* | Total N | % | p* |
|---|---|---|---|---|---|---|---|---|
| **Overall satisfaction** *proportion who agreed or strongly agreed they were satisfied with the feedback received* | | | | | | | | |
| Cohort 1[a] | 11 | 27 | 6 | 83 | 0.027 | 19 | 42 | 0.420 |
| Cohort 2[b] | 40 | 23 | 34 | 65 | 0.002 | | | |
| Cohort 3[c] | 61 | 40 | 47 | 70 | 0.003 | | | |
| **Satisfaction with quality of feedback** *proportion who agreed or strongly agreed they were satisfied with the quality of feedback received* | | | | | | | | |
| Cohort 1 | | 27 | | 83 | 0.027 | | 37 | 0.592 |
| Cohort 2 | | 25 | | 71 | <0.001 | | | |
| Cohort 3 | | 39 | | 72 | 0.001 | | | |
| **Satisfaction with quantity of feedback** *proportion who agreed or strongly agreed they were satisfied with the quantity of feedback received* | | | | | | | | |
| Cohort 1 | | 27 | | 67 | 0.115 | | 11 | 0.236 |
| Cohort 2 | | 15 | | 44 | 0.006 | | | |
| Cohort 3 | | 32 | | 55 | 0.008 | | | |
| **Utilisation of feedback** *proportion who agreed or strongly agreed they adjusted learning based on the feedback received* | | | | | | | | |
| Cohort 1 | | 45 | | 83 | 0.129 | | 53 | 0.705 |
| Cohort 2 | | 45 | | 62 | 0.150 | | | |
| Cohort 3 | | 63 | | 70 | 0.455 | | | |
| **Agreement with feedback** *proportion who agreed or strongly agreed they agreed with feedback received* | | | | | | | | |
| Cohort 1 | | 36 | | 83 | 0.064 | | 58 | 0.256 |
| Cohort 2 | | 48 | | 71 | 0.045 | | | |
| Cohort 3 | | 66 | | 85 | 0.022 | | | |
| **Frequency with which feedback was sought** *proportion who reported seeking feedback weekly or more* | | | | | | | | |
| Cohort 1 | | 64 | | 100 | 0.091 | | 68 | 0.789 |
| Cohort 2 | | 50 | | 82 | 0.004 | | | |
| Cohort 3 | | 44 | | 65 | 0.031 | | | |
| **Frequency with which oral feedback was received** *proportion who reported receiving oral feedback weekly or more* | | | | | | | | |
| Cohort 1 | | 55 | | 83 | 0.235 | | 63 | 0.643 |
| Cohort 2 | | 62 | | 85 | 0.028 | | | |
| Cohort 3 | | 44 | | 72 | 0.004 | | | |
| **Frequency with which written feedback was received** *proportion who reported receiving written feedback weekly or more* | | | | | | | | |
| Cohort 1 | | 9 | | 67 | 0.013 | | 37 | 0.098 |
| Cohort 2 | | 8 | | 53 | <0.001 | | | |
| Cohort 3 | | 7 | | 38 | <0.001 | | | |

[a]Cohort 1 = July 2017; [b]Cohort 2 = October 2017; [c]Cohort 3 = March 2017; *p values refer to the differences in proportion from the start of term to the end of term

with feedback from 27% to 83% ($p = 0.027$), satisfaction with the quality of feedback from 27% to 83% ($p = 0.027$) and frequency with which written feedback was received from 9% to 67% ($p = 0.013$). The improvements in the remaining outcomes were not statistically significant. Among students who did not receive the pilot intervention in Cohort 1, there was no significant improvement in any outcome (e.g. overall satisfaction 27% to 42%, $p = 0.42$).

### Qualitative data

Ninety-nine students responded to the free-text questions in Survey 1 and 96 responded in Survey 2. Qualitative data supported the quantitative data findings of improved agentic student feedback behaviours following the workshop. The following themes emerged: student appraisal of the feedback workshop; increased agentic feedback

behaviour; student perceptions of teacher and learner roles within the educational alliance; and threats to an effective educational alliance despite active student engagement.

### Student appraisal of the feedback workshop

Students valued the workshop, providing comments such as: 'It was brilliant, thank you' (C2;S2). Students valued the 'open discussion in [a] safe environment' (C2;S2) of the challenges of learning during clinical attachments. They also appreciated the discussion of specific strategies to obtain feedback, such as the use of case presentations and specific questions to ask teachers and focusing on 'one good thing' they had done (C2;S2). One student indicated they did not find the workshop useful. Some students suggested ways to improve the workshop, such as narrowing the focus about 'what kind of feedback is expected' (C3;S2) and making it more structured.

Students' perceptions of the modified weekly appraisal form as a tool for seeking feedback was mixed. Some found it helpful to facilitate feedback episodes: 'provided structured opportunities for feedback' (C2;S2); some found it encouraged self-reflection: 'chance to reflect on the week's activity' (C3;S2). Others, however, experienced it as an administrative burden that resulted in delivery of feedback that lacked constructive criticism: 'Weekly feedback whilst good in idea, typically becomes relatively unhelpful feedback. Just ticking a box for myself & the doctors' (C3;S2).

### Increased agentic feedback behaviour

Students reported the workshop prompted them to seek more feedback: '[It] 'encourag[ed] proactiveness' (C3;S2) and 'After [the] 1st feedback lecture [I] was very eager to ask for feedback' (C2;S2). Students also reported that the workshop facilitated self-appraisal: 'Made you think about where you were deficient' (C3;S2). One student indicated utilisation of feedback for future learning: '[It gave] opportunities to re-evaluate your learning and improve' (C3;S2). Regarding improved recognition of feedback episodes, one student reported that the workshop was useful because it 'gave a guide to what I should be looking for' (C3;S2).

### Student perceptions of learner and teacher roles within the education alliance

Following the workshop, there were reports of 'more awareness of the importance of feedback' (C3;S2) and students' role in feedback-seeking: 'being more aware to seek out feedback and opportunities' (C3;S2). There was also a shift away from the perception amongst students that primary responsibility for feedback resides with the teacher (24 of the 99 total responses in Survey 1 indicated this belief compared to 12 of the 96 total responses in Survey 2). For example, a pre-survey response to the question of how feedback could be improved was 'Supervisors to give feedback without having to actively seek it' (C2;S1).

### Threats to an effective educational alliance despite active student engagement

Both before and after the workshop, students identified their relationship with their medical team and clinical supervisors (indicating the educational alliance) as being a major factor in whether they sought feedback. Feedback-seeking behaviour was influenced by 'how well I get along with the team' (C3;S2) and 'relationship with supervisor' (C2;S2). If students perceived a lack of investment in the educational alliance from teachers, they were reluctant to become engaged, even after the feedback workshop. For example, whether or not students sought feedback was influenced by 'the apparent engagement of the senior clinicians in my learning' (C3;S2), 'how approachable my team were, whether they seemed enthusiastic to teach' (C3,S2) and whether a teacher was 'intimidating' (C2;S2).

Teachers were perceived as being 'always busy' (C1;S2) or having competing demands. This affected the education alliance and impacted on student engagement in it. Despite discussing strategies to manage the challenge of clinicians' time constraints, students still nominated 'if team was busy' (C3;S2) as significantly influencing whether they sought feedback. Other contextual factors highlighted included the lack of continuity with teachers; for example, if they were on leave or unavailable on a day-to-day basis. This resulted in a lack of clarity for students and impacted feedback quality: 'The team changed too frequently for a student to be known well enough for meaningful feedback' (C3;S2).

## Discussion

Responding to recent calls in the literature to position students at the centre of feedback interventions (Boud and Molloy 2013; Molloy and Boud 2013), we developed a feedback workshop for students that emphasised their key role in the process. Informed by Bandura and Billett's elaboration of the interplay between personal agency and context (Bandura 2001; Billett 2006, 2008), we discussed challenges of the ward-based learning environment along with strategies for agency therein. We used the educational alliance model to further emphasise student agency, drawing on the concept of student-teacher partnerships, investment in educational relationships and joint negotiation of learning goals and activities (Telio et al. 2015).

The workshop was successful in increasing agentic feedback behaviour by students and their satisfaction with feedback. Following the workshop, we demonstrated a marked improvement in the frequency of feedback-seeking by students, accompanied by increased receipt of feedback and increased satisfaction with feedback. Increased student intention to seek feedback has been reported following education (Yau et al. 2020). To our knowledge, only one other study has demonstrated an increase in actual feedback-seeking (Milan et al. 2011), however, changes in frequency of, and satisfaction with, feedback received were not measured in that study.

Our qualitative data showed improvements in student perceptions about their role in feedback, which supported our quantitative data that demonstrated increased feedback-seeking. This is consistent with a recent study that demonstrated positive shifts in student feedback beliefs following feedback training for students, where learners 'reframed feedback as a process they could initiate and

engage in, rather than one they were subjected to' (Noble et al. 2020, p. 1).

The workshop clearly prompted increased feedback-seeking behaviour, however, changes in student utilisation of feedback were modest. Qualitative data indicated the workshop prompted reflection on learning but there was little to suggest further steps, such as intentional planning of future learning. Likewise, no qualitative data alluded to changes in goal setting behaviour. This was despite specific emphasis in the workshop on feedback as a cycle requiring action, supported by the previously mentioned feedback model, reflection tool and modified appraisal form.

One-off interventions, such as ours, while effective in improving certain parameters such as feedback-seeking, may be insufficient to bring about change in deeper processes such as reflection on and adjustment of future learning. Although we encourage teachers to engage in feedback activities to assist in this regard, this is largely reliant on individual teacher enthusiasm and engagement. Factors known to influence utilisation of feedback, which could be further explored in future interventions, include self-efficacy beliefs (Price et al. 2011), capacity to manage affect (To 2016; Carless and Boud 2018), goal orientation (Van de Walle 2003), learning goal alignment between student and teacher (Farrell et al. 2017), and perceived quality of the teaching relationship (Telio et al. 2016).

Our findings are consistent with previous studies (Bing-You et al. 1998; Milan et al. 2011; Noble et al. 2020; Yau et al. 2020) that demonstrate it is possible through educational interventions to change student perceptions of their role in feedback. Further, our study has shown that this can lead to behaviour change (increased feedback-seeking) and improved feedback experience (increased feedback received and increased satisfaction).

The intervention was simple to implement, requiring a single faculty facilitator and a short one-off whole-of-cohort teaching slot. While a short intervention such as our workshop is attractive due to its ease of implementation, the inherent challenges must be acknowledged, including lesser impact on subsequent learner behaviour compared to longer interventions (Mansouri and Lockyer 2007; Forsetlund et al. 2009; Cervero and Gaines 2015). However, efficacy can be increased if the teaching includes interactive as well as didactic methods and multiple media, and if students perceive content to be relevant (Forsetlund et al. 2009; Cervero and Gaines 2015). Our workshop used break-out groups to increase interaction, which we combined with didactic, printed and online material. We ensured relevance by incorporating learner feedback to improve subsequent iterations. Multiple teaching episodes are also associated with positive learning outcomes (Mansouri and Lockyer 2007; Forsetlund et al. 2009; Lowe et al. 2009; Cervero and Gaines 2015), which could be a focus of future research.

Despite the significant changes following our student-directed feedback intervention, a proportion of students remained dissatisfied with feedback. Why, despite students' attempts to more actively engage in the feedback process, do these problems persist? Telio's model (2015) offers a partial explanation. There are two parties in the educational alliance, and suboptimal engagement from teachers, as much as from students, will impact the efficacy of the partnership. In our study, many students cited a perceived

lack of interest from clinical teachers as a barrier to seeking feedback, a finding reflected elsewhere (Bowen et al. 2017; Chaou et al. 2019). A lack of teacher engagement results in students receiving less feedback and engenders a reluctance in students to engage, feeding a vicious cycle.

It is clear that both students and teachers have roles within the alliance, however, further exploration is required regarding whether one or the other should be expected to take primary responsibility. Student comments suggesting that teachers had primary responsibility for feedback were more prevalent before the workshop but were still evident in a proportion of Survey 2 responses. That the key onus to initiate feedback lies with teachers warrants consideration. The patient-physician therapeutic alliance, on which Telio's model is based, arguably places the primary duty of care on the physician, albeit in the context of an equal partnership. Presumably then, the duty of care in the educational alliance lies with the teacher. This is a challenge if the person who the student identifies as their teacher is different day to day, whether due to frequent rotation of clinicians within a team or due to the student rotating rapidly from team to team. Indeed, students in our study and others (Bowen et al. 2017; Noble et al. 2020) cited poor continuity as a barrier to feedback. In this clinical learning context, perhaps students (as the beneficiaries of feedback) must necessarily take ownership of their feedback and learning.

Lack of continuity is one of many contextual issues in the health workplace learning environment that may threaten students' agentic capacity within the alliance. Other factors include the availability of clinical teachers (Hoffman and Donaldson 2004; Dolmans et al. 2008; Yau et al. 2020), the availability of clinical cases (Hoffman and Donaldson 2004), student numbers (Dolmans et al. 2008) and learning culture (Bowen et al. 2017; Urquhart et al. 2018). As Billett (2006) and Bandura (2001) describe, the interplay between learner agency and environmental context is bidirectional, complex and dynamic.

Given the importance of individual and contextual factors, and the dual responsibility of students and teachers in the educational alliance, further action to address feedback needs to be multidirectional, involving students, teachers and context. Students need to be equipped through workshops such as ours to overcome contextual challenges, utilise the opportunities afforded by the workplace environment and understand their capacity for agency. Teachers need to be made aware of recent developments in feedback understanding, including the conceptualisation of feedback as an ongoing student-centred cycle based on relationships and partnerships. Even with increasing emphasis on equipping students to improve feedback, teacher-directed interventions cannot be abandoned.

Contextual issues at the hospital and university level, such as lack of continuity, need to be addressed. A learning and feedback mentor who remains with a student throughout their clinical years is a possible solution that may allow for the development of an effective educational alliance, in addition to a feedback education program involving multiple exposures to feedback literacy education. Relationship building, shared goal setting, negotiated learning plans and feedback utilisation would become markedly more feasible in this longitudinal context. This model is common in disciplines such as nursing and is already in use in some

medical schools (Kopechek et al. 2017; Hauer et al. 2018). We propose that a mentorship model could be situated as part of broader longitudinal learning, from commencement of the medical program.

### Limitations and further research

Strengths to our study include the large number of participants in the intervention cohorts, the iterative cycles of workshop development and the use of complimentary quantitative and qualitative outcome measures. The results can be strengthened through continuation of the study as we work to further improve the feedback workshop.

Limitations include the lack of a meaningful control group, as well as the iterative process which necessarily resulted in adjustments to the workshop from first to third cohort, making reliable comparisons between cohorts challenging. The short duration of the intervention is a further limitation.

Our study purposely took a targeted student-directed approach. Other interventions that address combinations of student, teacher and contextual approaches may also be effective and require further research.

## Conclusion

A one-off feedback workshop for medical students may improve agentic feedback behaviour such as feedback-seeking and student satisfaction with feedback. Following our feedback workshop, most students' perception of their role in the process appeared to shift. A more sustained approach is likely required to foster skills in applying feedback to future learning. Student agency within the educational alliance was modified by teacher factors and contextual constraints within the clinical learning environment. Future interventions will need to consider a multidirectional approach, addressing students, teachers and context.

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## Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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> ### Glossary
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> **Educational Alliance:** Drawing on the 'therapeutic alliance' between physician and patient, Telio et al. (2015) developed the construct of the 'educational alliance' to describe the educational relationship between teacher and learner in medical education. Through this construct, they explored the relational context of feedback in medical education. The three components of the therapeutic alliance are a mutual understanding of goals, agreement on how to work towards those goals and the perceived quality of relationship. According to Telio et al. (2015), the educational alliance 'reframes the feedback process from one of information transmission (from supervisor to trainee) to one of negotiation and dialogue occurring within an authentic and committed educational relationship that involves seeking shared understanding of performance and standards, negotiating agreement on action plans, working together toward reaching the goals, and co- creating opportunities to use feedback in practice' (p. 612).
>
> Telio S, Ajjawi R, Regehr G. 2015. The "educational alliance" as a framework for reconceptualizing feedback in medical education. Acad Med. 90(5):609–614.
>
> **Feedback literacy**: Has been described by Carless and Boud (2018) as 'The understandings, capacities and dispositions needed to make sense of information and use it to enhance work or learning strategies' (p. 1316). They describe four features of student feedback literacy: appreciating feedback processes; developing capacities in making judgements; managing affect; and taking action to use feedback.
>
> Carless D, Boud D. 2018. The development of student feedback literacy: enabling uptake of feedback. Assess Eval Higher Educ. 43(8):1315–1325.

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