Beyond individualism: professional culture and its influence on feedback

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CONTEXT Although feedback is widely considered essential to learning, its actual influence on learners is variable. Research on responsivity to feedback has tended to focus on individual rather than social or cultural influences on learning. In this study, we explored how feedback is handled within different professional cultures, and how the characteristics and values of a profession shape learners' responses to feedback.

METHODS Using a constructivist grounded theory approach, we conducted 12 focus groups and nine individual interviews (with a total of 50 participants) across three cultures of professional training in, respectively, music, teacher training and medicine. Constant comparative analysis for recurring themes was conducted iteratively.

RESULTS Each of the three professional cultures created a distinct context for learning that influenced how feedback was handled. Despite these contextual differences, *credibility* and *constructiveness* emerged as critical constants, identified by learners across cultures as essential for feedback to be perceived as meaningful. However, the definitions of credibility and constructiveness were distinct to each professional culture and the cultures varied considerably in how effectively they supported the occurrence of feedback with these critical characteristics.

CONCLUSIONS Professions define credibility and constructiveness in culturally specific ways and create contexts for learning that may either facilitate or constrain the provision of meaningful feedback. Comparison with other professional cultures may offer strategies for creating a productive feedback culture within medical education.

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INTRODUCTION

Feedback from teachers to learners should be a vital part of any educational process. Increasingly, the giving and receiving of feedback have been recognised as comprising a complex process that is fraught with potential pitfalls that can render it less meaningful for learning than is desired. Kluger and DeNisi,[1] in a meta-analysis of feedback interventions studied across a range of learning contexts, found that although feedback had a modestly beneficial effect on performance overall, it was actually harmful to performance about one third of the time. Feedback was especially likely to be harmful when it was perceived as threatening to self-esteem.

A number of authors have explored how individuals' perceptions of the feedback they receive shape how they handle that feedback, and whether or not it influences behaviour or performance. Industrial psychology research on employee performance appraisals has shown that employees' perceptions of the fairness, accuracy and legitimacy of the process can significantly influence its impact.[2–4] Soberingly, this work concluded that the employees who most need feedback because of performance inadequacies may be least receptive to it.[5] Medical education, too, has recognised the impact of learners' perceptions of feedback processes.[6–9] Sargeant *et al.*, studying family doctors in receipt of multi-source feedback, showed that those who received feedback that was negative and in conflict with their self-assessment tended to be unreceptive to it and, instead, perceived the process that generated the feedback as flawed.[9] Similarly, our own work demonstrated that medical learners might discard feedback if they judge it to lack credibility.[8]

Missing from this growing literature on individual responsiveness to feedback is an examination of the social and cultural factors within the learning environment that may influence how feedback is handled. Learning and the exchange of feedback do not occur in a vacuum of individualism. Rather, they occur in a specific setting, context and professional culture. Shulman has proposed the notion of signature pedagogies to understand the processes by which professions educate their own.[10] These signature pedagogies, with the rules, responsibilities and structures they contain, define what counts as knowledge in a profession and can promote efficient learning.[10] The vulnerability of signature pedagogies is that they may force a wide range of learning into a limited range of teaching, thus distorting what is learned.[10] Ultimately, signature pedagogies involve choices, and these choices inevitably support certain outcomes while failing to address other potentially important aspects of professional preparation.[10] The impact of these culturally distinct pedagogical choices on how feedback is handled has not been examined.

To harness feedback's power to shape learning, we must understand how and why learners respond or fail to respond. Studies of learning that take the individual learner as the unit of analysis make an inherently problematic assumption that learning is a purely internal cognitive process.[11] The influences on feedback responses that exist within the psychology of individual learners, although important, are only part of the puzzle and by themselves offer insufficient explanations. In this study, we explored feedback in the three distinct professional cultures of medicine, teaching and music. We chose these fields both because they share features and because we anticipated differences among them. All three fields require their learners to perform, whether by carrying out a surgical procedure, teaching a mathematics lesson or giving a piano recital. All three fields create situations for learners to receive feedback on their performance, but there is considerable variability in their educational models, ranging from the tendency in medicine to expose learners to multiple expert preceptors for short periods of time, to the use in teaching of a series of time-limited but intense practicum experiences, each involving a single supervisor, to the coaching model prevalent in music in which a relationship with a single teacher may last for years. Through this research, we sought to identify the common threads and critical differences in how feedback is handled within different professional cultures. Furthermore, we asked how the characteristics and values of a profession shape its learners' responses to feedback.

METHODS

For this exploratory study, we used a constructivist grounded theory approach, in which the vantage points of participants and researchers alike are accounted for as data are interpreted.[12] In the constructivist paradigm, particular attention is paid to reflexivity.[13] Researchers must not only reflect on their own backgrounds and how these influence their approach to the subject, but must also share these reflections with readers in order to provide a

meaningful interpretation of the work. The lead author (CW) is a doctor; his collaborators represent a range of non-medical disciplines including education (ED), psychology and psychometrics (CvdV), qualitative health research (MV) and rhetoric (LL). Two of the researchers (CW and LL) have significant training in music. Although all of the researchers would consider teaching to be part of their professional identities, none has undergone the type of teacher training that supports the culture we studied.

Focus groups were our primary vehicle for data collection as we anticipated that the interactions among participants might be usefully revealing of culture. In addition, we interviewed key informants within music and education in advance of focus groups to obtain necessary background information about how learning was structured in these fields and to understand the language of training. Background interviews were felt to be unnecessary in medicine, given the lead author's first-hand experience of this training culture and his co-authors' experience in studying this culture. Finally, we conducted additional individual interviews later in the research process to elaborate early focus group findings.

Our sampling strategy for both focus groups and interviews was purposive, with all participants recruited from one Canadian university. For focus groups in medicine, we recruited both residents from a range of specialties and senior medical students, anticipating that the insights offered might vary depending on the level of training of the learners and the extent to which they had become part of the professional culture. For focus groups in the context of music, we recruited undergraduate students. Because music students need to have a significant background in music in order to be accepted into an undergraduate programme, we reasoned that undergraduate students would be sufficiently acquainted with the professional culture of music to inform our research. Teacher training at our university involves a 1-year programme, entry to which demands the completion of at least an undergraduate degree. Because we wanted to focus on the experience of the 'practicum' method of training, in which students go into schools to obtain real teaching experience, we recruited from students on this 1-year programme. Initial recruitment was by an e-mail invitation sent to all senior medical students, residents, undergraduate music students and teacher training students at this university.

In total, data were derived from 50 participants. A total of 41 learners (eight medical students, 12 residents, 13 music students and eight student teachers) participated in 12 focus groups (two with medical students, three with residents, four with music students and three with student teachers). We conducted three background key informant interviews, including one with a music professor and two with education professors with experience as both teachers and educators of teachers. We encountered unexpected challenges in recruiting student teachers to focus groups and felt that our data required enrichment beyond the three focus groups conducted; therefore, we conducted individual interviews with three recent graduates of the teacher training programme and one doctor who had completed teacher training and had worked as a teacher prior to medical training. Finally, we interviewed two doctors with extensive training and professional experience in music to provide additional perspectives. The study received approval from the university's research ethics board and all participants provided informed consent.

Focus groups and interviews were semi-structured, eliciting discussion and elaboration of the experience of learning and receiving feedback within each professional culture. Focus group discussions and interviews were recorded and transcribed verbatim without identifying information. Data were analysed using the constant comparative approach customary in grounded theory.[13] Analysis occurred alongside and informed data collection: initial transcripts were read in detail by two researchers (CW and MV), who identified emerging themes, some of which were specifically explored in subsequent focus groups and interviews. As new data were collected, the same two researchers read each new transcript and re-examined earlier transcripts, developing in the process coding schemes for organising and classifying data. By comparing and discussing their coding approaches, these two researchers reached consensus on a robust coding system that could be applied to the entire dataset. Periodic discussion of emerging themes with the entire research team informed the coding process and refined the approach to data collection. Consistent with a theoretical sampling approach, data collection continued until thematic saturation was achieved.[13,14] As saturation is based on theoretical rather than statistical considerations, the resulting numbers of participants varied modestly across the three fields studied. Once the complete dataset had been classified using the refined coding scheme, the level of

analysis was raised from the categorical to the conceptual by the examination and elaboration of the relationships among the concepts. Finally, we considered our conceptual analysis in light of existing theories of learning, exploring how our findings aligned with, elaborated or challenged these constructs.

RESULTS

Our analysis revealed both variations and constants in how feedback is managed across professional cultures. Each professional culture, through the settings and opportunities for feedback it provided, and the roles it expected teachers and learners to play, created a distinct *context* for learning that influenced how feedback was handled. Despite these differences, *credibility* and *constructiveness* emerged as constants, identified by learners across cultures as essential for feedback to be perceived as meaningful. The very definitions of credibility and constructiveness, however, were distinct to each professional culture, and support for the occurrence of feedback with these critical characteristics varied considerably across cultures. These key notions of context, credibility and constructiveness will be described in more detail and highlighted by illustrative comments from participants.

Context

Settings for learning

Medicine and teacher training placed learning firmly in the workplace setting. Medical learners valued opportunities to function independently, learning by immersion in unruly clinical environments in which in-the-moment feedback occurred only sporadically. Perhaps in response to the unpredictable nature of in-the-moment feedback, medicine provided formal opportunities, such as end-of-rotation evaluations, to ensure that feedback was given regularly. Many learners complained, however, that this formalised feedback lacked substance, either because it was non-specific or too far removed from the event to be meaningful, or because the feedback forms supervisors were required to use forced them to comment on aspects of learner performance about which they had insufficient information. As one medical learner noted:

> 'A lot of preceptors… just give very generic criticism sometimes: "Oh, improve your histories or work on coming up with more differential diagnoses." … I think some of them feel obligated to say something even when they don't have anything worth saying.' (Medical student, FG5)

This lack of substance, characteristic of much of the mandatory formalised feedback in medical training, could, over time, diminish the value that learners placed on feedback in general, as a different learner in the same focus group acknowledged:

> 'It almost promotes a disconnect because we recognise the content of the feedback is very important but then with the … evaluation forms and all the other forms, after a while we stop caring about the forms.' (Medical student, FG5)

Teacher training provided a more controlled experience for the learner, in which practice teaching was carefully planned and continuously supervised. Feedback was deliberate rather than sporadic. One student teacher's recall of her first practicum was typical of the rich feedback experience in this domain:

> '[My supervisor] had elaborate checklists for each and every day. She monitored me all day – checklists, made notes, all day.' (Student teacher, FG10)

Within music, learning settings included weekly one-to-one lessons as well as long hours working alone in the practice room. Lessons involved a repeating process of performance, feedback and correction:

> '…a combination of "No, that's not good enough" [and] "This is what you need to do to make it good enough."' (Music professor, interview 3)

Students expected to receive feedback to direct their individual practice and perceived this feedback as necessary to their advancement.

Role of the teacher

Medical learners acknowledged the dual roles of their supervisors as teachers and clinicians, leaving little doubt about the hierarchy of these roles:

> 'Patient care would be number one, so you wouldn't want to compromise patient care for teaching.' (Medical student, FG5)

Learners recognised the impact of this cultural privileging of patient care over teaching on the availability of quality feedback:

> 'Certainly the culture of the hospital doesn't allow for feedback. I think a lot of times it's seen as requiring a certain investment of time, and time is at a premium. If you're sitting there giving somebody feedback you're not doing something else you're supposed to be doing.' (Resident, FG2)

Uniquely among the three cultures, medical learners sometimes even felt that their presence was a burden on their teachers:

> 'At the end of the rotation they're ready to get rid of you and just want to move on to the next, because you made their life a pain for a month, being a learner with them.' (Resident, FG3)

In teacher training, the supervisor assumed a more central role that included controlling lesson assignments, consistently observing the student's performance and offering extensive feedback. Students, in turn, valued opportunities to demonstrate that they had understood and incorporated the feedback they received:

> 'Every time there was a feedback one day, if there was something that I didn't do well, I would try to put it in the lesson the next day to show her that I had taken the feedback and I'm going to fix it.' (Student teacher, FG10)

Like medical learners, student teachers learned by doing, but, unlike in medicine, the 'doing' was supported by continuous guidance and feedback from supervisors.

In even sharper contrast, music students' learning was very much teacher-focused; to improve in performance without instruction from a skilled teacher was reportedly unimaginable. One student's struggle to identify useful influences on learning *other* than input from a teacher was typical:

> 'I think apart from recording ourselves… really the only other information you can get is from your teacher as to how to perform.' (Music student, FG9)

Describing the teacher's central role in a student's development as a musician, one participant noted:

> 'You can always rely on your teacher, you can always ask your teacher what to do; they can guide you.' (Music student, FG6)

As the teacher's role was so indispensable, feedback was considered vital:

> 'Without feedback how would you move forward?' (Music student, FG6)

Role of the learner

Medical learners accepted some responsibility for seeking feedback, as one resident noted:

> 'We can say that there's not enough feedback, but I think a lot of times the onus is on the learner… I can't just always expect it to be hand-fed to me.' (Resident, FG2)

By contrast, the idea that learners should take responsibility for inviting feedback was more foreign to the other professional cultures. In teacher training, feedback was provided routinely without the learner needing to ask for it, so feedback-seeking behaviour, when it occurred, was intended to obtain clarification or to respond to specific questions, rather than to ensure that feedback would be received at all. In music, feedback-seeking behaviour appeared to be entirely unnecessary. A representative music student response to the question 'Do you ever have to ask your teachers for feedback?' was:

> 'No. It comes whether you want it or not.' (Music student, FG9)

Credibility

Learners across cultures identified the perceived credibility of the feedback they received as a powerful influence on its likelihood of meaningfully impacting them. Credibility, however, did not have the same meaning for all learners; rather, notions of credibility bore the indelible stamp of the professional culture in which feedback was provided. For example, the culture shaped how teachers acquired credibility as sources of feedback. Medical learners, although they acknowledged teaching ability as a desirable attribute, identified the clinical skills of their supervisors as a stronger determinant of the credibility of their feedback. As one resident noted:

> 'If I've seen them interacting with patients… and I'm questioning their performance or the way

> they communicate with other people, I don't take their feedback as viably.' (Resident, FG2)

Similarly, the credibility of teacher trainers was linked with experience. One education professor noted:

> '…we have some faculty, surprisingly, who have never actually been in a classroom. I would say that's where the credibility falls down.' (Education professor, interview 2)

By sharp contrast with medicine and teaching, music students preferred teachers with well-developed instructional skills over those with virtuoso performance skills. For music teachers, the ability to perform was helpful but insufficient; a teacher also needed to be able to provide guidance to advance the student's performance. As one student summarised:

> 'I think they need to have an understanding of the instrument enough so that they can really analyse what you're doing and hear what you're doing and try to figure out a way to fix it.' (Music student, FG7)

Music was the only one of the three cultures we studied in which a teacher's credibility was determined, in part, by the performance of that teacher's students. Music students' respect for 'the teachers you see who have had a lot of fruitful students' (music student, FG8) signalled a shift in emphasis towards a teacher's abilities as an instructor or mentor, and away from his or her abilities as a performer.

Culture also created circumstances under which credibility might be threatened. Medical learners frequently received feedback on unobserved performances:

> 'They might not observe your history or physical but you present the case to them so they get an inference of [whether] it was adequate or not.' (Medical student, FG4)

Music students, by contrast, could not provide any examples of feedback being given by a teacher who had not seen or heard their performance; their surprise at even being asked this question suggested that this approach to feedback was alien to their culture. Similarly, in the education culture, the very idea that feedback *could* be created without this level of observation was foreign:

> 'All of an associate teacher's evaluation and comments would be made on the basis of what he or she saw in the classroom… There's no other way to make … how else could the associate teacher provide feedback?' (Education professor, interview 1)

Despite the infrequency of observation in medicine, learners still identified a strong link between observation and the perceived credibility of subsequent feedback:

> 'I'm pretty open to [feedback], especially if I know it's very accurate… and it's being pointed out by a person who has observed me.' (Resident, FG1)

Medicine's tendency to substitute inference for observation thus appeared to create a threat to the credibility of feedback in this context, just as the observation-oriented cultures of music and education seemed to guard against this vulnerability.

Constructiveness

Across all three cultures, learners preferred feedback that they perceived as constructive, but again there were cultural variations in how constructiveness was defined. Feedback that was considered to be constructive in music tended towards the critical or corrective, and students devalued praise as unhelpful:

> 'I've come to realise I don't really like all that positive feedback because when you get all that positive feedback, you get lazy, you don't really work as hard, and you just come to not need it.' (Music student, FG9)

Music students appeared to readily appreciate the benefits of corrective feedback, conceptualising it as 'positive criticism' (music student, FG6) rather than as negative feedback. By contrast, feedback considered to be constructive in teacher training was firmly rooted in positivity, reinforcing good performance and framing criticism as suggestions for improvement. Describing feedback from her supervisor, one student noted:

> 'She'd always do the "two stars and a wish". You always say two positive things and then you do the next step. So, it's always very constructive.' (Student teacher, FG10)

In medicine, both praise and criticism could be considered constructive, depending on the circumstances. Positive feedback was viewed as constructive when it established or built confidence, especially early in training. Corrective feedback was viewed as constructive when it highlighted weaknesses requiring attention. As one medical student noted:

> 'It's important to have a good mix of both. Especially towards the beginning of your training, you're a little green and knowing that you're… on the right track… gives you a little bit of that confidence boost and it gives you motivation to study. But … you also need something to drive you. I think for a lot of us that's recognising the deficits in our knowledge… The only way to know what you don't know is to get a little bit of constructive criticism.' (Medical student, FG4)

A key element of constructiveness, common across cultures, was the incorporation of an action plan with feedback. An action plan, outlining a strategy for improvement, could permit even corrective feedback to be perceived as constructive. Cultures varied, however, in the typical quality of their action plans and thus in the extent to which the constructiveness of feedback was supported. Music students, in particular, spoke frequently of detailed and helpful action plans, as this example illustrates:

> 'For me, something constructive would be: "If you could raise your soft palate and your eyebrows to have a clearer tone and more resonance in your voice, then that would really help with your intonation."' (Music student, FG7)

Medical learners, by contrast, struggled to provide examples of feedback linked to an explicit action plan. Action plans were non-existent at worst and under-detailed at best:

> 'In medicine it can be very vague, like: "You need to read more" or "Your knowledge base is lacking."' (Doctor and musician, interview 8)

The impact of the lack of an action plan appeared significant:

> 'If it's just a negative statement without any feedback on why it's negative or how I can make it positive, then it wouldn't stick with me, and I wouldn't carry it on.' (Resident, FG1)

DISCUSSION

Feedback is not merely a conversation between individuals; it is a complex information exchange, the social and cultural contexts of which shape its meaning for learners. Until now, the effect of training culture on feedback has received little attention by medical education researchers, which is perhaps consistent with the field's longstanding tendency to privilege individual theories of learning.[15,16] Although clinical education in medicine is primarily experiential and therefore heavily contextualised, most of the work exploring the nature of clinical learning has focused on how *individuals* interpret and make sense of the experiences they have.[8,17] Socio-cultural learning theories, by contrast, view learning as situated within specific contexts and cultures.[16,18,19] Individual and socio-cultural theories of learning need not be placed in opposition to one another.[20] Rather, both the individual's own interpretations of the events and experiences that comprise his or her learning *and* the culture, context and environment in which the learning takes place contribute to shaping learning outcomes.[21]

Our elaboration of feedback's critical cultural dimension exposes as problematic many of our current approaches to improving feedback in medical education, which tend to focus on the feedback delivery skills of individuals.[22,23] Viewed through a socio-cultural lens, the inadequacies of approaches targeting individuals become clear. Although feedback delivery can certainly be strengthened, educators have only a limited ability to influence the feedback orientation of individual learners. The richest opportunities to strengthen the impact of feedback may therefore involve creating the necessary cultural scaffolding to support it.

Calls for the establishment, within medicine, of a culture that supports and embeds feedback have come to represent a popular refrain in recent years.[24–26] Achieving this goal requires us to take a critical look at how our current professional culture positions feedback. In his work on signature pedagogies, Shulman[10] comments that comparisons of the pedagogies of different professions may be fruitful and may offer approaches to improving education that might not otherwise have been considered. Our comparative consideration of medicine's learning culture alongside that of teacher education and music starkly demonstrates Shulman's premise that signature pedagogies involve choices that support certain outcomes while constraining others.[10]

What can medical educators learn from our examination of the pedagogies of teaching and music? Teacher training makes it possible for supervisors to thoroughly observe students in action in a workplace setting and promotes the provision of daily detailed feedback. Musical training similarly grounds all its feedback in the direct observation of learner performance. By embedding observation in their pedagogies, both cultures enhance the credibility of the feedback that is provided. Additionally, music fosters the development of long-term, one-to-one teacher–student relationships in which feedback, even when highly critical, can be perceived as routine, expected and valued. In addition, both fields attend carefully to linking feedback to explicit action plans; the effect of this pedagogical choice is that feedback is more consistently perceived by learners as constructive.

In comparison with teacher education and music, we found that medicine's current training culture is not, in fact, a feedback culture. This is not a new finding; others have decried medicine's failings in the feedback arena.[24,27] What our study offers, through its comparison with other learning cultures, is a clear sightline for improvement efforts: we need to remedy the features of our culture that limit the credibility and constructiveness of feedback. By comparison with the cultures of teacher education and music, we can see that credibility and constructiveness, rather than representing strengths of medicine's feedback culture, are its key vulnerabilities. Moreover, these vulnerabilities exist because of how we have set up the context of learning.

We do not intend to suggest that medicine mimic the learning cultures of teacher education or music. We recognise that medicine's training context is distinct: it differs from that of music in its reliance on workplace learning, which makes different demands of teachers and learners than do traditional learning settings like the music lesson and the practice room. Furthermore, although teacher education and medicine share a workplace learning approach, medicine is arguably distinct in the immediate stakes of the work activities involved. These differences, however, should not prevent us from using a comparison of cultures to critically question our own status quo. Knowing that the longstanding teacher–learner relationship in music facilitates a perception of feedback credibility and constructiveness – even when feedback is pointedly critical – should lead us to ask why we aren't creating contexts in which such relationships can develop. Knowing that teacher education preceptors provide daily detailed feedback coupled with action plans to their learners – because their time is protected to enable them to sit at the back of the class and watch the learner teach – should lead us to ask why our clinical teaching context allots very little time and attention to observing and commenting on the learner's performance.

In responding to these important questions, we should push beyond the operational level and examine the underlying values that shape how feedback is positioned within medicine's professional culture. We do not dismiss the importance of operational challenges such as time constraints, inadequate compensation for teaching, and underdeveloped faculty instructional skills; these very real issues may indeed limit the direct observation of learners or the creation of detailed action plans to accompany learners' feedback. We believe, however, that these operational issues alone provide insufficient explanations for the inertia that plagues efforts to create meaningful change around how feedback is handled in medicine.

A fuller understanding of why medicine's professional culture allows vulnerabilities around the credibility and constructiveness of feedback to persist requires a thoughtful examination of some of the fundamental values of the profession. Medicine values doctor autonomy and independence.[15,28] We might consider whether the routine observation of learner performance by supervisors will fit comfortably in a culture in which teachers and learners value and expect autonomy. One study, for example, identified learners' desires for autonomy in patient care as a barrier to improving bedside teaching, noting that learners may avoid teaching situations that they perceive might jeopardise their roles as caregivers and managers.[29] Increasingly, medicine also espouses self-directed learning as a professional value.[30] Widely used competency frameworks highlight the expectation that medical learners will develop the skills to self-identify knowledge gaps and create plans to remedy them.[31,32] We must consider whether the chronic failure of teachers to produce the meaningful action plans that would make their feedback constructive might be a byproduct of this culture of self-directedness, which may view such detailed instruction as unnecessary, counterproductive or coddling. Finally, medicine's professional culture may not reward doctors who develop exceptional instructional skills; as long as learners look to the best *performers* for feedback, regardless of their teaching ability, medical teachers may be content to serve as role models whose teaching is implicit. The strongest role models, however, possess not

only clinical competence, but also the teaching skills that enable them to explain how and why they do what they do and to guide learners towards the example they set.[33,34]

Our work is limited by some of our design decisions. As this study was conducted at a single centre, the perspective we offer on professional cultures reflects events at a particular point in time and in a particular educational setting. Focus group and interview data are inherently limited in that they provide only the participants' perspectives about what constitutes meaningful feedback; these perceptions do not necessarily indicate whether feedback is *actually* effective. Whether the differences we have attributed to culture were related instead to variations in learner characteristics, such as stage of training, could be questioned. Undergraduate music students, however, have typically already experienced several years of music training prior to starting university and, similarly, many of our student teacher participants had considerable educational or career experience prior to undertaking teacher training and therefore we did not feel that learner maturity or experience in these fields differed significantly from those in medicine. Additionally, we interviewed experienced faculty staff in the contexts of both music and teacher training whose perspectives supported their learners' notions of the respective professional cultures.

CONCLUSIONS

Feedback has considerable value for learning, but it does not represent a straightforward transaction between teacher and learner. Rather, feedback is affected by complex individual and interpersonal dynamics *and* by cultural and contextual factors. Optimising the use of feedback to enhance learning requires an appreciation not only of how the process is perceived by individuals, but also of how it is valued by the culture in which its use is situated. Each learning culture must consider carefully how credibility and constructiveness are defined in its setting, and how the context it creates for feedback supports and facilitates the exchange of feedback that possesses these essential attributes. A professional learning culture is created by deliberate choices related to teaching and learning. It is vital that medicine chooses wisely.

Contributors: CW was responsible for the study design, participated in data collection, led the analytic process, and wrote all drafts and revisions of the manuscript. CW had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. ED and CvdV contributed ideas to the study design, participated in the analytic process through an iterative process of discussion, read all manuscript drafts, and offered suggestions for revisions. MV participated in data collection by conducting some of the focus groups and interviews, participated in the processes of data coding and analysis, and offered suggestions on the manuscript drafts. LL contributed ideas to the study design, participated in data analysis through an iterative process of discussion, read all manuscript drafts and offered suggestions for revisions. All authors approved the final manuscript for submission.
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