




## RESEARCH ARTICLE

## PEER REVIEW

# ‘For the most part it works’: Exploring how authors navigate peer review feedback

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**Abstract**

**Background:** Peer review aims to provide meaningful feedback to research authors so that they may improve their work, and yet it constitutes a particularly challenging context for the exchange of feedback. We explore how research authors navigate the process of interpreting and responding to peer review feedback, in order to elaborate how feedback functions when some of the conditions thought to be necessary for it to be effective are not met.

**Methods:** Using constructivist grounded theory methodology, we interviewed 17 recently published health professions education researchers about their experiences with the peer review process. Data collection and analysis were concurrent and iterative. We used constant comparison to identify themes and to develop a conceptual model of how feedback functions in this setting.

**Results:** Although participants expressed faith in peer review, they acknowledged that the process was emotionally trying and raised concerns about its consistency and credibility. These potential threats were mitigated by factors including time, team support, experience and the exercise of autonomy. Additionally, the perceived engagement of reviewers and the cultural norms and expectations surrounding the process strengthened authors' willingness and capacity to respond productively. Our analysis suggests a model of feedback within which its perceived usefulness turns on the balance of threats and countermeasures.

**Conclusions:** Feedback is a balancing act. Although threats to the productive uptake of peer review feedback abound, these threats may be neutralised by a range of countermeasures. Among these, opportunities for autonomy and cultural normalisation of both the professional responsibility to engage with feedback and the challenge of doing so may be especially influential and may have implications beyond the peer review setting.

## 1 | INTRODUCTION

As feedback, peer review shouldn't work. Feedback should be framed as a conversation,<sup>1-3</sup> yet the peer review process typically does not feel dialogic. Feedback thrives in the context of a trusting, longitudinal relationship,<sup>4,5</sup> yet the peer review process is often anonymous and devoid of relationship. Feedback may fail to impact performance if it

threatens self-esteem or stirs strong emotions,<sup>6-8</sup> yet peer review often does both. And feedback enmeshed with assessment may fail to achieve a developmental intent,<sup>9,10</sup> yet peer review blurs these lines by design. But there remains a strong sentiment that peer review is an effective form of feedback. As Eva noted, 'for all the flaws inherent in peer review, I have never seen a paper ... that was not improved as a result of going through the process.'<sup>11</sup> If we can better understand

how peer review functions as a feedback process, despite the many obstacles to its effectiveness, we may learn valuable lessons that could not only improve peer review but also transfer to other settings where feedback must be exchanged in challenging circumstances.

Research on feedback is plagued by definitional haziness. In its broadest sense, feedback is simply information about performance that may be used to inform adjustments or improvements to that performance. Contemporary definitions of feedback in the context of health professions education have increasingly moved away from this notion of feedback as an inert commodity (a piece of information that is given to another) and towards a notion of feedback as alive and interactive (a learning conversation in which to engage *with* another). For example, Ajjawi and Regehr define feedback as 'a dynamic and co-constructive interaction in the context of a safe and mutually respectful relationship for the purpose of challenging a learner's (and educator's) ways of thinking, acting or being to support growth'.<sup>12</sup> Although this definition was not developed with the peer review context in mind, its areas of emphasis are instructive: dialogue, mutual respect, relationship and a clear developmental intent.

Peer review struggles with these key elements and thus offers a unique context in which to study feedback. Admittedly, peer review is not exclusively a feedback process. While it does aim to provide meaningful feedback to authors so they can improve their work,<sup>11,13</sup> it also has a quality assurance aim, ensuring that published work meets a certain standard. This gatekeeping function of peer review has been critiqued as inconsistent, unreliable, over-reliant on unpaid labour and even potentially discriminatory.<sup>14–16</sup> However, our focus in this study is on peer review's intended *feedback* function. Studies of peer review as feedback have tended to focus on its content (*what* is written) and its tone (*how* it is written). For example, Herber et al. found that feedback on qualitative research often focused on methodological concerns and that the feedback was often constructed from a quantitative mindset, compromising its usefulness.<sup>17</sup> Research on *how* feedback is crafted has identified that 'unprofessional' feedback comments appear with distressing frequency<sup>18</sup> and that such comments cause disproportionate harm to under-represented groups.<sup>19</sup> Alongside this incivility, politeness strategies like praise or hedging may also be employed to temper criticism, particularly when reviews are signed by reviewers rather than submitted anonymously.<sup>20</sup> How researchers navigate the process of receiving and responding to peer review feedback, however, remains understudied, both within and outside the field of health professions education.

Numerous influences on how individuals interact with feedback in other contexts have been described, however. A recent realist review of feedback interventions for written tasks in higher education offers useful insights, given the similarity between a student's submission of an assignment for feedback and grading and a researcher's submission of a manuscript for review. This review identified two key influences on how feedback works: (i) students' motivation and engagement, which was in turn influenced by feelings of relatedness, perceptions of competence and autonomy, emotions and self-efficacy, and (ii) contextual factors, including feedback design.<sup>21</sup> Less recent but still relevant, Kluger and DeNisi's feedback intervention theory

suggests that as the target of feedback moves away from the task and towards the self, it becomes increasingly difficult for an individual to use it to improve their performance. Feedback threatening to self-esteem may even be counterproductive, diminishing rather than improving performance.<sup>6</sup> Furthermore, feedback that triggers strong emotions—particularly negative emotions—may be especially difficult for individuals to use productively.<sup>8</sup> Relationships may be important mediators of feedback; when feedback is exchanged in the context of a trusting and longitudinal relationship, its uptake may be bolstered, even if the feedback is challenging for the learner.<sup>4,5</sup> Perceptions related to the intent of feedback are also influential. For example, when learners perceive that information represents a summative assessment of their performance, they are less likely to use that information to develop or improve their skills.<sup>10,22,23</sup> Finally, the culture in which feedback is exchanged is also impactful; whereas some learning cultures appear to facilitate learners' uptake and use of feedback, others appear to complicate it.<sup>24,25</sup>

The peer review setting thus appears to be a difficult place for feedback to thrive—at least at first glance. Threats to feedback effectiveness appear rampant, whereas facilitators of feedback uptake may be in short supply. We therefore set out to better understand how research authors interpret and respond to peer review feedback. Focused more on the process of feedback than its specific content, we asked how research authors make sense of and act upon peer review feedback. In so doing, we hoped to elaborate how feedback functions when some of the conditions thought to be required to optimise it are not—or cannot be—met.

## 2 | METHODS

We used constructivist grounded theory methodology to approach this exploratory research. Constructivist grounded theory is an interpretivist approach particularly suited to deepening our understanding of social and psychological processes.<sup>26</sup> As constructivists, our underpinning ontological assumption is relativism,<sup>27</sup> and we view knowledge as *constructed* through the interaction of the research participant, the researcher and the context and setting. We selected constructivist grounded theory as a methodology because of its capacity to enable an abstract understanding of the processes by which individuals make sense of and use feedback in the understudied context of peer review. Ultimately, we hoped that the opportunity to theorise in this specific context might enhance existing understandings about feedback more broadly.

Sampling unfolded in three phases. We first invited all corresponding authors of papers published in *Medical Education* over a 12-month period in 2019–2020 to participate in a semi-structured interview about the peer review process (six participants). To broaden our sample beyond a single journal, we next invited all corresponding authors of papers published in *Academic Medicine* over a 12-month period in 2020 to participate (seven participants). We began with these two journals because of their reach and influence in the field of health professions education. Finally, to broaden our sample beyond

just those with recent publications in these two high-profile journals, we used Twitter to invite any health professions education researcher who had submitted work to any peer-reviewed journal to participate (four participants). However, each of these final four participants had, at some point, been the first author on at least one paper published in *Medical Education* or *Academic Medicine*. Our sample was thus limited to published research authors, but we felt that those who had successfully navigated the peer review process were likely to be especially useful informants given our research aims. Our total sample of 17 participants included 6 early-career (5 women and 1 man), 6 mid-career (2 women and 4 men) and 5 senior researchers (3 women and 2 men); 13 were based in the USA (7) or Canada (6), whereas the remaining 4 worked primarily in Europe. All participants had also served as peer reviewers for one or more journals.

In preparation for interviews, we asked participants to select and reflect on two peer reviews they had received: one that they had considered more helpful and one that they had considered less helpful. Participants were not limited in these reflections to the published paper that led to their being invited to participate in the study but rather could select and consider any peer reviews they had received. EF or JS then conducted semi-structured interviews using videoconferencing technology during which we asked participants to discuss their perspectives on the peer review process and its impact. Interviews ranged from 33 to 88 minutes in duration (average 55 minutes). We asked about what made for a helpful versus an unhelpful review, about their initial response to reviews and how it had changed over time, about how reviews made them feel about themselves as researchers and writers and about their approaches or strategies to addressing the reviews they received. The two selected reviews were used as a jumping off point for the interviews; although some participants shared their reviews with the interviewer, the reviews themselves were not analysed by the research team. Furthermore, the interviews were not limited to discussion of those two reviews, nor were they limited to discussion of publishing successes. The interview approach was semi-structured and conversational; details of the specific prompts used can be found in Appendix S1. Interviews were recorded and transcribed verbatim by a professional transcription service with experience in qualitative research; identifying data were removed prior to analysis by the research team.

Data collection and data analysis were concurrent and iterative, each influencing the other. Team members each read at least two of the first five transcripts and independently engaged in open coding, identifying and labelling recurring ideas. The team met to discuss these initial coding impressions, and from these discussions, we derived a coding scheme that organised these codes into a series of larger categories. We created definitions and descriptions for each category, which we augmented with specific examples from the data. JS then began using this approach to code subsequent transcripts, with periodic team meetings during which we reviewed new transcripts and discussed the fit of the coding system with the new data, making modifications along the way to ensure that our codes were fully capturing new ideas and discrepant examples. We used NVivo

(QSR International, Burlington MA, USA) software to support this coding process.

We used this concurrent analysis to modify the interview guide to explore key ideas in greater depth. After noting that some early participants spontaneously shared examples of discussions with co-authors as part of the process of navigating peer review, for example, we added specific prompts to explore the role of these collegial conversations in greater depth with subsequent participants. Similarly, we noted that some early participants spontaneously questioned and critiqued the notion of 'peers', and so we added a question in later interviews about how participants defined 'peers'. Our iterative approach also drove theoretical sampling; we moved beyond our initial sampling approach that targeted authors from a single journal, for example, in an effort to identify variation and to more fully elaborate the properties of our developing analytic categories.

Once all our data were coded, CW re-examined all the data in each of the categories in depth, using the approach of constant comparison to elaborate the dimensions of each category. He created a conceptual memo that synthesised the dominant ideas within each category, supported by examples drawn directly from the data. Using these memos as a foundation, he then compared the data across categories, examining the relationships among the categories in order to move the analysis from the categorical to the conceptual. Finally, a tentative synthesis of the data was shared with the full research team and further revised in response to their feedback on the resonance and coherence of the analysis.

We continued sampling until we determined that we had reached data sufficiency. By sufficiency, we do not mean that further data collection could not have yielded any novel ideas. Rather, we mean that our data were sufficiently rich to enable a robust understanding of the process we were studying, without substantive gaps in logic.<sup>28</sup> Sufficiency is an imprecise concept that relies on researcher judgement. In making this judgement, we took into account our ability to recognise conceptual relationships between key ideas, such as the notion of feedback's impact resting on a tenuous balance of facilitators and threats.

We approached reflexivity as an ongoing exercise throughout this study. Two of us (CW and SG) are experienced researchers in health professions education with research programmes that focus extensively on feedback and its challenges. While we both have published extensively, we have also had multiple personal experiences of manuscript rejection and of papers accepted only after trying processes of responding to challenging reviews. We have co-authored a published paper on writing effective peer reviews, and we have both engaged in editorial work for health professions education journals. JS and EF are junior researchers with less extensive personal experience of the peer review process. They are also relative newcomers to the field of health professions education, but their disciplinary backgrounds in history (JS) and women's studies (JS and EF) brought fresh and critical perspectives to the work. Throughout the study—from its inception through our analytic meetings and to the point of manuscript submission—we actively reflected on our own experiences of peer review and how those experiences might be influencing our responses

to the data we were analysing. We discussed these reflections regularly as a team in order to make our perspectives visible and—when appropriate—to challenge them. For example, the two more experienced research team members both found that participants' perspectives on the process were more favourable than anticipated, and surfacing and discussing our surprise at these findings prompted us to ask how and why participants came to perceive such an intensely difficult process as useful. We maintained our reflexivity throughout the process of revising this manuscript for publication, consulting with one another about how to revise and where to push back, about our emotional responses to the reviews and about the unusual nature of engaging in the very process we had studied.

The study received approval from Western University's Research Ethics Board.

### 3 | RESULTS

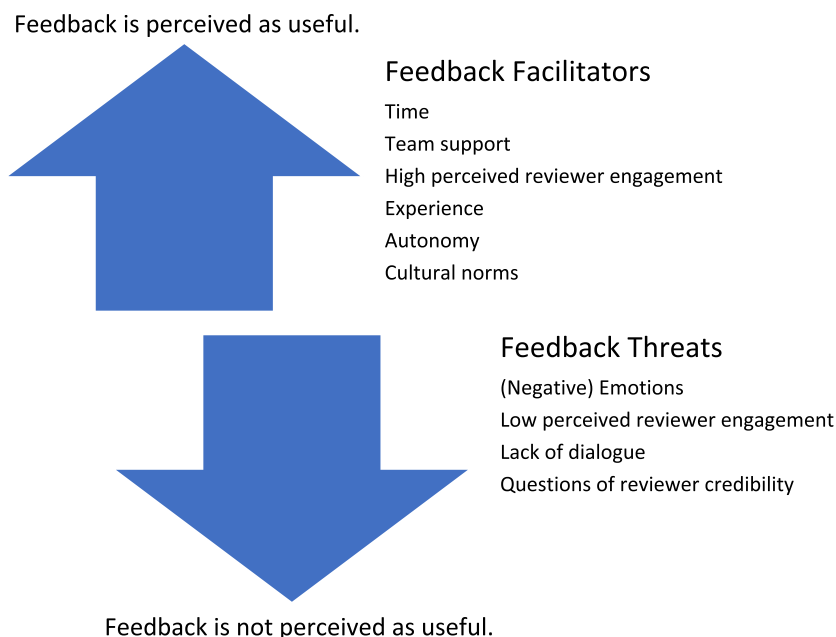
Participants expressed qualified faith in peer review; they believed it contributed both to better science at a community level and to better papers at an individual level. Participants acknowledged, however, that the process was emotionally trying and raised concerns about the credibility of reviews (and reviewers). Yet in most cases, these concerns did not derail the perceived usefulness of the process, highlighting the role of counterbalancing factors. Time, team support, experience and the exercise of autonomy appeared to mitigate the threats posed by difficult feedback. Additionally, the perceived engagement of reviewers and the cultural norms and expectations surrounding the process could bolster authors' willingness to respond productively. Below, we explore the faith participants expressed in the process, the factors that tested that faith and the countermeasures that seemed to allow feedback to shape performance even in trying circumstances. Our analysis suggests a model of feedback

within which its perceived usefulness and propensity to effect improvements in performance turns on the balance of threats and countermeasures (Figure 1).

#### 3.1 | Faith in the process

Participants were generally convinced of the *capacity* of the peer review process to improve the quality of their work, even if that ideal were not always reached. Reflecting on their experiences with peer review across time, one participant noted, 'Most of the feedback, the reviews I received actually made my work better.' (Participant [P] 12). Participants universally viewed peer review as a form of feedback and were committed to engaging with that feedback: 'If I get criticism, I try and take it, and make sense of it, and use it to improve, and ... I do that as a definition of feedback.' (P9). Participants perceived a constructive intent behind peer review feedback and viewed it as a key mechanism for strengthening their work: 'I think it's just about bettering the paper: bettering the paper for quality, making sure the concepts are crystal clear, making sure the messaging is clear.' (P8). For many, peer review feedback offered a critical outsider perspective on their work—a necessary antidote to the 'tunnel vision' (P6) that might creep in: 'It's easy to miss some of the big picture things when you're down to the details, and a lot of times reviewers find those things.' (P3). Some participants also noted that the peer review process offered a pre-emptive test of 'the way that your readers are going to engage with your work for the first time' (P12), which could allow problems to be identified and addressed before publication.

Faith in peer review was not blind, however. Participants acknowledged many imperfections in the process. For example, one participant described their frustration at the unidirectional nature of peer review, which meant that the feedback did not feel like a conversation:



**FIGURE 1** The impact of feedback in the context of peer review represents a balance between elements that threaten and elements that facilitate its uptake and use. We suggest that when threats are counterbalanced by facilitators, individuals are able to make use of feedback to improve their work, even if they find the process difficult [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

I think this is still one of the problems of written feedback .... It misses the enrichment of a discussion, which is basically what you want to have .... For me, it's a difficult medium for addressing feedback. (P6)

Furthermore, several participants acknowledged a gap between the promise of peer review and what it actually delivered. Their work, some admitted, was not always better for the process: 'To me peer review is about making the papers better. And does peer review always deliver on that? No. But it's a human fallible system so why would it?' (P7). Despite these misgivings, participants struggled to identify a better approach; as one noted, 'For the most part it works. I think there are instances where it doesn't work at all, or it works in ways that are unfortunate. But I don't know any good alternative.' (P10).

### 3.2 | Feedback threats: Negative emotions

Peer review feedback frequently triggered strong negative emotions, which could complicate an individual's ability to take up feedback and use it effectively. Participants reflected on their initial emotional responses to the feedback they received, commenting on feeling 'mad, incredulous' (P3), 'angry' (P10) and 'overwhelmed' (P12). Many participants used evocative language to capture the emotional impact: One participant, for example, described peer review as 'very nerve-racking' (P9), whereas another noted that it was 'really upsetting ... emotionally very hard' (P8), and still another highlighted that it was accompanied by 'ridiculous anxiety' (P5).

Some participants linked emotion to the valence or tone of the feedback, acknowledging that 'the level of critique, and the frequency of constructive criticism or sometimes not-so-constructive criticism and rejection in this field takes a little bit of getting used to' (P15).

A recognition of the potential emotional impact of peer review feedback impacted some participants' own work as reviewers; reflecting on their approach to writing reviews, one participant noted, 'I'm very cognizant of how this is going to be received by the other person—how helpful is this, how specific is my feedback, how critical am I being, what words am I using?' (P17). Several commented about a desire, as reviewers, to ensure that recipient of feedback did not feel 'distressed' (P2) or 'sad' (P12), and their concerns about how their words would be received speak to an empathy for the emotional challenges inherent in the process.

For some, however, the emotional response appeared to be related less to the words reviewers used and more to their own deep investment in the work. One participant, for example, linked their strong reaction to peer review to their own emotional connection to their work:

It feels as though, a lot of the time, you are putting out work that is dear to your heart. You put a lot of effort in, hours, emotions, and it lands on someone's desk .... It can be a little bit soul-crushing. (P8)

### 3.3 | Feedback threats: Questions of credibility

Participants contested the notion that all reviewers were peers, with some drawing a distinction between a peer and a 'qualified peer' (P13). Participants bemoaned that the variability in experience and expertise among peer reviewers led to 'unevenness of what you get back' (P10). As a result, we found a disconnect, at times, between participants' espoused belief in the system of peer review and their frustration at its reality, in which feedback could be 'cursory and unhelpful, or ... way out of left field and unhelpful' (P9). Highlighting this concern about inconsistency, one participant commented: 'If you made bread this way, it wouldn't be bread you would want to eat all the time.' (P11).

Reviewers might be deemed not credible if their comments revealed them as lacking appropriate content expertise. As one qualitative researcher noted, 'When you use words like that ["adequately powered"], you are clearly not qualified to give the review.' (P13). Conversely, reviewers were respected, and their credibility often enhanced, when they were 'up front about the limitations of their expertise' (P15). Credibility also related to the capacity of the reviewer to offer critical feedback that pinpointed areas for improvement. Not all reviewers were perceived as possessing this skill: 'Some people aren't very critical people. Some people should not be food critics. They love every piece of food. Not everyone can be a Michelin food critic. There is an expertise.' (P7).

### 3.4 | Countermeasures

Threats to the usefulness of peer review feedback are thus daunting: strong emotions, reviews of inconsistent quality and questionable credibility. Furthermore, peer review feedback generally fails to meet the contemporary ideal of feedback as conversation, instead feeling like a product for recipients to accept and absorb. How, then, does this process ever succeed? After all, participants ultimately endorsed the process as usually effective. The answer, we found, involved a range of countermeasures: facilitators of the feedback process that combined to enable feedback to effect positive change, despite its inherent difficulties.

### 3.5 | Time and team

Participants repeatedly invoked time as a necessary mediator of the process of engaging with peer review feedback. Setting difficult reviews aside, then returning 'when the dust settled and emotions were gone' (P6), was a common strategy. The more emotionally challenging the feedback, the more important this cooling off period appeared to be. As one participant noted,

If it is difficult feedback, the process is usually to sit .... Usually eventually you do process it, and that's the kind of review where I probably will not look at it for a

month again until I'm ready to revisit it without the same kind of intensity of emotion. (P16)

This individual recognised that emotions like disappointment or frustration could block efforts to make sense of and use difficult feedback and thus programmed time for these emotions to dissipate before revising.

In addition to time, many participants relied on teams, including collaborators and mentors, to support and assist in the process of making sense of challenging feedback. Teams could assist through collective venting and normalising emotional responses:

It helped to go over things in a safe space and a shared space and hear how everybody else interpreted things and what they felt about things, and where I found something evoked anger or frustration, to hear that echoed by them was helpful, also, because it wasn't just me being overly sensitive. It wasn't me being unnecessarily frustrated. I could hear it from them and that validated what my experience had been in reading it. (P8)

Beyond venting and validating, teams could help to gradually shift the author's perspective to position them to more productively approach revisions. For example, one participant spoke of how their team 'helped shift my mindset' and 'voiced confidence in our work' (P3), which made them feel as though successful revisions were achievable.

### 3.6 | Experience and autonomy

Experience and career stage also played a facilitatory role for some. With experience, participants could more readily put difficult reviews into perspective, manage their emotional responses and strategise effectively about how to respond. Some noted that harsh reviews early in their career had been more likely to trigger feelings of impostorism: 'When I was very junior, I just felt like I don't belong here, reading some of the reviews I got in this academic space.' (P8).

With time, some described developing a critical skill in responding to peer feedback: selective 'pushing back' on feedback with which they disagreed. As one senior researcher noted, 'I think when you're junior, you don't realize that you can push back.' (P4). With time and support from mentors and colleagues, authors learned 'to justify my own arguments and stand behind them and also not let peer reviewers from highly esteemed journals make a truth statement' (P1). Recognising that some pushing back was not only acceptable but also expected in the process afforded authors a sense of autonomy in responding to feedback that they perhaps had not felt early in their careers. As another senior researcher commented, 'I'm not afraid *any more* to say, hey, look, we appreciate that the reviewer wrote this, however, we see it this way.' (P11). Note their use of the word 'any more', which implies that this sense of autonomy was hard-won through time and experience.

### 3.7 | Perceived engagement

When reviewers appeared engaged, and when it seemed that their intent was 'clearly in the spirit of wanting to enhance the paper' (P17), participants were often able to frame the feedback in a positive light and to use it as motivation: 'Getting people who were really thoughtful and wanting to publish this paper really motivated me to dig deep and try to be open to their feedback and to honour it.' (P10). Participants interpreted feedback that was specific, actionable and constructive as evidence of reviewer engagement but also valued feedback that signalled that a reviewer had grappled with the ideas of the paper and thought deeply about the work: 'I think I appreciated it more because I knew they were authentically wrestling with the argument, the logic of it, the data, the inferences .... They were joining in the process of making sense.' (P5). This kind of engagement appeared validating, often regardless of whether the actual feedback was favourable or critical.

Participants did not, in fact, appear averse to critical feedback. Despite the identified difficulties of processing peer reviews, many participants felt shortchanged if they did not receive detailed critique, interpreting it as both an opportunity lost and a sign of an unengaged reviewer. As one participant commented, 'It can be ... great, when you get that short peer review. It's easy to address, but it also feels like you were kind of cheated of good feedback on your paper.' (P3). Insufficiently critical reviews also tended to undermine the credibility of the reviewer and sometimes of the process itself: 'I wouldn't trust a journal that took my paper without recommendations for change.' (P10).

### 3.8 | Cultural expectations

Perhaps the strongest factor motivating individuals to engage meaningfully with feedback was simply the non-negotiable nature of the process within their professional domain. As one participant noted, 'The peer review process is something that's a given. It's important. It's necessary.' (P10). Even as individuals grappled with the frustrations of the process, they tended to acknowledge its central role in the scientific community of which they were a part. Peer review was viewed as a 'stamp of quality' (P6), and respect for the process appeared baked into the value system: 'It's ... part of scientific values and practices. It's such a special thing that we do—deliberately seek out different voices and different perspectives. And for those folks to be critical of the work, it's special.' (P5). When peer review was framed as a strongly held cultural value, engaging with it became not only a rite of passage but also an element of professional identity. Some participants, for example, spoke about how navigating the process reinforced their confidence as researchers: 'I think some of the papers I'm the most proud of are the ones that I got a ton of reviewer comments back and did a lot of work to address them, and feel like this paper was really improved.' (P13).

Not everyone was quite so reverential. Some were 'resigned now to the fact that this is just the process of academia' (P8), but even this

acceptance of the cultural place of peer review in the field appeared to make engaging with it easier. Others described the process as a game to be played, sometimes with a 'performative aspect' (P15), and frustration could occur when people felt they were 'changing for the sake of changing, instead of improving' (P2) in their responses. And, from time to time, the process appeared to fail, as in this example from a senior researcher who, as a junior scholar, had allowed a paper to die on the vine rather than engaging with peer feedback that felt overwhelming: 'I never resubmitted it actually. And again, there were lots of reasons for that, partly because there was just so much there, like I didn't know where to start.' (P17).

Still, most participants admitted that peer review was generally effective in improving their work. We posit that much of the time, peer review accomplishes a balancing act that appears necessary for feedback to be effective: threats to its usefulness are counterbalanced by facilitators that enable recipients to engage productively. Some of these facilitators involve individuals enacting mitigation strategies, whereas others relate to a culture that makes the process a core part of its value system (Figure 1).

## 4 | DISCUSSION

Threats to the productive uptake of peer review feedback abound, including emotional risk, questions about credibility, lack of dialogue and absence of relationship. But despite these threats, authors tend to perceive peer review feedback as useful, reflecting the influence of a range of measures that may successfully combat these threats. Previous work has tended to focus on particular elements of the feedback dynamic that contribute to its success or failure—issues like emotion, relationship, credibility and cultural norms. Our study begins to pull these threads together, enabling a clearer view of feedback as a potentially fragile dynamic with a number of interacting influences. This understanding of feedback as a balancing act may enable authors, reviewers and educators to identify elements that might derail a particular feedback interaction and to enact targeted mitigation strategies.

Before going further, let us revisit our definition of feedback. From the outset, we wondered whether peer review was even perceived as feedback. Increasingly influential definitions of feedback highlight dialogue, mutuality and relationship<sup>12</sup>—features that peer review cannot convincingly claim. Our participants, however, had no qualms about discussing peer review as feedback, suggesting that for them a broader definition was at play. Carless and Boud's definition of feedback as a 'process through which learners makes sense of information from various sources and use it to enhance their work or learning strategies' may more closely approximate the peer review dynamic, while maintaining the emphasis on feedback as a process rather than as a moment in time.<sup>29</sup> Some of the strategies that participants described for engaging meaningfully in this process appeared designed to create some sense of dialogue and relationship, albeit in ways that did not depend on direct interaction between author and reviewer. For example, participants relied on

mentors, colleagues and writing teams to vent to and to debrief with, facilitating their interpretation and use of reviewer feedback. Such countermeasures fill a gap by bringing elements of conversation to the process. They also highlight the role of relationship in making meaning from feedback; to compensate for the absence of a relationship with their reviewers, authors drew on supportive collegial relationships.

Conversation and relationship may not be entirely absent in the author/reviewer dynamic; however, they may be implied rather than overt. When a reviewer engages deeply with an author's ideas, that engagement may create a sense of relationship and conversation. The reviewer may not know or converse directly with the author, but their feedback may still resonate as a message of support for and belief in the work's (and the author's) potential. The value of relationship in contemporary models of feedback lies, in part, in its capacity to nurture shared goals and in the trust that develops around the developmental intent of feedback that is exchanged.<sup>4</sup> Some of the most productive experiences our participants described involved an implied relationship: They sensed strongly that reviewers were engaged and shared a goal of making the work stronger.

Our work calls attention to another important facilitator for processing peer review feedback: autonomy. For participants in our study, autonomy manifested primarily as selective 'pushing back' on certain feedback. The opportunity to defend and stand by certain elements of one's work, coupled with the perception that to do so in a balanced way was a mark of good scholarship, afforded participants a measure of control of a process that otherwise often felt outside their control. Self-determination theory posits that autonomy, along with competence and relatedness, is a foundational psychological need and that human motivation depends on meeting that need.<sup>30</sup> Indeed, these moments of autonomy appeared to be important facilitators of our participants' capacity to absorb and use peer review feedback. This finding may have useful implications beyond the peer review context, as it offers insight into why feedback conversations in other settings might not always unfold as planned. In many medical education settings, for example, feedback conversations may rob learners of autonomy. When learners push back, they may be perceived as difficult, lacking in insight or even unprofessional.<sup>31</sup> For feedback to support rather than constrain autonomy, learners may require opportunities, as research authors have, to safely question or even disagree with some feedback.

Individual autonomy is not unlimited, though, and our work also reinforces the power of cultural expectations to shape engagement in feedback processes. The elephant in the room when we consider why people seem to make productive use of feedback in these trying circumstances is that they do it because they *have to*. Engaging effectively with peer review feedback is an absolute requirement for researchers who wish to publish their work. Honing what Carless and Boud call 'feedback literacy'<sup>29</sup> is thus a professional imperative in this context. The design of typical peer review processes may, in fact, support the researchers' development of feedback literacy. In one study, students who were required to explain *how* they had incorporated teacher feedback in revising their papers showed more

improvement in paper quality than students who submitted revised papers without explaining how they had incorporated feedback.<sup>32</sup> Research authors may thus build feedback literacy by necessity and by design, and they may also come to embrace the capacity to navigate peer review as a distinct professional skill set, further reinforcing the process. In addition, professional culture normalises certain kinds of feedback conversations, and coping with challenging feedback may be facilitated in circumstances where such feedback is the norm and where recipients understand that they are not being singled out.<sup>25</sup> The current culture of peer review, however, primarily burdens the author to develop feedback literacy. We envision a useful cultural shift that embraces feedback as a shared responsibility: a domain in which the feedback literacy of the reviewer matters as much as that of the reviewed.<sup>33</sup>

Finally, where feedback is concerned, product reinforces process. Molloy et al. have suggested that feedback processes should focus as much on outputs as on inputs, noting that to do so may strengthen learner engagement.<sup>34</sup> Our findings reinforce this critical shift in thinking. The peer review process centres around a specific product: the written manuscript. The product is something its creators care about very deeply. When authors are convinced—as our participants often were—that the final product is meaningfully improved as a result of the peer review process, their faith in that process is strengthened. They may be better prepared to cope with the imperfections and difficulties of the process because they trust its potential to improve their work. A striking finding from our analysis was the disappointment some authors experienced when they received feedback that was insufficiently critical. On the surface, this finding might appear to be at odds with research that highlights the difficulties of feedback that is emotionally confronting or threatens self-esteem.<sup>6–8</sup> But it elaborates a phenomenon that Kluger and Van Dijk called the ‘mystery of the feedback sign’, which refers to the observation that despite these known threats, feedback’s effectiveness does not appear to be influenced in a consistent fashion by its valence (whether it is positive or negative).<sup>35</sup> In short, feedback perceived as ‘negative’ may still exert powerful (and positive) effects on performance. Our work suggests that apparent threats to self may be blunted by clear evidence that the feedback process has been effective and worthwhile. High-quality published manuscripts not only reinforce researchers’ identities as professionals but also reinforce the value they assign to the critical feedback that helped to achieve that outcome.

## 4.1 | Implications

Peer review occupies a powerful cultural position within academia. Researchers who wish to publish their work *must* engage. Journals and the academics who review for them thus have a responsibility to shape a culture of peer review feedback that is as consistently productive as possible. To this end, we offer some practical suggestions. Reviewers should engage in a fashion that communicates a clear intent of improving the work, even if a manuscript is rejected. Training

for reviewers that focuses on using coaching-informed language that signals a developmental intent, crafting specific and actionable comments and distinguishing reflections from requests should be made available.<sup>36</sup> Because reviewer engagement requires time and effort, we believe institutions should place a higher premium on peer review work when they set expectations for faculty members and when they evaluate promotion dossiers. Journals might consider creative strategies to embed elements of relationship and dialogue in their processes. If a manuscript is judged as having potential, perhaps a conversation between reviewer and author (or editor and author) would be more productive than simply sharing written comments and hoping the author navigates them effectively. Researchers have a role to play also. They should nurture cultures within their research communities or institutions that support the often-difficult process of navigating peer review. Research teams should normalise conversations that make sense of reviews, attending to both the potential emotional fallout and the challenge of interpreting reviews and strategising about meaningful responses. Finally, we believe the peer review process offers fertile ground for design-based research that allows researchers and journals to explore innovative approaches collaboratively.

## 4.2 | Limitations

Our sampling strategy favoured authors who had ultimately succeeded in getting a manuscript published in a high-profile journal. Others have shown that such individuals might be more likely to express a positive view of peer review,<sup>37</sup> and so we acknowledge that this design decision might have contributed to a particularly favourable impression of the peer review process. However, most of our participants drew on experiences of both acceptance and rejection in responding to our interview prompts, which we felt helped to mitigate this limitation. Additionally, we were reassured by the richness of our data and its illumination of the extent to which even successful authors could experience the peer review process as a challenging one. We did not analyse participants’ actual reviews, and as a result, we acknowledge that their stories may have been reshaped as a result of time and subsequent experience. To address this limitation proactively, we did invite participants prior to the interview to review both a peer review example they had considered helpful and one they had considered unhelpful, and at least some of our participants thus took the time to re-read their reviews in advance of the interview so that the experience would be fresh. We limited our sample to the field of health professions education; while this field offers the advantage of multi-disciplinarity, it is also a community that is perhaps more inclined to have thought deeply about issues of feedback and learning. Finally, we also limited our sample to participants from a small number of Western countries; authors from these countries are disproportionately represented in the health professions education literature, and their experiences are unlikely to be representative of authors from other parts of the world whose work is less frequently published.



## 5 | CONCLUSIONS

Peer review offers challenges to the exchange of meaningful feedback. But no feedback situation is perfect. The players involved may not have a relationship. Emotion and self-esteem threats might be inevitable. Intentions of a face-to-face conversation might not materialise, and feedback may necessarily occur in writing or asynchronously. Each of these elements may threaten the viability of the feedback process, but these threats need not be fatal. When threats are unavoidable, we must recognise them and take deliberate steps to counterbalance them.

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Not applicable.

### CONFLICTS OF INTEREST

None.

### ETHICS STATEMENT

This study was approved by the Research Ethics Board of Western University.

### AUTHOR CONTRIBUTIONS

Chris Watling conceptualised and designed this study, led the data analysis and drafted the manuscript. Jennifer Shaw interviewed participants, contributed meaningfully to the coding and analytic process and participated in revising the manuscript. Emily Field interviewed participants, contributed meaningfully to the coding and analytic process and participated in revising the manuscript. Shipra Ginsburg contributed to conceptualising and designing the study and to data analysis and participated in manuscript revisions. All authors approved the submitted manuscript and are accountable for all aspects of the work.

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### REFERENCES

- Sargeant J, Lockyer J, Mann K, et al. Facilitated reflective performance feedback: developing an evidence- and theory-based model that builds relationship, explores reactions and content, and coaches for performance change (R2C2). *Acad Med*. 2015;90(12):1698-1706. doi:10.1097/ACM.0000000000000809
- Ramani S, Könings KD, Ginsburg S, Van der Vleuten C. Feedback redefined: principles and practice. *J Gen Intern Med*. 2019;34(5):744-749. doi:10.1007/s11606-019-04874-2
- Tavares W, Eppich W, Cheng A, et al. Learning conversations: an analysis of the theoretical roots and their manifestations of feedback and debriefing in medical education. *Acad Med*. 2020;95(7):1020-1025. doi:10.1097/ACM.0000000000002932
- Telio S, Ajjawi R, Regehr G. The “educational alliance” as a framework for reconceptualizing feedback in medical education. *Acad Med*. 2015; 90(5):609-614. doi:10.1097/ACM.0000000000000560
- Bates J, Konkin J, Suddards C, Dobson S, Pratt D. Student perceptions of assessment and feedback in longitudinal integrated clerkships. *Med Educ*. 2013;47(4):362-374. doi:10.1111/medu.12087
- Kluger AN, DeNisi A. The effects of feedback interventions on performance: a historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychol Bull*. 1996;119(2):254-285. doi:10.1037/0033-2909.119.2.254
- Eva KW, Armson H, Holmboe E, et al. Factors influencing responsiveness to feedback: on the interplay between fear, confidence, and reasoning processes. *Adv Health Sci Educ*. 2012;17(1):15-26. doi:10.1007/s10459-011-9290-7
- Sargeant J, Mann K, Sinclair D, Van der Vleuten C, Metsemakers J. Understanding the influence of emotions and reflection upon multi-source feedback acceptance and use. *Adv in Health Sci Educ*. 2008; 13(3):275-288. doi:10.1007/s10459-006-9039-x
- Watling CJ, Ginsburg S. Assessment, feedback and the alchemy of learning. *Med Educ*. 2019;53(1):76-85. doi:10.1111/medu.13645
- Harrison CJ, Könings KD, Schuwirth LWT, Wass V, Van der Vleuten CPM. Changing the culture of assessment: the dominance of the summative assessment paradigm. *BMC Med Educ*. 2017;17(1):73. doi:10.1186/s12909-017-0912-5
- Eva KW. The reviewer is always right: peer review of research in Medical Education. *Med Educ*. 2009;43:2-4. p.3.
- Ajjawi R, Regehr G. When I say ... feedback. *Med Educ*. 2019;53(7): 652-654. doi:10.1111/medu.13746
- Jauregui J, Artino AR, Ilgen JS, Sullivan G, van Schaik SM. Publishing your scholarship: a survey of pearls from top reviewers. *Med Educ Online*. 2022;27(1):2016561. doi:10.1080/10872981.2021.2016561
- Walker R, Rocha da Silva P. Emerging trends in peer review—a survey. *Front Neurosci*. 2015;9:169. doi:10.3389/fnins.2015.00169
- Kravitz RL, Franks P, Feldman MD, Gerrity M, Byrne C, Tierney WM. Editorial peer reviewers' recommendations at a general medical journal: are they reliable and do editors care? *PLoS ONE*. 2010;5(4): e10072. doi:10.1371/journal.pone.0010072
- Budden AE, Tregenza T, Aarssen LW, Koricheva J, Leimu R, Lortie CJ. Double-blind review favours increased representation of female authors. *Trends Ecol Evol*. 2007;23(1):4-6. doi:10.1016/j.tree.2007.07.008
- Herber OR, Bradbury-Jones C, Böling S, et al. What feedback do reviewers give when reviewing qualitative manuscripts? A focused mapping review and synthesis. *BMC Med Res Methodol*. 2020;20(1): 122. doi:10.1186/s12874-020-01005-y
- Gerwing TG, Gerwing AMA, Avery-Gomm S, Choi C-Y, Clements JC, Rash JA. Quantifying professionalism in peer review. *Res Integr Peer Rev*. 2020;5:9. doi:10.1186/s41073-020-00096-x
- Silbiger NJ, Stubler AD. Unprofessional peer reviews disproportionately harm underrepresented groups in STEM. *Peer J*. 2019;7:e8247. doi:10.7717/peerj.8247
- Nobarany S, Booth KS. Use of politeness strategies in signed open peer review. *J Assoc Inf Sci Technol*. 2015;66(5):1048-1064. doi:10.1002/asi.23229
- Ajjawi R, Kent F, Broadbent J, Tai JH, Bearman M, Boud D. Feedback that works: a realist review of feedback interventions for written tasks. *Stud High Educ*. 2022;47(7):1343-1356. doi:10.1080/03075079.2021.1894115
- Harrison C, Wass V. The challenge of changing to an assessment for learning culture. *Med Educ*. 2016;50(7):704-706. doi:10.1111/medu.13058
- Henneman S, Oudkerk Pool A, Schuwirth LWT, van der Vleuten CPM, Driessen EW. The impact of programmatic assessment on student learning: theory versus practice. *Med Educ*. 2015;49(5): 487-498. doi:10.1111/medu.12645
- Watling C, Driessen E, van der Vleuten C, Lingard L. Learning culture and feedback: an international study of medical athletes and musicians. *Med Educ*. 2014;48(7):713-723. doi:10.1111/medu.12407

25. Watling C, Driessen E, van der Vleuten C, Vanstone M, Lingard L. Beyond individualism: professional culture and its influence on feedback. *Med Educ*. 2013;47(6):585-594. doi:[10.1111/medu.12150](https://doi.org/10.1111/medu.12150)
26. Charmaz K. *Constructing Grounded Theory*. Thousand Oaks: Sage; 2014.
27. Lincoln YS, Guba EG. *The Constructivist Credo*. New York: Routledge; 2013:39.
28. Morse JM. Data were saturated .... *Qual Health Res*. 2015;25(5):587-588. doi:[10.1177/1049732315576699](https://doi.org/10.1177/1049732315576699)
29. Carless D, Boud D. The development of student feedback literacy: enabling uptake of feedback. *Assess Eval High Edu*. 2018;43(8):1315-1325.
30. Sawatsky AP, O'Brien BC, Hafferty FW. Autonomy and developing physicians: reimagining supervision using self-determination theory. *Med Educ*. 2022;56(1):56-63. doi:[10.1111/medu.14580](https://doi.org/10.1111/medu.14580)
31. LaDonna KA, Ginsburg S, Watling CJ. Shifting and sharing: academic physicians' strategies for navigating underperformance and failure. *Acad Med*. 2018;93(11):1713-1718. doi:[10.1097/ACM.00000000000002292](https://doi.org/10.1097/ACM.00000000000002292)
32. Daniel F, Gaze CM, Braasch JLG. Writing cover letters that address instructor feedback improves final papers in a research methods course. *Teach Psychol*. 2015;42(1):64-68. doi:[10.1177/0098628314562680](https://doi.org/10.1177/0098628314562680)
33. Carless D, Winstone N. Teacher feedback literacy and its interplay with student feedback literacy. *Teach High Educ*. 2020 (published online). doi:[10.1080/13562517.2020.1782372](https://doi.org/10.1080/13562517.2020.1782372)
34. Molloy E, Ajjawi R, Bearman M, Noble C, Rudland J, Ryan A. Challenging feedback myths: values, learner involvement and promoting effects beyond the immediate task. *Med Educ*. 2020;54(1):33-39. doi:[10.1111/medu.13802](https://doi.org/10.1111/medu.13802)
35. Kluger AN, Van Dijk D. Feedback, the various tasks of the doctor, and the feedforward alternative. *Med Educ*. 2010;44:1166-1174.
36. Watling C, Ginsburg S, Lingard L. Don't be reviewer 2! Reflections on writing effective peer review comments. *Perspect Med Educ*. 2021;10(5):299-303. doi:[10.1007/s40037-021-00670-z](https://doi.org/10.1007/s40037-021-00670-z)
37. Gibson M, Spong CY, Simonsen SE, Martin S, Scott JR. Author perception of peer review. *Obstet Gynecol*. 2008;112(3):646-651. doi:[10.1097/AOG.0b013e31818425d4](https://doi.org/10.1097/AOG.0b013e31818425d4)

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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