



# We know *what* they did wrong, but not *why*: the case for ‘frame-based’ feedback

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**Cognitive biases impede clinical diagnosis, the same biases can also undermine accurate feedback**

## SUMMARY

**Background:** Actionable feedback targeted to the learner’s needs is one of the strongest predictors of improved performance in learning. Unfortunately, when a trainee makes an error, although instructors may understand what a trainee has done wrong, they can erroneously assume they know why.

**Context:** There is a growing recognition that cognitive biases impede clinical diagnosis, how-

ever, the same biases can also undermine accurate and effective feedback.

**Innovation:** Instead of focusing primarily on correcting actions, it is often crucial to diagnose trainees’ ‘frames’ – the thought processes that drive their actions. We offer an efficient three-step algorithm for providing this ‘frame-based’ feedback: (1) describe how the trainee is doing according to the instructor; (2) diagnose the trainee’s

immediate learning needs using inquiry to elicit their frame; and (3) direct instruction to those needs.

**Implications:** ‘Misdiagnosis’ of the trainee’s actual needs wastes time when instructors teaching unneeded material, diminishes the trainee’s faith in the value of instruction and undermines patient safety when incorrect frames about important clinical processes persist.

## INTRODUCTION

**T**imely, accurate and actionable feedback is one of the strongest predictors of improved performance in learning.<sup>1,2</sup> Unfortunately, clinical feedback is often woefully inadequate, both in frequency and quality.<sup>3-5</sup> When we instructors help trainees learn from mistakes, we usually make a serious mistake of our own: whereas we may know *what* the trainee has done wrong, we erroneously assume we know *why*. Although there is a growing recognition that cognitive biases impede clinical diagnosis,<sup>6</sup> the same biases can also derail sound feedback. Our errors in diagnosing the basis of learners' mistakes aren't the result of our inadequate clinical experience or knowledge. Rather, like everyone else, we are subject to a range of cognitive biases that distort how we perceive the learning needs of trainees, and we are subject to social and psychological constraints that restrict how we address them.<sup>7,8</sup>

Translating evidence from the behavioural sciences and education literature, and using the first two authors' experience in over 6000 debriefings of clinical simulations and the senior author's greater than 25 years of clinical teaching, we argue for a shift in how instructors provide feedback. Instead of focusing primarily on correcting actions, we think it is vital to diagnose trainees' 'frames' – the thought processes that drive their actions. We offer an efficient three-step conversational algorithm for providing this 'frame-based' feedback: (1) describe how the trainee is doing according to the instructor; (2) diagnose the trainee's immediate learning needs using inquiry to elicit their frame; and (3) direct instruction to those needs. Importantly, the algorithm eliminates the all too common mismatch between what an instructor believes the trainee's problem is and the trainee's actual learning



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needs. 'Misdiagnosis' of the trainee's actual needs wastes time teaching unneeded material, diminishes the trainee's faith in the value of instruction and undermines patient safety when incorrect frames about important clinical processes persist.

### A CASE OF INSTRUCTIONAL 'MISDIAGNOSIS'

Consider the real case of a well-regarded third-year otolaryngology resident doctor performing surgery to remove a parotid tumour. Although supervised by the attending physician, the trainee hesitates, can't readily find the correct tissue planes, and doesn't move forward without guidance and encouragement at each step. The procedure drags on longer than it should. As the trainee and senior surgeon await extubation, the senior surgeon speaks quietly with the trainee, identifies the problem, its underlying cause, and a solution. She says:

**'That really went poorly. You slowed us way down.'**  
(Instructor's characterisation of the trainee's actions.)

**'You really lack confidence as a surgeon, and I think you need to work on this.'** (Instructor's diagnosis of the reason for the faulty actions.)

**'You are a very good surgeon, and you should have confidence in your abilities. Let me suggest that you scrub in on more cases so that you get more experience, which should help you feel more confident.'** (Instructor's solution for the trainee's problem.)

This apparently benign intervention has several problems. The instructor's characterisation was harsh and non-specific. Next, the assessment of the trainee's difficulty is wrong. As it turns out, the trainee doesn't lack confidence, he lacks sleep. As a result, the suggested solution, to scrub on more cases, won't fix the real problem: the complex issue of whether, and how, to admit one is tired and establish the correct level of engagement for procedures that day. In fact, the suggested solution will likely

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exacerbate the underlying problem, even given work-hour limits.

### **What is happening here?**

The senior surgeon observed behaviour in the resident that she labelled as 'hesitance and diffidence'. Consistent with 40 years of research on cognitive biases, she makes an understandable but untested assumption about why the trainee had so much trouble.<sup>8,9</sup> When we mistake our inferences for reality, we operate with unwarranted certainty and fail to test our assumptions.<sup>7</sup>

## **A FEEDBACK ALGORITHM**

The three-step algorithm we propose to avoid these problems is likely to be most effective when instructors operate with certain assumptions during the feedback conversation: we should view our own conclusions about trainee performance with healthy skepticism, and assume that the trainee is well intentioned and intelligent. With these assumptions in place, instructors can now engage.

### **Step 1 – describe the problem from the instructor's perspective**

*Tell the trainee unambiguously and specifically what, from the instructor's personal perspective, went wrong (or right)*

'It seemed to me you had difficulty with some portions of the procedure; I saw you hesitate and check with me quite often. I think this extended the procedure, which is a problem, in my view.'

Direct feedback that critiques specific, observable behaviour in a way that is both pointed *and* perceived as fair by the recipient is rare. Why? The instructor's need to appear highly knowledgeable and invulnerable, or the contrasting desire not to offend or insult trainees, tips instructors into one of two ineffective feedback delivery approaches. The

'expert' or 'controlling' approach readily offers a direct, even harsh critique of trainees from the omniscient perspective, secure in the belief that forcefully sharing their expertise will remedy all problems.<sup>10</sup> For example, 'That was a fiasco. You were really tentative and slow'. The 'diplomatic' or 'non-judgmental' approach seeks to avoid confrontation and defensiveness by using leading questions or gentle cross-examination, in which the instructor never directly reveals his or her concerns or judgments, and attempts to lead the trainee to the critique that they hold but will not say.<sup>7,10</sup> A common questioning sequence in this approach is as follows: 'How do you think the case went?' 'Did you have any concerns about the pace?' 'Do you feel you were hesitating a lot?'

Although inquiry is important, it shouldn't happen until step 2.

### **Step 2 – diagnose the frames**

*Ask questions to discover what 'cognitive frames' drove the trainee's action*

Half a century of research in social, cognitive and developmental psychology has found that people's actions and decisions are guided by frames and 'heuristics'.<sup>7,11,12</sup> A cognitive 'frame' is an internal image or mental model of external reality. Clinicians actively filter and make sense of clinical situations through these frames.<sup>7,11,12</sup> Even mistakes make perfect sense once one understands how the person was framing the situation at that moment. Effective clinical teaching involves shifting our emphasis from changing only the external actions of our trainees to also understanding and influencing their internal thought processes.<sup>12,13</sup> We clinical teachers systematically misjudge the underlying reasons, or frames, for other people's actions.<sup>8</sup> Worse, we default to the role of knowl-

edgeable and certain expert, losing the critical curiosity and positive regard needed to understand the learner's frame. Being open enough to elicit someone else's frames requires a parallel process of testing or being skeptical about our own assumptions.

Accurate instructional diagnosis requires becoming a 'cognitive detective'. In this case, for the instructor to 'test' her assumptions would require that she regard her own preliminary hypothesis about the cause of the trainee's problem with skepticism, and that she is curious enough to elicit the resident's 'frame' or point of view about his apparent hesitance during the case.

Consider this revision of the first conversation:

'It seemed to me you had difficulty with some portions of the procedure; I saw you hesitate and check with me quite often. I think this extended the procedure, which is a problem, in my view'. (Instructor gives a clear, straightforward critique of the trainee's actions and their consequences.)

'What do you think was going on today?' (Inquiry to elicit trainee's frame.)

'Yeah. I am actually really tired.' (Trainee begins to reveal his frame.)

'Oh. Why is that?' (Further inquiry by instructor.)

'I had quite a difficult night last night. There were several emergencies, and I didn't get any sleep. I could really tell it was impacting

my surgical ability in this case. To be honest, I don't know how to deal with this, as I am officially still within the duty hour regulations. Also, I didn't feel comfortable admitting that I was that tired.' (Trainee reveals his frame.)

### Step 3 – teach to trainee's frames

*Tailor instruction and discussion to the trainee's frames*

Feedback efficiency and efficacy can be greatly enhanced by eliciting the cognitive frames that drove the trainee's actions, and using these frames to target instruction.

Now that the instructor has uncovered the trainee's concerns, she can match her teaching points to the trainee's needs:

I'm glad you told me about that. I know it's difficult to admit to being fatigued, but it's really important for both patient care and your learning. Next time, just let me know beforehand: we can either find another trainee to assist or you could do more assisting and less operating. I would fully

support you for doing that.' (Instruction tailored to match trainee's frame.)

## CONCLUSION

We suggest that this diagnostic approach to feedback expands the focus from the external actions or inactions of trainees to their internal frames and assumptions. As in clinical diagnosis, it demands that we recognise and question the assumptions we make about the trainee based on the 'signs and symptoms' of their performance. Holding the basic assumption that the trainee is intelligent, capable and well intentioned, effective feedback requires that we confirm our instructional diagnoses before rushing into corrective 'treatment'.

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