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TWELVE TIPS

Twelve tips for teaching reflection at all levels of medical education

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Abstract

Background: Review of studies published in medical education journals over the last decade reveals a diversity of pedagogical approaches and educational goals related to teaching reflection.

Aim: The following tips outline an approach to the design, implementation, and evaluation of reflection in medical education.

Method: The method is based on the available literature and the author's experience. They are organized in the sequence that an educator might use in developing a reflective activity.

Results: The 12 tips provide guidance from conceptualization and structure of the reflective exercise to implementation and feedback and assessment. The final tip relates to the development of the faculty member's own reflective ability.

Conclusion: With a better understanding of the conceptual frameworks underlying critical reflection and greater advance planning, medical educators will be able to create exercises and longitudinal curricula that not only enable greater learning from the experience being reflected upon but also develop reflective skills for life-long learning.

Introduction

In recent years, professional organizations and accrediting bodies have called for the inclusion of reflection at all levels of medical education (ACGME 1999; ABIM Foundation, ACP-ASIM Foundation, European Federation of Internal Medicine 2002; Frank 2009; GMC 2009). These calls come in response to a growing literature in medical education suggesting that reflection improves learning and performance in essential competencies. Specifically, reflective learning can improve professionalism and clinical reasoning, and reflective practice can contribute to continuous practice improvement and better management of complex health systems and patients (Mann et al. 2007; Sandars 2009). This work builds on an extensive and decades-old literature on the benefits of reflection in higher education and life-long learning, but offers only partial guidance for medical educators in deciding how best to teach and develop reflective skill in their learners.

Review of studies published in medical education journals over the last decade reveals a diversity of pedagogical approaches and educational goals. The following tips outline an approach to the design, implementation, and evaluation of reflection in medical education based on the available literature and author experience. The tips are ordered in a sequence an educator might use in planning a reflective activity and are applicable to learners in undergraduate, graduate, and continuing education settings.

Tip 1

Define reflection

Because reflection is a familiar concept in everyday life, medical educators must distinguish the common usage of the term from the particular skill set associated with important educational outcomes. Colloquially, to reflect means to look back and consider something. While such thoughtfulness can result in insight and learning, it does not automatically lead to the high level analysis, questioning, and reframing required for transformative learning. *Critical reflection*, by contrast, has been described by Mezirow as follows:

... the process of becoming critically aware of how and why our presuppositions have come to constrain the way we perceive, understand, and feel about our world; of reformulating these assumptions to permit a more inclusive, discriminating, permeable and integrative perspective; and of making decisions or otherwise acting on these new understandings. More inclusive, discriminating, permeable and integrative perspectives are superior perspectives that adults choose if they can because they are motivated to better understand the meaning of their experience (Mezirow 1990).

Simply put, critical reflection is the process of analyzing, questioning, and reframing an experience in order to make

an assessment of it for the purposes of learning (reflective learning) and/or to improve practice (reflective practice). If we take the example of a medical mistake, a superficial, educationally ineffective reflection will consist of a description of the events or a description accompanied by reasons such as the team/clinic was busy and other people failed in their responsibilities. A more useful and deeper reflection would include consideration of how and why decisions were made, underlying beliefs and values of both individuals and institutions, assumptions about roles, abilities and responsibilities, personal behavioral triggers, and similar past experiences (“when pressed for time, I...”), contributing hospital/clinic circumstances and policies, other perspectives on the events (frank discussion with team members, consultation of the literature or other people who might provide alternative insights and interpretations), explicit notation of lessons learned and creation of a specific, timely, and measurable plan for personal and/or system change to avoid future similar errors. Effective reflection, then, requires time, effort and a willingness to question actions, underlying beliefs and values and to solicit different viewpoints. This “triple loop” approach moves beyond merely seeking an alternate plan for future similar experiences (single loop) or identifying reasons for the outcome (double loop) to also questioning underlying conceptual frameworks and systems of power (Argyris & Schön 1974; Carr & Kemmis 1986).

Tip 2

Decide on learning goals for the reflective exercise

Reflection should not feel like busy work or an add-on activity. By providing rigorous learning objectives synergistic with those in other parts of the course, clerkship, or continuing education program, the educator signals an expectation that the goal of the reflective exercise is meaningful learning and practice improvement. The benefits of this approach are twofold since in addition to improved immediate outcomes, a more positive learning experience from reflection is associated with greater effort in future reflection (Sobral 2005). This is crucial since reflection is part of an experiential learning cycle in which experience leads to reflection which leads to reconceptualization which informs subsequent experience which is followed by further reflection, and so forth (Kolb 1984).

In selecting learning goals, educators should answer the following questions: Are there key competencies, attitudes, content areas, or skills in need of greater attention or assessment? How can the exercise be used to help learners integrate (1) new learning with existing knowledge; (2) affective with cognitive experience; and/or (3) past with present or present with future practice? Will reflective learning or reflective skill building be an explicit focus of the exercise? Is one of the goals to identify learning or practice needs and strategies to address them? The literature suggests that reflection may be most effective as a learning strategy and that it is more useful in resolving complex rather than simple clinical challenges (Mamede & Schmidt 2005;

Mann et al. 2007). Prompts can take any number of forms but are most useful if they ask the learner to choose a “disorienting dilemma,” i.e. a situation that cannot be resolved using previous problem solving strategies (Mezirow 2000). Such dilemmas generally arise from experiences which triggered questions or concerns, such as: (1) a situation where they did not have the necessary knowledge or skills; (2) a situation that went well but they are not entirely sure why; (3) a complex, surprising, or clinically uncertain situation; or (4) a situation in which they felt personally or professionally challenged (Schön 1983).

Tip 3

Choose an appropriate instructional method for the reflection

In designing a reflective exercise, educators must consider whether the assignment will take place “in class” or at home and whether the exercise will be oral, written, or completed using new media such as audio recording, blogs, or digital storytelling (Sandars 2009). Most of the medical literature on reflection discusses written exercises with a range of applications from critical incident reports to storytelling (Branch et al. 1993; DasGupta & Charon 2004; Wald 2009). With the exception of a single study of oral *versus* written reflections, there are no data for the superiority or inferiority of any approach (Baernstein & Fryer-Edwards 2003). Certainly, oral reflection is most suitable to what Schön called reflection-in-action and what Eva and Regehr call self-monitoring, reflection that occurs during a surprising or troubling experience (Schön 1983; Eva & Regehr 2008). In medical education, most reflection is reflection-on-action which occurs after the event. For this type of reflection, written exercises and perhaps some of the new digitally recorded media offer multiple advantages. Creation of an artifact shows commitment to learning and ownership of experience. It promotes critical thinking and offers more opportunities for feedback, including feedback from different sources. A trainee critically reflecting through development of an artifact on a patient care experience might receive feedback on medical knowledge and learning goals from a preceptor and feedback on professionalism and reflective skill from a mentor. Finally, artifacts allow for the longitudinal integration of learning, creation of a record for use in ongoing self-assessment, mentored reflection, evaluation of progress within and across multiple domains, and inclusion in a portfolio or maintenance of certification program. Reflection artifacts can be produced in class or as homework. In class reflection will be shorter but assures timely compliance and can sometimes be explicitly linked to other educational activities. Assignments completed outside of formal sessions offer the advantages of allowing learners more time to choose an appropriate experience upon which to reflect and opportunities to look things up and seek the feedback necessary to help them reframe their experience. Educators should consider their learning objectives when deciding which instructional methods to use for a given reflection exercise.

Tip 4

Decide whether you will use a structured or unstructured approach and create a prompt

Absent guidance and education about reflection, a majority of learners produce reflections which are largely anecdotes devoid of learning (Wong et al. 1995; Niemi 1997). This may in part be why learners – and some educators – object to reflection. In response to these findings, educators have used structured approaches to help learners reflect in deeper and more educationally meaningful ways (Johns 1994; Wald et al. 2009). Although structure and guidance leading to deeper learning can be offered by an educator as part of feedback on an unstructured reflection (“what reasoning did you use to come to that conclusion?” “It seems you’ve made some significant assumptions here”), given the low placement of most novice reflectors on the continuum of non-reflection to critical reflection, the more efficient approach is to provide both upfront guidance and feedback. This can be done by using a structured prompt which makes explicit the components of critical reflection: discussion of processes and assumptions as well as actions and thoughts; consideration of the role of associated emotions and relevant past experiences; solicitation of feedback and review of relevant literature where appropriate; explicit notation of lessons learned; and creation of a plan to improve future behavior and outcomes. Arguments against structured reflections include concerns that structure limits and distorts the very response the exercise is designed to elicit and that it risks encouraging mindless “recipe following” rather than insightful analysis (Boud & Walker 1998; Branch & Paranjape 2002). One potential strategy to mitigate these concerns is to start with a free write approach and follow that with a structured analysis.

Tip 5

Make a plan for dealing with ethical and emotional concerns

Reflection is not therapy. Educators should make this clear at the outset of the exercise so as to avoid inappropriate disclosures. Even with this caveat, however, readers of reflections sometimes will come across concerning revelations. These typically consist of psychological distress on the part of the writer or depictions of unprofessional, illegal, or troublesome statements or actions by the writer or others. Educators must plan in advance for how they will handle such material. In deciding on an approach, it is crucial to remember that a reflection presents just one view of a situation and as such may be misleading or inaccurate. Equally, it would be irresponsible to disregard comments which suggest the possibility of illegality or danger to the learner, patients, or others.

If the reflections will be shared without the learners’ presence, a good initial approach is to contact the author of the disturbing content to gather more information. If the sharing will take place in a group, the educator should decide in advance how she/he will deal with worrisome revelations

to ensure not only that appropriate action is taken but also the safety and privacy of the writer and those mentioned in the reflection and role modeling of a professional response, even if that response is acknowledgment of concern and referral to qualified help. The best way of dealing with such situations is to develop programmatic or institutional guidelines so individual educators do not have to decide on next steps under trying circumstances and manage the situation without organizational support. Some key considerations in designing guidelines include:

- In cases of reflector distress: Is the reflector of danger to self or others or merely in need of support? If in need of support, is the educator for the reflection exercise qualified to provide that support and if not, who is?
- In cases of inappropriate behavior: Is this a legal issue or a professional one? If the latter, is this a learning opportunity or an occasion for referral to a disciplinary body (or both)?
- If accusations have been made, implicitly or explicitly, who will determine the facts of the situation and how?

Tip 6

Create a mechanism to follow up on learners’ plan

Reflection is iterative. The goal is to learn from experience, but in order to ascertain whether what was learned was useful, it needs to be applied (Kolb 1984). Either in the reflection itself, perhaps with the help of a structured prompt, or in the feedback, the learner should be encouraged to make a plan to address learning gaps or test out behavioral hypotheses generated by their analysis. Ideally, the reflector will state explicitly the relevance of the topic to their practice beyond the individual described experience. If not, educators and/or peers can help them see the larger issue in the feedback session. For example, if a clinician writes about an encounter with a patient who has left her practice as a result of the experience described in the reflection, she should be encouraged to identify the issues relevant to her own behavior or the care of other patients which can be extrapolated from that experience. For trainees, if the reflection – or the initial reflective session – is structured early enough in a course or clerkship, learners can reflect on how the plan worked at follow up sessions or discuss the outcome of the plan in small group. This increases the utility of the reflection and the learners’ accountability. Similarly, continuing education and recertification programs could encourage deeper reflection by offering additional credits for evidence of application of reflective learning to clinical practice.

Tip 7

Create a conducive learning environment

To succeed, reflective exercises require the establishment of positive learning climate through the use of an authentic context and creation of a safe and supportive environment for reflection. The authenticity of the exercise depends on how

well it is tied into the larger educational program and the individual learners' needs at the time of the exercise. Good learning objectives are necessary but not sufficient to link reflection to the learners' current activities. For example, reflecting on surgical skills would be appropriate partway through a surgical rotation but less useful at the conclusion of the rotation on the eve of pen-and-paper test of surgical knowledge. In addition to establishing relevance, educators can increase authenticity by modeling reflection and encouraging other faculty to incorporate reflection into their practice and teaching. This latter will help create a supportive environment for reflective learning. Other critical environmental elements include providing enough time for the reflective activity, insistence upon respectful and supportive treatment of others in group discussions of reflection, explicitly acknowledging hindsight bias and the inclination to present an expected rather than an authentic persona, and making clear at the outset who will have access to the reflection and for what purposes, who will provide feedback, and whether assessment will be formative or summative.

Tip 8

Teach learners about reflection before asking them to do it

The conflation of reflection and critical reflection has led to the misperception that educators can ask learners to reflect without teaching them how to do so first. Before initiating a reflective exercise, educators need to define reflection (or preferably, critical reflection, as discussed above) for their learners, provide them with evidence of the educational and practice-related benefits of reflection, and outline the components of good critical reflections, such as (1) linking past, present, and future experience; (2) integrating cognitive and emotional experience; (3) considering the experience from multiple perspectives; (4) reframing; (5) stating the lessons learned; and (6) planning for future learning or behavior. It is also useful to have learners analyze one or more reflections so they better understand what each component means in practice. These components should be the same as those that will be used to assess the reflections.

Tip 9

Provide feedback and follow-up

Evaluation of reflection is essential since it motivates learning and shows that the educators and organization/institution value the exercise. Feedback can be individual, group, faculty, or peer and any feedback is better than none. The literature shows that shared reflection is better than individual and self-assessment is often inaccurate (Branch & Paranjape 2002; Eva & Regehr 2008). In reflection, others often see things the reflector cannot see. When done well, feedback provides multiple perspectives on the experience, supports integration of affective and cognitive experience, discourages uncritical acceptance of experience and guides what Eva and Regehr have called "self-directed assessment seeking." This can be

accomplished by identifying the reflector's key concerns, pointing out where assumptions were made, offering alternate interpretations or data, and by asking for clarification of reasoning, omissions, and conclusions.

The nature of the feedback merits note as well since reflective exercises often serve two purposes: addressing the relevant learning objectives and developing reflective skill. Educators should provide feedback not just on the content of a reflection but on the learner's reflective skill as well. Often, it will be possible to comment on many different aspects of the reflection. The goal should not be comprehensive feedback but feedback which is challenging rather than overwhelming, aligned with the learning objectives, and educationally useful. Aim for 2–3 key teaching points, one of which addresses the learner's reflective skill. In the process feedback, note the elements of reflection the learner has incorporated effectively and offer one more they might include or improve on their next reflection.

Tip 10

Assess the reflection

Assessment can be linked to or distinct from feedback. The goal of the feedback is deeper learning. The goal of assessment may include learning but also involves evaluation of the learners' abilities in the topic areas of the reflection and/or in reflection itself. Assessment can be done in narrative by stating judgments about the learners' abilities or engagement with the exercise or by using validated and reliable scoring rubrics (Learman et al. 2008; Wald et al. 2009). These methods can be combined to provide learners with a score indicating their level of reflective skill and also narrative noting the adequacy of the reflection in addressing the assigned topic, what was done well, and suggested next steps.

Educators must decide whether assessment will be formative, with the exclusive goal of developing learners' abilities, or summative and used for grading purposes in courses or clerkships, advancement in a training program or certification process, or award of continuing medical education (CME) credit. Some have argued that the goal of reflection is to nurture a skill the trainee or practitioner can apply throughout their career so its assessment should always be low stakes and formative. Others believe an exclusively formative approach encourages focus on complex topics and professional vulnerabilities without fear of negative evaluations. But such arguments confuse evaluation of reflective skill with evaluation of the reflector. Extensive data demonstrate that evaluation drives learning. Monitoring and enforcing compliance with codes of professionalism and other complex, value-laden skills and behaviors vital to medical competence are part of the core missions of professional schools, training programs, and certifying organizations. Assessment signals that the topic or skill being assessed matters and should be part of a clinician's continuous professional development. This is not to say that every reflective exercise requires summative assessment but rather that periodic summative assessment should be considered as part of any program aimed at cultivating reflective skill.

Tip 11

Make this exercise part of a larger curriculum to encourage reflection

Reflection is a skill which requires development and can be applied broadly in medical education. For trainees, the best approach to developing reflective skills may be a longitudinal integrated curriculum with different mileposts in terms of both reflective skills and application contexts as the learner moves through their professional program. At the student level, for example, one potential trajectory might begin with understanding the components of critical reflection, move to demonstrating the ability to apply those components to learning strategies and/or clinically relevant skills which can be practiced in the preclinical years such as leadership or teamwork, then apply critical reflection to clinical practice and clinical reasoning, and finally critically reflect on their development over the course of the training period. An alternative approach which also would work at the residency level, would be competency-based, aligning reflective skill building with competency assessment, and increasing reflection expectations while moving through competency mileposts, using the reflections to identify knowledge and skill gaps, integrate learning across rotations, and plan for future practice. In continuing education, exposure to reflective exercises may be single or episodic making integration into a larger curriculum difficult except *via* recertification processes or longitudinal CME activities. Moreover, since reflection is a relatively new phenomenon in medicine, educators need to consider how a single exercise might serve a diverse learner group with a broad array of reflective skills.

Tip 12

Reflect on the process of teaching reflection

Practice the skills you are teaching. This is faculty development and continuous educational practice improvement and should take place prior to, during, and after teaching reflection. If you select a structured approach, use the structure yourself. Identify someone from whom to seek feedback. If you will take a structured approach to feedback, have that person use your format to comment on your reflection. If you will assess your learners' reflections, have your own reflection assessed in the same manner. Your reflection should produce insights about yourself as a reflector, learner, and educator as well as about the challenges of the exercise you have designed. You can then re-examine your reflective exercise and modify it to more effectively avoid the potential pitfalls described by Boud and Walker, including: recipe following, reflection without learning, mismatch between the exercise and its learning context, intellectualizing, inappropriate disclosure, uncritical acceptance of experience, and raising issues beyond the educator's expertise (Boud & Walker 1998). Apply what you have learned to your next reflective teaching session.

Conclusion

In trying to incorporate reflection in their teaching, many educators have implemented exercises which elicit anecdotes rather than the sort of analysis, questioning, and reframing of experience likely to produce meaningful educational outcomes. With a better understanding of the conceptual frameworks underlying critical reflection and greater advance planning, medical educators will be able to create exercises and longitudinal curricula that not only enable greater learning from the experience being reflected upon but also develop reflective skills for life-long learning.

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Notes on contributor

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