

## Harnessing the hidden curriculum: a four-step approach to developing and reinforcing reflective competencies in medical clinical clerkship

Cheryl L. Holmes · Ilene B. Harris · Alan J. Schwartz · Glenn Regehr

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**Abstract** Changing the culture of medicine through the education of medical students has been proposed as a solution to the intractable problems of our profession. Yet few have explored the issues associated with making students partners in this change. There is a powerful hidden curriculum that perpetuates not only desired attitudes and behaviors but also those that are less than desirable. So, how do we educate medical students to resist adopting unprofessional practices they see modeled by supervisors and mentors in the clinical environment? This paper explores these issues and, informed by the literature, we propose a specific set of reflective competencies for medical students as they transition from classroom curricula to clinical practice in a four-step approach: (1) *Priming*—students about hidden curriculum in their clinical environment and their motivations to conform or comply with external pressures; (2) *Noticing*—educating students to be aware of their motivations and actions in situations where they experience pressures to conform to practices that they may view as unprofessional; (3) *Processing*—guiding students to analyze their experiences in collaborative reflective exercises and finally; (4) *Choosing*—supporting students in selecting behaviors that validate and reinforce their aspirations to develop their best professional identity.

**Keywords** Clinical clerkship · Hidden curriculum · Medical education · Patient safety · Professional identify formation · Reflection

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C. L. Holmes (✉)

UBC Department of Medicine and Center for Health Education Scholarship, UBC Southern Medical Program, Clinical Academic Campus, 2nd Floor, 2312 Pandosy Street, Kelowna, BC V1Y 1T3, Canada  
e-mail: Cheryl.Holmes@ubc.ca

I. B. Harris · A. J. Schwartz

Department of Medical Education, College of Medicine at Chicago, University of Illinois, Chicago, IL, USA

G. Regehr

Department of Surgery and Center for Health Education Scholarship, University of British Columbia, Vancouver, BC, Canada

## Background

There are many well-documented problems with the medical profession that are not about knowledge and skills, but have more to do with attitudes and behaviors of physicians. Problematic behavior has been described in a wide range of domains related to medical practice, such as: failure to communicate effectively with patients (Mauksch et al. 2013), failure to collaborate with other healthcare professionals (Reeves et al. 2013), failure to use best evidence in decision-making (Kulier et al. 2008) and failure to engage in practices that improve patient safety (Leape et al. 2012a, b), to name just a few. These issues have been remarkably persistent despite concentrated efforts at reform using a variety of approaches, perhaps because they are issues not of knowledge and skill, but of professional culture. One approach to redressing these issues has focused on trying to change the system structures in which the behaviours are being enacted (Amalberti et al. 2005; Kohn et al. 1999; Leape et al. 2012a). This approach is perhaps best represented by the patient safety movement. The Institutes of Medicine (IOM) report on patient safety, “To Err is Human”, for example, accentuated the need to change the system in order to make it hard for people to do the wrong thing and easy for people to do the right thing (Kohn et al. 1999). Yet 12 years after the report’s release a prominent participant in the development of the report stated,

We believe, however, that the fundamental cause of our slow progress is not lack of know-how or resources but a dysfunctional culture that resists change. Central to this culture is a physician ethos that favors individual privilege and autonomy—values that can lead to disrespectful behavior...the ‘root cause’ of the dysfunctional culture that permeates health care... (Leape et al. 2012a).

Leape’s comment highlights a second approach to addressing these issues: one that has concentrated on the continuing professional development of individual physicians in order to change their behavior in these areas (Kulier et al. 2008; Brigley et al. 1997). Unfortunately, there is a sense in the literature that these efforts, too, have failed to produce substantive change to date, leading Graber (2009) to suggest that the patient safety agenda has stalled due to lack of doctor interest.

As a result of these frustrations, many have suggested that the best solution to improving practice is to concentrate our efforts on better educating the next generation of physicians. Graber articulates this approach explicitly, stating, “We look with great hope at the possibility that the next generation of clinicians will ‘get it’” (2009, p. 1125), a sentiment that was echoed by Mayer et al. (2009). Consistent with this approach, there has been a call for widespread medical education reform in many areas (Boelen and Woollard 2009; Leape and Berwick 2010; Wong et al. 2010; AFMC 2009).

It is this third option of engaging students as partners in culture change that we will explore more deeply in this paper. The intention is not to reject or ignore options for encouraging physicians in practice to enact positive professional attitudes and behaviors through system change and continuing professional development. However, recognizing the great potential in empowering students to be part of the solution, the focus of this paper will be on the particular issues that should be considered in educating *students* toward this end. The paper is organized into three broad sections. The first section explores several conceptual issues that currently plague efforts to support students’ participation in changing these problematic cultural norms by borrowing from several literatures that have grappled with similar problems. The intention is to provide a better articulation of the goal of the educational process, and we will suggest that the goal should be to empower students

to make intentional, reflective choices about the behaviors and values that they will adopt or reject when faced with the powerful socializing forces embedded in the clinical context. The second section starts with this goal of enabling intentional choice and offers a set of prerequisite goals to achieve it. We argue that a prerequisite of intentional choice is reflection, a prerequisite of intentional reflection is noticing when reflection is necessary, and that a prerequisite of noticing is becoming aware that there is something requiring noticing (what we are calling “priming”). Thus, the second section examines each of these prerequisite goals in detail, again borrowing from various literatures that have explored similar issues. Finally the third section offers some specific examples of how each of these goals might be enacted and integrated into a formal curriculum as competencies. The intent is not to suggest that this is the only possible curriculum that can emerge from these considerations, but rather to offer one example of how the ideas evolved in this paper might be manifested in practice.

### Conceptual issues

While many have suggested that the education of the next generation of professionals might be the solution (or at least part of the solution) to many of the professionalism issues currently faced in medicine, there are several conceptual issues in this process that seem to require further consideration and elaboration. Until these issues are more fully articulated, we will likely continue to struggle in achieving the goals of this educational effort. In examining the medical education literature relevant to medical student professionalization, three broad issues of this sort became apparent: (1) The goals of education (what exactly are we educating for); (2) The difficulties of (and potential solutions for) achieving these goals; and (3) The potential dangers (and mechanisms to minimize these dangers) in this approach to culture change. Each of these issues will be discussed below.

The goal of effecting a culture change in medicine through the education of medical students

The first issue to address is exploration and clarification of approaches by which education of a new generation of physicians is supposed to effect a change in the culture of medical practice. A review of the literatures on medical student professionalization reveals two potential approaches that require further exploration and consideration.

First, many authors have argued that if students are well educated and properly empowered, they could function as a force for change of all physicians (Papadimos and Murray 2008). That is, the literature suggests that students notice, appreciate and learn about professional behavior from both positive and negative role models (Jochemsen-van der Leeuw et al. 2013; Karnieli-Miller et al. 2010). Thus, with coaching, they might be able to identify and intervene in situations where their senior colleagues demonstrate lapses in professionalism practices. The UK Consensus Statement on undergraduate teaching of medical ethics and law, for example, recommends whistle-blowing as a core curricular goal (UK-Consensus-Statement 1998). Similarly, the Canadian Medical Protection Agency (CMPA) Good Practice Guide offers on-line learning modules designed to train medical students to speak up: an activity the CMPA has termed “effective assertiveness” (2012). Dwyer (1994) acknowledges the difficulties and risks inherent in medical students speaking up in a hierarchical system, but nonetheless identifies the failure to speak up as a failure in learning to care.

To others, however, this approach seems unrealistic in the current culture of medicine. Students are a particularly vulnerable group in the system, making it difficult for them to intervene in this way (Goldie et al. 2003). A participant in a study by Gaufer and colleagues (Gaufer et al. 2010) eloquently described the student's perspective on this issue:

Do I know not to challenge a surgeon about using disproved regimens or prescribing aminoglycosides for a single post-op fever? Do I know not to make a fuss about needle sticks, especially when there's no post-exposure prophylaxis? Do I know how to appropriately raise my concern that our chosen surgical technique risks seeding a tumor and how to keep quiet when these literature-supported concerns are rejected so that the wrong procedure can be undertaken simply because that's what the surgeon wants to do? Absolutely (p. 1712).

Moreover, in the context of professionalism issues, deference to authority may be more than simply a survival strategy; it is a part of the development of medical identity, characterized by conformity to expectations, gaining approval of others, respecting authority and maintaining order (Patenaude et al. 2003). Expecting students to directly challenge and thereby shape the behaviors of their preceptors ignores this important contextual factor in professionalization and is therefore unlikely to be successful (Brainard and Brislen 2007; Goldie et al. 2003; Rennie and Crosby 2002).

An alternative, and perhaps less extreme, approach would involve helping students to resist the pressure to adopt the unsafe or unprofessional practices being exhibited by negative role models. Thus, the student would enact a desired behavior, such as washing hands before going into the patient's room, even when the rest of the team doesn't. Such an act takes a quiet courage of conviction. These small acts form what is often referred to as "positive deviance", being the successful outlier (Blanton and Christie 2003). The challenge with this approach is that students' values and standards erode when they are confronted by the realities of practice in the clinical context (Bombeke et al. 2010; Coulehan and Williams 2001; Neumann et al. 2011). So, our purpose is to identify and reinforce approaches that counteract the forces that drive erosion of desired professional values, so as to encourage and enable positive behaviors.

Our reading of the medical education literature suggests that these two approaches are not well separated. Authors often suggest accomplishing both with little acknowledgment that they are different goals, perhaps differentially achievable, and potentially requiring different educational strategies. Both approaches have value. Empowering students to speak up, if successful, has the potential to change the culture of medical practice more quickly by changing senior physicians' behavior. Also, it might have the effect of creating a new ethic, evolving medicine from a culture in which each person is responsible for their own behavior to one in which we are collectively responsible for each other's behavior. However, we believe that the second approach may be more achievable since it does not require students to directly challenge their mentors. For the remainder of this paper, therefore, we will focus on the second approach, i.e., helping students to resist pressures to adopt the unprofessional behaviors that they may witness in some of their role models.

The power of the hidden curriculum to undermine our efforts

Assuming that we aim toward the goal of empowering students to quietly and confidently remain professional in the face of unprofessional behavior, the process by which we might

accomplish remains unclear. The complexities and difficulties of such an effort are well documented (Brainard and Brislen 2007). Fischer, for example, described the importance of contextual factors in influencing how students and residents learn from medical errors, stating that,

Some learners indicated that whatever their personal tendencies, they quickly assumed the ‘perspective of medicine’ as they began training.... Most learners felt that the influence of this ‘adopted’ medical culture superseded their individual ethic (Fischer et al. 2006, p. 420).

Jarvis-Selinger et al. (2012) have suggested that much of our medical professional identity is shaped at the subconscious level by a process of acculturation into the regulative and normative ways of being and participating in the community’s work. Similarly, Lave and Wenger (1991) in their theory of communities of practice, describe the importance of identity and membership as a key motivational force to develop the requisite knowledge and skills of a new profession. A theoretical basis for the powerful influence of role modeling on behavior can be found in Bandura’s social cognitive theory; which indicates that people learn by watching and mimicking what others do (Bandura 1986; Bandura and Huston 1961). Thus, students are personally driven to emulate the behaviors of strong clinical mentors who may or may not model desired professional behaviors (Brainard and Brislen 2007; Cohen et al. 2009). Borrowing the language of educators (Jackson 1968), Hafferty (1998) described this transmission of the culture of medicine as the “hidden curriculum” which is now recognized by many as a more powerful determinant of medical student behavior than the formal curriculum (Gaufberg et al. 2010; Ginsburg et al. 2003; Hafferty 1998). A formal curriculum, therefore, must include content and instructional methods other than just teaching appropriate professional behaviors to students (Graber 2009).

Designing a curriculum with the intent of helping students effectively manage the power of the hidden curriculum will require consideration of the issues of compliance (acquiescence to an observed behavior) and conformity (changing one’s own behavior). The literature on compliance, conformity and counter-conformity tells us that the likelihood of conforming is, in part, a function of context and, in part, a function of the characteristics of the individual (Asch 1951; Hornsey et al. 2003, 2007), however, it is the social influence literature that offers insight into how we might increase resistance to conformity. This literature suggests that while conformity is valuable in helping us to form accurate perceptions of reality and react accordingly, to develop and preserve meaningful social relationships, and to maintain a favorable self-concept, we are also motivated to distinguish ourselves from others (Cialdini and Goldstein 2004). Deviance regulation theory (DRT), therefore, highlights how individuals will sometimes create meaningful identities by engaging in actions that deviate from reference group norms in desirable ways (Blanton and Christie 2003). Thus, there are situations in which individuals are motivated to engage in counter-normative behavior; behavior that is the opposite of the perceived behavioral norm. For instance, if you believe that your counterparts are drinking more than you and drinking is undesirable, then you derive positive identity by drinking even less (Ferrer et al. 2012). Reinforcing and leveraging such tendencies toward positive deviance in our students may offer opportunities counteract the powerful socializing and professionalizing influences to conform even when the behaviors they are emulating are undesirable.

### Some caveats to educating for resistance

This approach of instilling positive deviance, however, has its own dangers. As described earlier, the hidden curriculum is not merely a source of inappropriate practices, but also a source of appropriate practices, and thus might be considered a key mechanism for instilling the values and perspectives of the profession in the next generation. We therefore need to be aware that if we are teaching students to resist, we must do this carefully so that we don't create circumstances in which they fail to learn what it means to be a physician in practice. That is, if we teach our students generic resistance to role modeling, we may lose the continuity of the values, skills and performance from one generation to the next that gives the profession the sense of a continuous community of practice. And we run the risk that they may then act in ways that would be considered unprofessional in practice.

Moreover, it may sometimes be difficult for students to distinguish between appropriate and inappropriate behaviors modeled in the workplace. This issue arises because of the very nature of professional practice, which often finds the expert in the "swampy lowlands" of ambiguous situations (Schön 1987). Schön asserts that we fail to equip our students to function competently in clinical situations where there are no right answers or standard procedures, and that professional schools often do not prepare students for competence in the indeterminate zones of practice. Central to expert professional practice is not only knowing when to conform to known protocols and safe practices, but also having the creativity and the conviction of professional independence to abandon the protocols when appropriate. When situations are complex and require difficult choices, the appropriate application of counter-protocol judgment calls and creative solutions is considered the hallmark of the adaptive expert (Mylopoulos and Regehr 2007). Thus, a student may interpret the withholding of information from a patient as "lying", whereas a clinician in practice may evade responding to questions by the patient, choosing to break bad news at the right time (when all the requisite information is available), in the right place and with the right supports ready for the patient and her family (Ginsburg et al. 2008). It is, therefore, important that the student appreciate and learn the subtleties of the adaptive behaviors that their more senior colleagues model, a process we may undermine if we are not careful in our promotion of positive deviance.

### Summary of the conceptual issues

Educating the upcoming generation of physicians to enact desirable professional practices is seen as one approach to change the dysfunctional aspects of the culture of medicine. While some have suggested that this change will happen by enabling whistle-blowing (i.e., students become the policing agents of the profession), a more reasonable goal might be to enable them to enact appropriate behavior even in the context of role models who do not necessarily model these behaviors. Yet even this less ambitious goal is not necessarily easy to achieve. Training students to be more professional, better communicators and collaborators and safer physicians in the complex clinical environment where their role models may or may not model this behavior is essential, yet problematic. Social learning theory informs us that most of what students learn is situated in their environment, and not what we explicitly teach them, and they are faced with powerful socializing motivations to comply and conform. Social deviance theory offers an interesting conceptual framework for encouraging positive deviance. However, we must invoke resistance to conformity carefully or run the risk of losing the continuity of positive professional values and adaptive expertise that their mentors also model.

## Implications for developing a curriculum for change

How, then, might we develop an explicit, formal curriculum that enables students to effectively counter-act these powerful social forces in developing poor habits, while preserving appropriate professionalization and development of expertise? It is likely that the most effective curriculum will have to address several issues that can be informed by the literature. Development of such a curriculum could focus on reflective competencies that address the powerful forces described in social learning theory (Bandura and Huston 1961; Bandura 1986) and situated learning theory (Lave and Wenger 1991). We would need to “unhide” the hidden curriculum (Cribb and Bignold 1999; Harris 1993; Portelli 1993), bring awareness to our internal motivations to conform, be explicit about the pressures that students will face in the workplace, and co-construct strategies with them to make sense of what they experience. Thus, training the next generation of doctors to enact our best professional behaviors, innovate when appropriate, and yet resist conforming to complacency, overconfidence, and arrogance, will require a curriculum that helps students to critically consider their own reasoning and decisions during their professional activities. We now propose and describe the more detailed goals of such a curriculum.

### Intentional choice of behaviors as a goal

Ultimately, what we hope to enable our students to do is to intentionally select behaviors that validate and reinforce their aspirations as they develop their unique medical identity. In doing so, they would hopefully preserve our best traditions in medicine and intentionally reject aspects of the hidden curriculum that run counter-current to those aspirations. Social influence research indicates that despite the power of role modeling in situations of the workplace, behavior can be guided by attitudes that have a strong knowledge base and that were systematically formed through prior experience (Zimbardo and Leippe 1991). So how do we enable our students to make these intentional positive choices in their new professional practice?

### The role of reflection in enabling choice

We suggest that a critical precursor to choosing is reflecting. Harris' (2011) review of the literature on workplace learning illuminates the role of reflective practice in the development of professional identity and transformative learning. Recommendations for reflection in medical education have their origins in the theories of Donald Schön. In Schön's (1987) conceptual framework, reflection-on-action is a way of reviewing what went wrong and what went right, to inform future actions. Reflection-on-action is very similar to the goals and processes of the experiential learning cycle elaborated by Kolb (1984): concrete experience; reflective observation; abstract conceptualization; and active experimentation. However, Mezirow (1990) posits that reflection and action should not be polarized as in Kolb. Thus, reflection becomes an integral part of action. Schön (1987) described the additional reflective competencies, “reflection-in-action and reflection-about-action”, whereby we revise our actions in the midst of uncertainty, allowing us to address situations characterized by complexity, uniqueness, instability, uncertainty and conflicting values. Sandars builds on Kolb's (reflection-after-situations) and Schön's (reflection-during-situations) work and adds a key reflective competency, reflection-before-situations. For this discussion, we will use Sandars' (2009) definition of reflection as,

A metacognitive process that occurs before, during and after situations with the purpose of developing greater understanding of both the self and the situation so that future encounters with the situation are informed from previous encounters (p. 685).

Importantly, several authors have pushed the concept of reflection beyond “self-reflection” and have emphasized the importance of guided and group critical reflection in addition to individual reflection (Brookfield 1987; Frankford et al. 2000; Mezirow 1990; Sandars 2009). In a systematic review of reflective practice in health professions education, Mann et al. (2009) summarized the most influential elements in enabling the development of reflective practice: a supportive environment, both intellectually and emotionally; an authentic context; accommodation for individual differences in learning style; mentoring; group discussion; support; and free expression of opinions. These investigators argue that shared reflection is more effective than self-reflection, likely due to the addition of perspectives from multiple sources, consistent with the literature on self-assessment (Eva and Regehr 2008). Mann et al. (2009) literature review suggested repeatedly that appropriate guidance and supervision were key to reflection. This was similarly emphasized by Mezirow (1990).

Group reflection is important, not just to avoid deluding ourselves, but also because in doing so we create a safe and cohesive learning community. Harris (2011) comments that reflection for transformative learning typically occurs in the social context of a community of practice. Frankford (Frankford et al. 2000) suggests that the group maintains an identity that is more than the sum of the individuals who compose it. To enhance this goal, guided group reflection is suggested. The role of the guide can be modeled on Mezirow’s concept of the emancipatory educator, as one who helps the student to formulate the qualities he or she wants to achieve and explores ways to produce them (Mezirow 1990). This involves developing critical questioning competencies, designed to elicit assumptions rather than to elicit information (Mezirow 1990). Brookfield (1987) has written a practical, straightforward guide entitled, *Developing Critical Thinkers; Challenging Adults to Explore Alternative Ways of Thinking and Acting*. In this guide, he outlines specific techniques for imagining alternatives: brainstorming, envisioning alternative futures, developing preferred scenarios, and futures invention, culminating in collective action.

Medical educators have further suggested group and guided reflection as a specific way to inform choices in adopting or not adopting modeled behavior in the clinical clerkships. Feudtner and Christakis (1994), in their discussion of the ethical dilemmas experienced by clinical clerks, highlight the importance of group reflection on the inspiring and discouraging aspects of their clinical experiences, as enabling them to curtail some of the untoward effects of medical education and eventually, change the medical culture. Likewise, Treadway and Chatterjee (2011) comment,

The creation of a “safe space” for reflection and discussion can disempower the hidden curriculum by exposing it, allowing both positive and negative experiences to be used to reinforce values and behaviors conducive to the development of compassionate, emotionally engaged physicians (p. 1192).

Thus critical reflection about clerkship experiences in a guided or group exercise is proposed as a key approach to exposing the hidden curriculum in medicine and enabling intentional choices about which aspects of this curriculum to adopt or reject.

### The role of noticing in enabling reflection

For reflection to occur, we first have to be aware that something has happened that we need to process. Schön (1987) refers to the “surprise”, an unexpected outcome. When something we do fails to meet our expectations, we can either brush it aside (to preserve the constancy of our usual patterns), or we can reflect on it. Thus “noticing”, whereby we recognize our personal motivations in situations that invoke an emotionally dissonant response is a critical skill in this process. Sandars (2009) highlights the two key components of noticing; slowing down the learning and situational awareness. Situational awareness entails recognition of cues in the environment and in ourselves that require us to engage our analytic processes, and has been identified as a key function of developing expertise (Moulton et al. 2007). This trigger is analogous to Mezirow’s (1990) recognition of a “disorienting dilemma”. These experiences, where choices are difficult to make, can be harnessed as opportunities for transformative learning if effectively reflected on. Emotions and feelings are deeply interconnected with how we identify, perceive and interpret information available in learning environments as well as with how well we act on the information available in learning and practice (McConnell and Eva 2012). Noticing, therefore, involves our awareness of our emotional state and how our emotions may bias perceptions, interpretations and actions.

### The role of priming in enabling noticing

In order to achieve this awareness, we must prime students to notice their tendencies to conform in their personal, professional and patient care environments. But this may be more difficult than it seems on the surface. None of us like to believe that we are prone to conformity against our avowed principles (Blanton and Christie 2003; Nolan et al. 2008). Moreover, when we do succumb to these social pressures, we often revise our opinions about the behavior, to avoid emotional discomfort. This unconscious process has the effect of maintaining our self-concept by rationalizing our actions in an effort to reduce *cognitive dissonance* (Festinger 1957; Nisbett and Wilson 1977). Yet, research on mental contamination suggests that when we are made aware that unwanted agents may be influencing our judgment, we may be able to correct for these influences (Wilson and Brekke 1994) suggesting that this may allow us to make more informed and intentional choices.

Consequently, it is imperative that we convince students that they will be prone to conforming in certain situations, which will involve modifying their self-concept and their beliefs that they are immune to these social pressures. So what are some strategies to modify students’ fundamental beliefs that they are immune to conformity? Noticing a pressure to conform requires us to first be primed to understand that conformity is a behavior that originates from a mental process that may be outside our conscious awareness, occurring with automaticity (Bargh and Chartrand 1999). Cialdini and Goldstein (2004) beautifully categorize and describe the unconscious processes that result in compliance and conformity. The methods for sensitizing medical students to the context whereby these processes are operating may be key to observing the processes in themselves. To be truly transformative these concepts must be seen by the individual as residing in themselves as well as in others. One approach to priming students is to demonstrate to them that all of these processes are occurring routinely in their everyday lives, by providing examples and encouraging them to explore their own life experiences for similar examples. Sandars (2009) describes this as “reflection before an action”, an effective way

of approaching a situation with a particular learning goal or a perception that can be challenged.

In being explicit about the pressures to conform, by stimulating reflection before experience, we are priming students to notice situations in which they may feel social pressure to act in a way that may not feel is appropriate, as a first step toward the goal of being more intentional about choices they make about whether to adopt or resist modeled behaviors. To quote Mezirow (1990), "...in becoming reflective...we control our experiences rather than being controlled by them" (p. 375).

### **Components of a four-step reflective competency curriculum**

As described in the previous section, we envision a reflective competency curriculum as consisting of four recurring activities: reflection-before-action (Priming); reflection-in-action (Noticing); reflection-on-action (Processing), and finally making intentional decisions to adopt or avoid certain modeled behaviors (Choosing). Table 1 summarizes these four activities, and the key supporting ideas from the literature that inform each activity. Below, we offer a brief description of each and offer a sense of how they might be enacted in a formal curriculum.

*Priming* would occur prior to introducing of students to the contexts in which these challenges are likely to occur and involves presentation and discussion of examples of pressures to conform. Learning could begin with students reflecting on past experiences, in order to sensitize them to the possibility that they are subject to such pressures. They could then be asked to anticipate where these challenges might occur for them in the clinical world.

*Noticing* would involve students observing and documenting their experiences in their new clinical roles, after priming them to observe pressures to conform or comply with unwanted behaviors. One noticing technique that might be used is self-monitoring (keeping electronic notes or a written diary), whereby the student acts as a participant observer (Kawulich 2005) or self-ethnographer (Feudtner and Christakis 1994) of his or her own acculturation process. An important feature of this step is taking notes immediately to avoid contamination of the memory, as we have a remarkable ability to reconstruct memory to maintain our self-concept (Loftus 2003; Eva and Regehr 2008).

*Reflecting* is a crucial step in learning, whereby learners make sense of their experiences. This could involve students writing blogs, narratives, reflective essays or creating digital stories documenting these experiences, and then bringing them back together to report on and collectively reflect on their experiences, with guidance from a faculty member (Sandars et al. 2008). Informed by the reflection literature, we recommend a collaborative inquiry model, whereby learners drive the process of reflection, supported by a guide with specific expertise in transformative learning through critical inquiry (Brookfield 1987; Frankford et al. 2000; Mezirow 1990; Sandars and Murray 2011).

*Choosing* is the final step in the reflective process proposed. The first three steps, priming, noticing and reflecting on socialization pressures and their experiences with these pressures are geared ultimately to empower students to be in control of their choices in behaviors and actions in their personal, professional and patient care roles. Choosing occurs in the moment of adopting or not adopting certain behaviors in practice. Making good choices in the moment is the ultimate outcome of the curriculum, but consistent with the literature on the cycle of reflection, should not be the endpoint of the curriculum. Thus, these choices should be documented. Students could then share with their group (guided

**Table 1** Process, supporting ideas and references for a 4-step reflective curriculum

| Process  | Curricular description                                                                                                                                                                                                                                                                                                                                                                            | Supporting ideas                                                                                                                                                                                                                                  | References                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Priming  | Preparing students in advance of the clinical experiences for their encounter with social pressures to engage in unprofessional or inappropriate behavior, by having them collectively and individually reflect in a safe, guided context on previous situations in which they were subjected to and/or conformed to peer pressure and anticipate how this might play out in the clinical context | Arming students with the knowledge that we are all prone to comply or conform, "to form accurate perceptions of reality and react accordingly; to develop and preserve meaningful social relationships; and to maintain a favorable self-concept" | Cialdini and Goldstein (2004)                            |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Correcting biasing effects with knowledge; just knowing that we are susceptible to normative influence enables us to correct for it                                                                                                               | Wilson and Brekke 1994                                   |
| Noticing |                                                                                                                                                                                                                                                                                                                                                                                                   | Reflection before action; anticipating situations so that future encounters are informed by previous encounters                                                                                                                                   | Sandars (2009)                                           |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Guided reflection, the "emancipatory educator"; challenging students to explore alternative ways of thinking and acting                                                                                                                           | Brookfield (1987), Mezirow (1990), Sandars et al. (2008) |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Group reflection: Creation of an "institution of reflective practice" that links individual reflection with processes of collegial reflection to enhance and sustain lifelong learning and commitment to medical professionalism                  | Frankford et al. (2000), Mann et al. (2009)              |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Situation awareness; recognition that something is happening                                                                                                                                                                                      | Sandars (2009), Schön (1987)                             |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Mindfulness: deliberate and non-judgmental attention to the immediate thoughts and emotions                                                                                                                                                       | Sandars (2009)                                           |
|          |                                                                                                                                                                                                                                                                                                                                                                                                   | Noticing our emotional state; the "disorientating dilemma"; how our emotions may bias perceptions, interpretations and actions                                                                                                                    | McConnell and Eva (2012), Mezirow (1990)                 |
|          | Slowing down when you should; recognizing cues in the environment that require us to engage our analytic processes                                                                                                                                                                                                                                                                                | Moulton et al. (2007), Sandars (2009)                                                                                                                                                                                                             |                                                          |
|          | Student as "participant observer" or "self-ethnographer"                                                                                                                                                                                                                                                                                                                                          | Feudtner and Christakis (1994), Kawulich (2005)                                                                                                                                                                                                   |                                                          |
|          | Contemporaneous note-taking to avoid contamination by memory                                                                                                                                                                                                                                                                                                                                      | Eva and Regehr (2008), Loftus (2003)                                                                                                                                                                                                              |                                                          |

**Table 1** continued

| Process    | Curricular description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Supporting ideas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | References                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| Processing | Guiding students to reflect after their experiences in a safe, group regarding what happened, what they did, what they might have done, what the “right” thing to do might have been, and what strategies they might try next time                                                                                                                                                                                                                                                                                                                                                             | <p>Reflection on action: reviewing prior behavior and performance outside the immediacy of work demands</p> <p>Guided reflection: imagining alternatives; “brainstorming, envisioning alternative futures, developing preferred scenarios, and futures invention”, culminating in collective action</p> <p>Group Reflection: Creation of a “safe space” for reflection and discussion to disempower the hidden curriculum, allowing both positive and negative experiences to be used to reinforce values and behaviors conducive to the development of compassionate, emotionally engaged physicians</p> <p>Developing critical questioning competencies—challenging and exploring alternative ways of thinking and acting</p> <p>Dealing with ambiguity; how to function in indeterminate zones of practice, the “swampy lowlands”</p> <p>Reinforcing of nonconforming subculture (DRT): to create meaningful identities by engaging in actions that deviate from reference group norms in desirable ways</p> <p>Creating a story to liberate and enhance the reflective process</p> <p>Reflective identity formation as our students transition into their new community of practice</p> <p>Intentional unbiasing; when we are made aware that unwanted agents are influencing our judgment, we cntry to correct for it</p> <p>Controlling our experiences, the role of transformative learning in “enhancing our sense of agency over ourselves and our lives”</p> <p>Reinforcing of nonconforming subculture (DRT): To create meaningful identities by engaging in actions that deviate from reference group norms in desirable ways</p> <p>Developing adaptive expertise; helping students learn to function competently in clinical situations where there are no right answers or standard procedures; preparing students for competence in the indeterminate zones of practice; the “swampy lowlands”</p> <p>Contribute to a culture of respect</p> | <p>Frankford et al. (2000), Kolb (1984), Sanders (2009), Schön (1987)</p> <p>Brookfield (1987), Mezirow (1990), Sanders et al. (2008)</p> <p>Feudtner and Christakis (1994), Frankford et al. (2000), Mann et al. (2009), Treadway and Chatterjee (2011)</p> <p>Brookfield (1987), Mezirow (1990)</p> <p>Mylopoulos and Regehr (2007), Schön (1987)</p> <p>Blanton and Christie (2003)</p> <p>Sanders et al. (2008)</p> <p>Harris (2011)</p> <p>Wilson and Brekke (1994)</p> <p>Mezirow (1990)</p> <p>Blanton and Christie (2003)</p> <p>Ginsburg et al. (2008), Mylopoulos and Regehr (2007), Schön (1987)</p> <p>Leape et al. (2012b)</p> |
| Choosing   | <p>Helping the students develop the skills to make intentional and informed decisions about what to adopt as behaviors and values that move them toward what they want to become</p> <p>What to eschew as behaviors and values that are part of the current culture</p> <p>What they wish to adopt as part of their own professional identity</p> <p>How to act on these decisions in ways that reinforce their own development but do not alienate them from their senior and peers</p> <p>How to act with humility rather than arrogance when they reject behaviors and values of others</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

reflection-on-action) how they managed the difficulties associated with choosing not to adopt observed behaviors. Again, these activities should occur in a non-judgmental and safe environment, where rapport and trust have been built, maintaining a culture of respect (Leape et al. 2012b). With time and confidence, this could occur in the context of their clinical teams. Initially however, these reflective activities would be developed in their academic learning community, where students share and process their experiences with their peers and a faculty mentor not involved in clinical assessment of the student. This cycle can and should be repeated as students mature in their clinical roles (moving from the periphery of practice toward the center), with iterations that include both guided reflection on choosing from previous experiences and priming for the next. With time, as trust and support within the group have been built, the role of the guide can be diminished as students safely and respectfully engage in self-challenging with each other.

## Summary

This paper has focused on the problems associated with medical student professionalization, namely the powerful influence of the hidden curriculum, positive and negative role modeling, conformity and resistance to conformity and alternative approaches to instruction based on these issues. As our students transition to their new clinical role, they experience a tension between the realities of clinical medicine and previously held idealized perspectives, including those learned in the formal curriculum (Gaufberg et al. 2010; Ginsburg et al. 2002; Treadway and Chatterjee 2011). These experiences, where choices are difficult to make, can be harnessed as opportunities for transformative learning if effectively reflected on. In doing so, we empower students in the face of the hidden curriculum. Mezirow (1990) summarizes, “Such transformative learning enhances our crucial sense of agency over ourselves and our lives.” (p. 361). By exploring these discourses, we have evolved a proposal for a four-step approach to development and reinforcement of reflective competencies in medical students starting prior to and continuing through their apprenticeship in clinical medicine. In this way, our students can contribute to positive change in our profession characterized by a culture of respect. Informed by the literature we have proposed a model for designing, implementing and evaluating a reflective competency curriculum that can be applied to professionalism content in medical training with possible implications for other health professional education.

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