

Hypothesis: the hospital learning environment impedes students' acquisition of reflectivity and medical professionalism

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Abstract Undergraduate clinical education follows the “bedside” tradition that exposes students to inpatients. However, the hospital learning environment has two main limitations. First, most inpatients require acute care, and students may complete their training without seeing patients with frequent non-emergent and chronic diseases that are managed in outpatient settings. Second, students rarely cope with diagnostic problems, because most inpatients are diagnosed in the community or the emergency room. These limitations have led some medical schools to offer longitudinal integrated clerkships in community settings instead of hospital block clerkship rotations. In this paper, I propose the hypothesis that the hospital learning environment has a third limitation: it causes students' distress and delays their development of reflectivity and medical professionalism. This hypothesis is supported by evidence that (a) the clinical learning environment, rather than students' personality traits, is the major driver of students' distress, and (b) the development of attributes, such as moral reasoning, empathy, emotional intelligence and tolerance of uncertainty that are included in the definitions of both reflectivity and medical professionalism, is arrested during undergraduate medical training. Future research may test the proposed hypothesis by comparing students' development of these attributes during clerkships in hospital wards with that during longitudinal clerkships in community settings.

Keywords Reflectivity · Medical professionalism · Medical education · Clinical clerkship rotations · Learning environment

Introduction

Medical professionalism is an all-inclusive term for desirable physician's values, attitudes and behaviors. They have been variably defined as adherence to ethical and moral

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standards, responsiveness to societal needs, empathy, tolerance of uncertainty, and reflectiveness on actions and decisions (Swick 2000); accountability, altruism, honor and respect (Blackall et al. 2007); and compassion, communication, and team collaboration (Hill-Sakurai et al. 2008). Recently, educators have expressed concerns that students are presented with a version of professionalism that fails to convey its humanistic components because its assessment focuses on observable behavior and not on moral values (Brody and Doukas 2014). Consequently, it has been proposed to include *identity* along competency in the definition of professionalism, and to shift the focus of training from “doing the work of a physician” to “being a physician” (Jarvis-Selinger et al. 2012). Other authors have redefined professionalism as a “... belief system about how best to organize and deliver health care ... [and to] declare what ... patients can expect regarding competency standards” (Wynia et al. 2014), thereby shifting the target of teaching professionalism from trainees to the “institutional culture”, where both students and faculty are held accountable for professional behavior (Lucey and Souba 2010). In the same vein, the North American accreditation standards require from a medical school to provide a learning environment that “is conducive to the development of ... appropriate professional behaviors in its medical students, faculty, and staff” (Standards for Accreditation of Medical Education Programs 2013).

But what is the learning environment that promotes professional values and a doctor’s identity? The purpose of this paper is first, to highlight the limitations of current attempts to promote students’ professionalism; second, to review studies of students’ professional attributes during undergraduate medical education; third, to propose a set of assumptions as a step toward a theoretical framework for teaching medical professionalism, and finally, to propose the hypothesis that the hospital environment impedes students’ professional development.

I have chosen Sweek’s definition of professional attributes, because first, medical students’ reflectivity, moral reasoning, responsiveness to societal needs, empathy, tolerance of uncertainty, have been subject of repeated past studies. Second, there is evidence that moral reasoning is associated with fewer malpractice claims (Baldwin et al. 1996); intolerance of uncertainty—with physicians’ authoritarianism, dogmatism, rigidity, conformity, and ethnic prejudice (Geller 2013; Wayne et al. 2011); emotional intelligence—with improved doctor–patient relationship, teamwork, communication skills and stress management (Arora et al. 2010) and empathy—with academic performance, clinical competence, and with patients’ compliance, satisfaction and quality of life (Hojat et al. 2002; Neumann et al. 2011).

Current approach to teaching medical professionalism

Medical educators assume that a combination of admission policies, teaching, assessment, and exposure to a clinical learning environment will promote students’ professionalism. As late as 2015, teaching of professionalism relied on lectures and small group sessions during the preclinical years, and role modeling during the clerkship rotations (Byszewski et al. 2015). However, this approach has yet to overcome several uncertainties.

Admission policies have to overcome the uncertain definition and assessment of desirable professional attributes. *Didactic lectures* have to contend with students’ preconceptions: students may feel offended if asked ex cathedra to adopt values, such as civility and respect, which they view as self-evident, and they may reject behaviors, such as refraining

from passing value judgement on patients, which are inconsistent with their ingrained attitudes. *Assessment of professionalism* has yet to devise reliable measures. Informal assessments certainly offer opportunities to discuss relevant issues during provision of feedback. However, the uncertain validity and reliability of the assessment tools preclude their use for formal evaluation.

Role modeling, if defined as uncritical imitation of clinical preceptors and blind adoption of the messages of the hidden curriculum, may perpetuate undesirable attitudes and even unprofessional conduct (West and Shanafelt 2007). Indeed, there is evidence that not all doctors with teaching responsibilities have the attributes that students say they seek in role models. In one study, residents identified only 40% of the attending physicians as role models (Wright et al. 1998) and another survey found that as many as half of the clerks felt their teachers were not good role models (Beaudoin et al. 1998).

To sum up: To promote medical professionalism, educators cannot rely on their ability to select virtuous applicants, to teach professional values to pre-clinical medical students and to assess professionalism. Role modeling may promote professionalism only *if students develop an ability to reflect and to be selective in adopting the messages of their preceptors and teaching environment*. Do they?

Definition of reflectivity and of other professional attributes

The term “*reflectivity*” refers to two (related? different?) abilities. The first one is the ability of Schon’s “*Reflective Practitioner*” (Schon 1987) to apply in his/her practice the cyclic loop of theory that guides experience, and of interpretation of experience that modifies theoretical constructs. The acquisition of this ability is conditional on students’ *epistemological beliefs* and *tolerance of uncertainty*. The second ability is Fonagy’s “*Reflective Function*” (Fonagy and Target 1997) to think about one’s own thinking/feelings and those of others. As such, it includes the constructs *moral reasoning*, *emotional intelligence* and *empathy*.

“*Epistemological beliefs*” refer to the way one understands, interprets and integrates knowledge. The development of these beliefs has been subject to longitudinal studies of students’ narrative descriptions of their experience. Studies of epistemological development have also used self-administered instruments (Self 1983; Jehng et al. 1993; Paulsen and Wells 1998; Chalmers et al. 2011), semi structured interviews (Knight and Mattick 2006) and responses to case scenarios (Chalmers et al. 2011).

The more commonly used developmental models are Perry’s intellectual and ethical development scale (Perry 1968) and the Reflective Judgment Model by King and Kitchener (2004), and they describe a sequence of stages, which Perry called dualism, multiplicity, relativism and commitment in relativism. At dualism, students thought in terms of right and wrong, and believed that teachers know the right answers. The transition to multiplicity began when students came across conflicting opinions, or teachers who answered “I don’t know”. Now, students viewed multiple opinions as legitimate only in areas in which the right answer had not been found yet. In these areas, students believed that “opinions cannot be judged.” Towards the end of multiplicity students realized that even in areas of uncertainty, opinions *can* be judged, as a problem may have a limited number of solutions that are congruent with available data, and an unlimited number of illogical approaches. This signaled their transition to relativism. Now students would say: “I disagree, but you may be right,” rather than, “I disagree and, therefore, you are wrong” as in dualism.

Students progressed to the stage of commitment in relativism when they understood that, unless they were to remain frozen in indecision, they would have to commit themselves to a choice, even if it will have to be regretted in the future. At this stage, students acknowledged that there is no absolute truth; however, they committed themselves to a specific view after considering alternative approaches.

The development along Perry's scheme may be seen as a decline in *intolerance of uncertainty*, defined as the tendency to perceive or interpret ambiguous situations as sources of discomfort or threat. Uncertainty was rejected in dualism, viewed as temporary in multiplicity, accepted as legitimate during relativism, and dealt with when students affirm themselves in their commitments. Tolerance of uncertainty has been mostly measured by self-administered instruments (Geller 2013; Wayne et al. 2011; Weissenstein et al. 2014; Hancock et al. 2015).

"Moral reasoning" refers to the reasons given by an individual why certain actions are perceived as just, and is measured by the Defining Issues Test (DIT) (Rest 1994). The DIT discerns among three developmental levels. The pre-conventional level is observed in children who define "right" as avoidance of punishment. The conventional level characterizes adolescents who define actions as right if approved by others and if consistent with societal norms. The post-conventional level is characterized by adoption of principles that are considered valid beyond societal norms.

The term "emotional intelligence" refers to the ways in which people differ in their intra-personal (mood regulation, stress management, perceiving one's own emotions) and inter-personal (social skills, perceiving others' emotions) domains. It has been measured by self-administered instruments (Stratton et al. 2008; Chew et al. 2013). The study of emotional intelligence has been impeded by the lack of an agreed upon measure, and some authors have raised concerns regarding the reliability and concurrent validity of various tests of emotional intelligence (Brannick et al. 2009; Satterfield and Hughes 2007).

"Empathy" is variously identified with putting oneself *cognitively* into another person's psychological perspective and with an *affective* response to another person's plight. These diverse definitions explain the difficulties in measuring it. Empathy has been assessed by pencil-and-paper tests, peer ratings, patient ratings, and observed behavior (Benbassat and Bauml 2004).

To sum up: During the past decades, an effort has been made to define and operationalize the professional attributes that are thought desirable in care providers. The most studied attributes are reflectivity, moral reasoning, empathy, emotional intelligence, epistemological development and tolerance of uncertainty.

Development of professional attributes during undergraduate medical training

Studies of medical students' *epistemological development* have indicated that most of them believed that judgments were either true or false (Self 1983). Students "appeared to express predominantly simplistic levels of epistemological thinking" (Knight and Mattick 2006), and their reflective ability scores *decreased* during the final academic year (Chalmers et al. 2011). Studies of other university students have indicated that those in the "soft" fields (social science and arts/humanities) had a stronger tendency to believe that knowledge is uncertain, and were more reliant on their own reasoning ability than students in "hard" fields (engineering and business). However, *all* graduate students, in both soft and hard

fields, showed higher levels of epistemological development than undergraduate students (Jehng et al. 1993; Paulsen and Wells 1998).

Most studies of medical students have failed to detect any gains in *moral reasoning* and ethical sensitivity (ability to identify ethical issues in clinical vignettes), with students demonstrating predominantly conventional levels of moral reasoning (Hren et al. 2011; Murrell 2014). Studies of non-medical students have yielded inconsistent results. DIT scores increased dramatically during college education (King and Mayhew 2002) and during training of nursing (Duckett et al. 1997), physiotherapy (Geddes et al. 2009) and pharmacy (Gallagher 2011) students. However, DIT scores did not change in students of veterinary medicine (Self et al. 1996) and computing (Holland 2011).

Studies of *tolerance of uncertainty* have detected a higher tolerance of uncertainty in students who were older at entry into medical school and in older physicians; however, they did *not* detect significant differences between junior and senior medical students (Wayne et al. 2011; Geller 2013; Weissenstein et al. 2014; Hancock et al. 2015). Similarly, there were no differences in *emotional intelligence* scores between junior and senior medical students (Stratton et al. 2008; Chew et al. 2013).

None of studies of the changes in *empathy* during medical training have detected an *increase* in empathy. However, it is uncertain whether empathy remains stable or declines during medical education. A decline in empathy paper-and-pencil test scores was found in cross-sectional (e.g., Newton et al. 2008), and longitudinal (e.g., Stratton et al. 2008) studies of medical students, and in all studies of residents (see Neumann et al. 2011 for review). On the other hand, other longitudinal studies of medical students (e.g., Quince et al. 2011) did not find any changes in empathy scores.

To sum up: Evidence suggests that unlike college students and at least some non-medical graduate students, medical students do not progress in their epistemological and moral development. Studies have also indicated that medical students do not progress in the level of their tolerance of uncertainty, empathy and emotional intelligence.

Is it possible to promote students' development?

If college students and at least some non-medical graduate students progress in their epistemological and moral development, why can't medical students do the same? A plausible, *but still unproven*, explanation is that, unlike other students, medical students are trained in a stressful, hectic clinical environment. In this environment, students are likely to regress to the comfort provided by a code grounded on a right/wrong dichotomy, uncritical imitation, hierarchies and conformity, rather than to deliberate about alternatives.

This hypothesis is consistent with evidence that first, the development of professional attributes is arrested during medical students' undergraduate training, and second, that students' perceptions of their learning environment, rather than their personality traits, are the major drivers of students' distress (Dyrbye and Shanafelt 2016; Tackett et al. 2017). Students' distress is associated with reduced empathy (Brazeau et al. 2010), lower social responsibility (Dyrbye et al. 2010) and poorer self-reported quality of patient care (Shanafelt et al. 2002).

How then can we modify the clinical learning environment in order to both improve students' wellbeing and their professional development? I suggest adopting the following three premises as a step toward creating a theoretical model for promoting students' wellbeing, reflectivity and professional development.

The first premise is that an important source of support of students' reflectivity is the realization that their tutors share their uncertainties. Uncertainties pervade clinical practice and are a major source of student's distress (Knight and Mattick 2006). It has been suggested that the first step college students make in their move from a right–wrong dualism to tolerance of uncertainty occurs when they encounter teachers who answer “I don't know” (Perry 1968). Hence the assumption that an important source of support in students' acquisition of reflectivity is the realization that they are not alone, that their instructors share their doubts and uncertainties, and that uncertainty does not reflect incompetence but is rather the essence of clinical practice. Still, a 1992 review of the literature concluded that, “denial of uncertainty was one of the most consistent observations made by sociologists studying medical training” (Gerrity et al. 1992), and as late as 2011, it was claimed that a discrepancy existed between the uncertainties of clinical practice and their denial in teaching settings (Luther and Crandall 2011).

The second premise is that a supportive clinical environment treats alternative values, attitudes and behaviors with respect (Brookfield 1988; Lucey and Souba 2010). Some of my preceptors in the 1950s appeared to view clinical practice as consisting of categorical chunks of right and wrong. A right–wrong dichotomy was applied even for skills with no gold standard of correctness, such as patient interviewing. In the 1990s, I was a learner in a teacher-training course in patient interviewing. Teaching endorsed “right” (patient-orientated) attitudes, and condemned “wrong” (disease-orientated) behaviors. Occasionally, discussions degenerated into win–lose arguments, where pre-clinical tutors blamed clinicians for being unaware of the merits of patient-centered care, while clinicians thought pre-clinical tutors knew nothing about clinical practice.

Authoritarian (right–wrong) teaching probably meets students' expectations more effectively than preceptors who present alternative views (Knight and Mattick 2006); however, it may also confuse students when they encounter training–practice discrepancies or disagreement among figures of authority. On such occasions, students may respond either by doubts about personal adequacy (“It seems that I don't understand this issue”), confusion (“so what is the right answer?”) or cynicism (“nobody knows anything”). I believe that to prevent these dysfunctional responses, students should be provided with opportunities to discuss controversial issues in an atmosphere of critical reflection, respect for the worth of alternative approaches, and students' empowerment to choose the approach they want to adopt (Brookfield 1988). A reflective discussion of patient interviewing would treat both patient- and disease-orientation as legitimate; would analyze their strengths and weaknesses; help students understand why different clinicians use different communication styles; and empower students to adopt the approach that each of them believes is optimal. Similarly, professional lapses should not be viewed as indicators of personal inadequacy, but rather related to the learning and practice context (Lucey and Souba 2010). Discussions of professional lapses should provide a *non-judgmental* feedback aimed to improve both individual performance and the context of practice. Just as we make an effort to understand the causes of medical errors with a view of making the health care system as error-proof as possible, so also we make an effort to understand why lapses of professionalism occur rather than punish offenders.

The third premise is that tutor–student relations affect student–patient relations (Kassebaum and Cutler 1998; Donetto 2010; Meirovich et al. 2016). This assumption is based on the view that an authoritarian approach may be passed from tutor to learner with further undesirable consequences if learners adopt this behavior towards patients (Kassebaum and Cutler 1998). It stands to reason that students, who had been humiliated by their tutors, are not likely to treat patients with respect; students, whose distress had been ignored, are not

likely to empathize with patients; and students, whose perspectives had been disregarded, are not likely to consider patients' points of view. This will require avoiding two types behavior that characterized some of my clinical preceptors in the 1950s: student public humiliation ("your knowledge is so poor that it transforms bedside discussions into a waste of time") as a misguided attempt to encourage learning, and perpetuation of students' fears of errors ("the chief resident made a mistake for which I'd have crucified even a medical student") in an attempt to promote excellence.

The premise that tutor–student relations affect student–patient relations has led to calls for a "learner-centered" approach to teaching that encourages tutors to share their concerns, doubts, expectations and preferences, as opposed to a teacher-centered approach that promotes passive reception of information, students' dependence on, and control by, authority (Williams and Deci 1998). Indeed, a controlled study found that learner-centered clinical tutoring led to higher "building a relationship" and "patient-centeredness", as assessed by the Roter interaction analysis system coding, than those in the control group of medical students (Meirovich et al. 2016).

Conclusions

Clinical training follows the "bedside" tradition that exposes students to inpatients. Various hospital wards offer different learning environments. As early as 1973, Atkinson highlighted these differences by stating that the student's role varied between "a subordinate ... whose progress towards qualification was seen ... as an obstacle race" and "a student–physician who is ... treated in an egalitarian manner, and ... is being groomed for full professional status". As late as 2009, North American students' perceptions of their learning environments have varied among schools (Dyrbye et al. 2009), and even among clerkship rotations within the same school (Patel and Dauphinee 1985).

The learning environment of the hospital setting has several limitations. First, today's inpatient population mostly requires crisis intervention; therefore, students may complete their undergraduate training without seeing patients with an array of non-emergent and chronic diseases that are diagnosed and treated in outpatient settings. Second, students only rarely have opportunities to cope with diagnostic problems because most inpatients reach students after they had been diagnosed in the community or the emergency room. Third, *the development of reflectivity and professionalism requires more opportunities for deliberation than those provided by the hectic hospital setting.*

Hence the attempts to replace the hospital based clerkship rotations by 6–12 months longitudinal integrated clerkships in community settings. Comparative studies have found equivalent outcomes of both types of clerkships, with students in longitudinal integrated clerkships having better communication skills, understanding of the psychosocial aspects of disease, and more confidence in dealing with ethical dilemmas than students in traditional block rotations (Walters et al. 2012; Teherani et al. 2013). Community teaching settings provide exposure to diverse clinical topics, continuing student–patient relationships that are more conducive for empathy than the short-term relationships with inpatients (Hudson et al. 2017), and student–faculty relationships that enable educational continuity, tailoring instruction to individual learning needs, providing feedback and exercising clinical reasoning (Snow et al. 2017). Furthermore, stories of students in longitudinal integrated clerkships have indicated an emerging professional identity, born in the act of meaningful engagement in patient care, and grounded in a developing ethic of caring (Konkin and Suddards 2012). It stands to reason that community settings also provide a safe clinical

environment where uncertainties are acknowledged, rather than denied; where students are trusted, rather than led to doubt their adequacy; and where controversies are settled by deliberation and mutual respect, rather than by win–lose arguments.

Hopefully, such an environment will support students' development of reflectivity. So far, the only longitudinal study that I know of students' development in integrated clerkships in community settings *did* detect a temporal increase in tolerance of uncertainty (Han et al. 2015). Future studies may further test the hypothesis that the hospital environment impedes acquisition of professionalism by comparing the development of well-being, moral reasoning, empathy, emotional intelligence, and tolerance of uncertainty in students who had their clerkship rotations in hospital wards with those who had a longitudinal integrated clerkship. However, such studies should be carefully randomized, because evidence suggests that students interested in primary care tend to have higher levels of tolerance of uncertainty and lower concerns over mistakes than their peers (Elley et al. 2017).

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