

Integrating cognitive and affective dimensions of pain experience into health professions education

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Pain is prevalent in clinical settings, and yet it is relatively under-represented in the education of most students in the health professions. Because pain includes both sensory-discriminative and affective features, teaching students about pain presents unique challenges and opportunities. The present article describes the evolution of a new blueprint for clinical excellence that, among other competencies, incorporates a need for the emotional development of clinical trainees. The framework has been applied to the development and implementation of two new courses in pain. The first course is designed to provide a comprehensive foundation of medical knowledge regarding pain, while integratively introducing students to the affective dimensions of pain. The second course is designed to enhance students' appreciation for the protean effects of pain through use of the humanities to represent medical experience. It is concluded that, to be most effective, fostering the emotional development of trainees in the health professions necessitates the incorporation of affect-focused learning objectives, educational tasks and assessment methods.

Key Words: *Affect; Clinical skills; Content; Curriculum; Education; Empathy; Knowledge*

That quick, glittering, empirical eye, sharp for the surface of things if for nothing beneath, he had not. But whether his apparent depth of vision was real, or only an artistic accident of corporeal moulding, nothing but his deeds could reveal.
– Thomas Hardy, *The Woodlanders* (1887)

At present, the education system of the health professions provides only limited preparation in terms of cognitive tools to recognize and understand pain as a symptom of disease. To be most effective, new approaches to pain education must acknowledge the affective content of pain experience. The present article describes the evolution of a new blueprint that cultivates clinical excellence and guides the emotional development of medical students related to pain and its management. Examples discussed include the use of explicit mentoring, small groups with compassionate clinical experts, customized portfolios that are fully integrated into coursework and humanities-based materials with strong medical ties.

THE SCOPE OF THE PROBLEM

The experience of pain fundamentally incorporates both sensory-discriminative and affective features. For this reason, it is often deeply challenging to trainees in the health professions and seasoned clinicians alike (1). The so-called 'subjective nature of pain' means that clinical staff can become divided over the genuineness of a patient's pain, especially when the clinical picture is complicated by illicit drug use, psychiatric disease or personality disorder. At present, the education system for the health professions provides only limited preparation for clinicians in terms of cognitive tools to recognize and understand pain as a symptom of disease. This limited preparation does not anticipate the complications that arise when treating severe acute or chronic pain. To make matters worse, there is almost no preparation

L'intégration des dimensions cognitives et affectives de l'expérience de la douleur à la formation dans les professions de la santé

La douleur est prévalente en milieu clinique et pourtant, elle est relativement sous-représentée dans le cadre de la formation de la plupart des étudiants dans les professions de la santé. Puisque la douleur inclut à la fois des fonctions sensorielles-discriminatoires et des fonctions affectives, l'enseignement de la douleur aux étudiants présente des défis et des possibilités uniques. Le présent article décrit l'évolution d'un plan d'excellence clinique qui, entre autres compétences, intègre la nécessité d'assurer le développement affectif des apprenants. Ce cadre a été appliqué à l'élaboration et à la mise en œuvre de deux nouveaux cours sur la douleur. Le premier cours est conçu pour fournir des assises complètes de connaissances médicales au sujet de la douleur, tout en présentant peu à peu les dimensions affectives de la douleur aux étudiants. Le deuxième cours est conçu pour mieux faire comprendre aux étudiants les effets protéiformes de la douleur par l'utilisation des sciences humaines pour représenter l'expérience médicale. Il conclut que, pour maximiser l'efficacité du développement affectif des stagiaires dans les professions de la santé, il faut intégrer des objectifs d'apprentissage axés sur l'affect, des tâches éducatives et des méthodes d'évaluation.

in terms of addressing the affective dimensions of pain, and clinicians are often not able to aid patients deeply suffering with pain (2).

To be most effective, new approaches to pain education must acknowledge the affective content of pain experience. In fact, this is an area in which pain specialists can greatly contribute educational innovations for all health care practitioners by virtue of being able to lead important advances in emotional development. Historically, health care education has been strongly oriented to the development of an optimal medical database within the cognitive capacity of each practitioner, to the exclusion of building strong emotional skills (3). Evidence indicates that this is not sufficient for effective clinical care. Fortunately, there are trends for health professions schools to be more receptive to opportunities for shaping emotional development (4). Effective strategies include the following: explicit mentoring (5); small groups lead by compassionate clinical role models (6); customized portfolios that are fully integrated into coursework (7); and the use of humanities-based materials, with clear clinical relevance (8). The purpose of the present article is to describe an evolving framework for cultivating clinical excellence and the use of this framework to guide medical students in advancing to higher levels of emotional development vis-à-vis pain and its management.

NEW BLUEPRINT FOR CLINICAL SKILLFULNESS INCLUDES EMOTIONAL DEVELOPMENT

It is now widely recognized that clinical excellence is not a unidimensional phenomenon. Clinical excellence requires attainment of skill in multiple domains (9,10). Although varying formulations of clinical competence have been advanced, it is necessary to identify models that are sufficiently adaptable to pertain to the wider range of clinical experience, especially pain. The model of Epstein and Hundert (10) is one such model that incorporates seven domains of clinical

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TABLE 1
Dimensions included in the Epstein and Hundert (10)
model of professional development, and applications to
teaching clinical pain care (in this example, applications
are described that might pertain to a student learning
about assessment, diagnosis and management of
persistent headache)

Dimension	Application
Cognitive	Name five antidepressants that are effective against persistent pain. Describe the pain processing system (nociceptive pathways) that signals pain in this region
Emotional	Recognize that pain can impact mood and acknowledge the medical student's or physician's role in addressing depressed mood. Accept that you may feel sad or have other feelings after encountering a patient with depressed mood related to pain
Reflective	Consider how your particular approach to a patient in pain may have impacted the patient: did they feel comforted or did they perceive that their concerns were disregarded?
Technical skills	Query patients about the impact of pain on sleep, function, enjoyment of life. Know how to gauge the severity of effects in various domains and apply appropriate instruments
Values formation	Adopt a nonjudgmental stance toward patients who report severe pain even though acute trauma is not apparent, and seek to restore function while obtaining adequate analgesia
Communication	Ask a patient about the cardinal characteristics of their pain, but also provide support and counseling where appropriate. Exchange informational details as well as conveying empathy and acting with compassion
Clinical reasoning	Formulate a differential diagnosis, identifying more and less catastrophic diagnoses. Plan a diagnostic work-up based on the history and physical examination

development. These include: cognitive, emotional and reflective development. This model also includes development in the domains of communication, values formation, technical skill and clinical reasoning (potentially categorized as a form of cognitive development) (11). Direct applications of this model can be made to learners at specific levels of training and areas of study; examples are shown in Table 1. Other models of clinical skillfulness described in medical literature emphasize 'relationship-centred' care (12), moral development (13), empathy (14), narrative medicine (15), nonverbal communication (16) and other approaches (17,18). Each of these models seems to emphasize one or more aspects of the broader definitions of competence, and within those constraints offers valuable insights, eg, Roter's model emphasizes the role of nonverbal communication skills and emotion in the clinical encounter (16).

Clinical excellence in the area of pain management, in particular, demands attention to the domain of emotional development (19). This is because of the strong affective impact of pain, primarily on the person experiencing it directly, but also on those secondarily involved (20). Presently, relatively little is known about the emotional development of medical students (21). It has been suggested that the design of learning tasks appropriate to the socioemotional developmental stage of medical students is especially important (22). Unfortunately, medical schools have not been especially adept at or committed to incorporating emotion skills training into the regular curriculum (23). Recently, in an effort to understand better the normative emotional development of medical students, our group examined events occurring in medical school that were perceived by medical students as having an especially high impact (24) – the underlying assumption being that the perceived impact of an event depends, to a degree, on a student's stage of emotional development, as well as other factors.

Overall, the events identified as having the strongest impact were positive, perhaps reflecting the general positive outlook of students at the time of medical school graduation. Not surprisingly, students very strongly and consistently identified the encounter of exceptional role models as the event most likely to have a high impact (24). Students also identified several other events with more negative valence as having high impact. Among these events was seeing a patient in severe pain (24). We interpret this to mean that there are important gains to be made from providing better preparation for students in the area of pain medicine. Overall, the students varied widely in terms of the total impact that they ascribed to events in medical school. Our preliminary data analysis suggests that there may be observable differences between students destined for careers in surgery when compared with students going on to residency in internal medicine (unpublished data). The impact of affective predisposition and emotional sophistication on medical practice is an intriguing area of study that will likely yield improvements in clinical practice (1). More attention is needed to understanding the emotional needs of medical students (19) as well as the impact of skillful emotional response handling in various medical contexts (25).

MATCHING LEARNING TASKS TO LEARNING **ACTIVITIES: CULTIVATING INTELLECT AND AFFECT**

There is increasing concern that the traditional methods of preclinical education, eg, large lectures and laboratory experiences, are not ideally suited for long-term retention of relevant information. Widespread recognition of the need for improved educational strategies has led to the development of 'rational curriculum design' (26), nearly universal adoption of detailed learning objectives for educational process, and implementation of new assessment strategies (27). Certainly there is strong support for the idea that learning of technical skills occurs more robustly in a simulation-based environment (28). In addition, learning to apply new clinical knowledge through simulation practice in a supervised setting has been shown to be more effective than self-study or web-based instruction alone (29).

The incorporation of opportunities for emotional development in clinical training demands special attention because the ordinary methods of clinical education are ineffective in advancing the desired outcomes of increased empathy, compassion, and confidence in handling emotional challenges in clinical management (2). Studies indicate that current approaches to medical training have the effect of attenuating empathy (14). It seems the traditional educational methodologies are limiting the horizons of future health professionals in terms of reaching their potential for emotional development. Little is known about the processes that can be invoked to promote effective emotional development within a professional context. Some approaches that have been tried include intensive mentorship (13), Balint groups (30) and journaling (31).

During the clinical stages of training, the use of dynamic, small clinical teams is commonplace as medical education is incorporated into the workflow of hospital care delivery. The process of communication in these teams is complex and not intrinsically suited to providing subtle forms of feedback (5). Historically, the rounding team has been a learning environment that is characterized by sometimes fierce intellectual sparring (32). This type of environment may be distinctly counterproductive to cultivating compassionate responses (32). Even a more benign clinical experience led by a well-intentioned attending clinician may not result in appropriate emotional development, unless a fully explicit approach is used (5). Explicit disclosure of emotional experiences by the attending clinician make it possible for students to recognize emotional challenges as the seasoned clinician becomes aware of them, and to learn strategies for resolution as they are described aloud and demonstrated by the instructing clinician. Despite the many advantages intrinsic to the medical team approach, there are concerns that overemphasis on teamwork during training may interfere with a student's capacity for full empathic engagement with a patient and diffuse a student's sense of personal responsibility (33).

TABLE 2
Portfolio activities and area of socioemotional development – selected examples and context in course

Context	Area of development	Portfolio activity
Introductory lecture	Awareness of pain's impact and internality (subjectivity) of the experience	Personal pain narrative
Pain assessment small group	Awareness of pain in another, multidimensionality of pain	Description of pain using fine art image as a prompt
Pain laboratory	Awareness of pain being unpleasant, having cognitive effects and having affective impact	Short, structured reflections on cold pressor experience
Pathophysiology lecture: 'Mechanisms of persistent pain'	Active engagement in material and self-discovery about areas of interest	Personal learning objectives
Opioids and risk assessment for abuse small group	Acceptance of emotional reactions in highly charged situations, recognition of adaptive strategies	Pain and addiction: reactions to patients lying about abuse and applications of new knowledge re pain processing after chronic opioid exposure
Pain expert panel discussion of acute pain management	Acknowledgement of ideals and areas of inspiration in medicine, acceptance of challenges	Personal qualities of pain providers and important lessons

Two approaches – the use of a structured portfolio, and the incorporation of humanities into the curriculum – show particular promise for engaging preclinical students in emotional development work and are discussed in detail below. One challenge that seems to persist is the introduction of this material in a manner that does not frustrate students and lead them to disregard this work as unimportant (34,35). In the area of pain, the utility of recognizing, acknowledging and managing the affective content of a patient's experience is often recognizable to those with any past experience of serious pain. The more difficult challenge is motivating students who do not have a deeper appreciation for the impact of serious pain. Our previous work showed that 30% of medical students reported no personal or close family experience of serious pain (36). To some extent, these pain-naïve students lacked the experiential framework needed to appreciate the highly disruptive nature of serious pain, to understand the profound affective impact of serious pain, and to refrain from drawing false analogies between pain in the medical context and other forms of psychosocial suffering, eg, heartache, social isolation or academic disappointment. None of these is an adequate representation of pain when confronted with a patient writhing in agony, whether from kidney stones, gout, migraine or other painful illness.

Most especially for these students, we designed a pain-lab experience. Delivered on the first day of our four-day pain course, the pain-lab experience involves all willing students undergoing a 30 s cold-pressor test. Students with Raynaud's syndrome and other cold-sensitive conditions are asked to refrain from immersing their hands. For this exercise, the students divide into groups of three. The three students rotate through positions of 'immerser' (person who is immersing their hand), timer (person who calls out time in 5 s intervals) and spotter (person who stands next to the 'immerser' and makes sure they are protected from serious harm if a vasovagal reaction occurs). The 'immerser' is instructed to hold the nondominant hand in ice water for 30 s, while recording their pain scores every 5 s as announced by the timer. The 'immerser' is instructed that they may keep their pain scores private or share them with the others. The average level of pain experienced by the medical students was 6.7 on a 0 to 10 pain scale, as recorded at 30 s. The students were asked to provide open and guided response reflections on the experience, and a number commented on the emotional distress associated with the immersion. Many students expressed surprise with the intensity of pain experienced, and several commented how difficult it would be to live life if this level of pain were ongoing. The cold-pressor immersion experience was believed to be very useful as part of the introduction to pain for these students.

THE PORTFOLIO AS A TEACHING TOOL: OVERVIEW AND APPLICATIONS

The portfolio, as a complement to regular clinical education, is a relatively new phenomenon. The earliest Medline reference to 'portfolio and medical students' dates to a 1994 article, describing the use of

portfolio work to engage students in gaining a fuller knowledge and understanding of cancer. The students in that study collected records of interactions, events, relevant articles and other materials pertaining to their clinical training in following a patient with cancer (37). In recent years, the definition of what constitutes a portfolio has varied, but a recent review article defined the portfolio as one of two entities: a collection of materials that provides evidence of a student's learning activities and should include evidence of some intellectual processing of that material; or a learning journal with a collection of student reflections on learning (38). More generally, portfolios are found to be successful when certain criteria for implementation are met. These include clear instructions and expectations, robust integration with other course content, mentoring of the work, clear instructions that do not inhibit some freedom of expression and 'user-friendliness' that extends to making realistic demands on the students' time (7). We broadly defined a portfolio as a collection of student work reflecting engagement in medical learning extending beyond the accumulation of facts. A comprehensive portfolio will contain evidence of effort in multiple domains of professional competence: emotional development, reflective capacity, communications, technical skills and clinical reasoning may all be included. For our integrated pain course, we sought to develop a portfolio that would prompt students to experience, consider and reflect on the affective dimensions of pain and the implications of this for their lives as physicians.

The contents of the pain portfolio developed for our pain course were designed to be used in close parallel with the cognitively-oriented content of the course. In addition, we limited the activities to short exercises that could be completed in 5 min to 15 min while the students were in the classroom. The constraint from our medical school administration was that students were only to complete activities during classroom hours. Thus, 5 min to 10 min of in-class time for students to complete short activities in the portfolio were allotted. Several examples of portfolio activities are described in Table 2. As an example, the opening lecture about pain gave an abbreviated overview of pain prevalence, pain assessment, pain interventions and pain neurobiology. The lecture was limited to 45 min, and students were asked to spend 10 min writing a short pain narrative, either in the first or second person. Students who had no previous experience of pain were asked to write discursively about pain. Surprisingly, only one or two students chose this option; the remainder wrote about personal pain experiences.

Two examples of how our conceptual model of cognitive and affective development was incorporated into portfolio design are provided here. In the first, a small group case discussion on pain and addiction was accompanied by a short reflective writing activity, asking students to anticipate what emotions they might feel the first time someone lies to them about the use of illicit substances (negative-valence task). This activity additionally asked the students to apply what they had learned about the effects of chronic opioid exposure on

pain processing and how they might use their new knowledge of non-pharmacological treatments for pain to augment their treatment of these patients. This activity reflected an overall design strategy of encouraging students to reflect on affective responses, while anticipating how new knowledge about pain might be integrated into clinical practice, and how this knowledge might mitigate negative affective reactions toward patients with pain.

In the second example, a distinct but especially effective portfolio task was the reflection on personal qualities of pain-expert clinicians (one surgeon, one oncology fellow and one nurse-manager) that the students observed and queried during a pain management panel discussion. This was an affectively-oriented task designed to engage students in reflection on a positive-valence 'inspiring experience'. In this activity, the students were also asked about the most important questions and the most important lessons from the session. This aspect of the activity illustrates how we structured a link between more cognitively-oriented observations and more affective/socioemotional reflections in order to help the students 'bridge the gap' between cognition and affect (39). This embedded structure endeavours to take advantage of the fact that affective responses are intrinsically highly motivating. In the case of the pain and addiction activity, we wanted students to recognize that frustration and disappointment can have a strong aversive effect on clinicians encountering pain in the context of substance abuse. This experience must be anticipated, acknowledged and even accepted as part of clinical practice. It should not interfere with the delivery of compassionate clinical care. Conversely, to reach their fullest potential, inspiring experiences, such as encountering exceptional role models, should also be reflected on and lead to explicit plans for improved clinical conduct.

PAIN AND THE HUMANITIES AS AN EMOTIVE ENGINE

Developing opportunities for fuller expression of medically-relevant emotional experiences, especially during the preclinical phases of training, is challenging. It requires a commitment to innovation and a willingness to expand the boundaries of ordinary approaches to medical education. There are multiple reports in the literature to suggest that the incorporation of humanities into medical and nursing curricula can be particularly effective at enhancing emotional awareness in students (8,40,41). Nonetheless, debate persists about the utility of medical humanities (42,43) and the applicable goals in the medical curriculum (35). For many years, regular education in the early phases of medical school has focused on fact-based learning and, indisputably, a strong cognitive underpinning is essential for competent clinical practice. Nonetheless, there is a challenge raised by the attenuation of empathy later in medical school and during postgraduate medical training. If self-reported empathy is very high early in medical school before extensive clinical exposures (14,36), it is potentially an ideal time to prepare students to manage the pressures that they will experience.

Currently available evidence indicates that filling the curriculum with the facts of medicine may not be an adequate preparation for truly exceptional clinical conduct. We recently reported that 45% of graduating medical students experienced seeing a patient in severe pain as a high impact event in medical school (24). We hypothesize that students have strong memories of these pain experiences because they lack the tools to be more reflective, constructively critical and proactive. How do we best prepare students to render aid when a patient suffers severe pain from kidney stones or an acute appendicitis? What will the student do when rotating with a clinician who does not respond quickly to a patient's request for acute pain medication? What will that student do if they are in the room with a resident who refuses to return in 20 min to perform a dressing change, once the pre-emptive pain medication has started to work? How will that student feel? Will they recognize the inherent cruelty of ripping gauze from a granulating wound and side with the patient? Or will they identify with the harried resident who ignores or minimizes the suffering of the patient, perhaps

casting aspersions at the ones who complain 'too much'? Even an extensive knowledge base about pain may not give the student appropriate tools to observe, process and intervene when they see a patient suffering.

The recognition that students need a framework to encounter, absorb and resolve to care about the suffering of patients with pain led to the creation of a new curriculum entitled 'Pain and the Humanities'. This course has been published online following peer review and is available free-of-charge from MedEdPortal (44). Designed to be delivered as four 2 h seminar sessions, the course has ambitious goals (summarized in Tables 3 and 4), which include the recognition of pain as an important part of many medical illnesses, and the observation that pain reflects both culture and context. The course is structured to give students the opportunity to observe and reflect on representations of pain within the fine arts. The students are engaged in pain experiences from several different perspectives, within different artistic media. This affords them greater pain appreciation and enables them to explore the subtleties of pain, as well as the opportunity to distinguish differences between psychic, existential and emotional forms of pain. Additionally, examining literary and artistic depictions of pain serves as an effective tool for understanding pain on a much more humane level, thereby aiding in the cultivation of more emotionally astute responses. Pain as captured in an artistic rendering can be very powerful, compelling the observers to try to begin to understand and relate to the different dimensions of despair within the sufferer. One especially potent example is the comparison of affective responses depicted in the 'Toothpuller', attributed to Caravaggio, compared with van Honthorst's representation of the same event (images obtained from Artstor using an institutional license). Painted a mere 20 years apart, the images could not be more different in the range of emotional responses shown by the dentist, the patient and the onlookers. Caravaggio depicts tooth-pulling as an intense struggle between an agonized, vulnerable patient, a fiercely determined dentist and luridly interested onlookers. van Honthorst's portrayal of the same clinical event evokes feelings of trust, compassion and empathy. Striking similarities in composition may be due to van Honthorst's keen interest in Caravaggio's work.

The sequencing of humanities content within a medical seminar course is very important. Our course begins with a unit on dramatic representations of pain. In this, the students are engaged in actively responding to pain brought to life before them, both critiquing the representations of others after watching a film clip, as well as participating in depicting pain themselves through dramatic reading or role-play. The unit on pain literature follows, and is intended to aid the students in internalizing the pain experience and coming to the realization that they can appreciate the pain experience of another in some detail, even if they have not had that exact experience. Indeed, fascination with the human condition is a common link between literature and health care (45), with literature functioning to "capture the richness (and sometimes the poverty) of the human spirit" (46). The third session engages groups of two or three students in preparing a short presentation about a fine art work representing pain. This has the effect of honing their skills for observing evidence of pain and compels them to communicate what they see to their team members. Sometimes more impactful than the written word, artistic illustrations serve as graphic expressions that are better able to portray experiences that are overwhelming and often indescribable.

The seminar builds toward the final session on philosophic perspectives, which is intended to have the students integrate some of their experiences into a value-based philosophical framework and begin to idealize how they will use this new appreciation for pain: through a commitment to deliver high quality medical care for those in pain, or through a growing awareness of their personal pain-related values, or the simple but important recognition that people vary in the extent of valuing pain relief (but most people do value it). The overarching vision for the course was to engage the students in emotional development work vis-à-vis pain. Analysis of pain in the form of art evokes emotion,

TABLE 3
Learning objectives in course on 'Pain and the Humanities'

Session 1: Dramatic representation	Session 2: Literary descriptions	Session 3: Fine art depictions	Session 4: Philosophic perspectives
Pain is a feature of many common diseases	Pain is a key aspect of the illness experience	There is often, but not always, observable evidence of serious pain	People differ in the extent to which they value the absence of pain
Pain has 'meaning'. This meaning is influenced by context and culture	The meaning of pain for patients is individualized, depending on culture and context	Certain responses and actions make pain more or less 'believable'	Pain exists within culture and context, sometimes linked to morality
Pain is often described in vivid terms	The suffering associated with pain is dynamic and multidimensional	Careful observation is crucial to providing medical clues about pain	Clinicians have a moral duty to relieve pain
There are multiple kinds of pain and it is important to distinguish them	Mental (psychosocial) pain and physical pain are different	There is a range of typical responses to pain	Pain sensitivity is sometimes intertwined with perceived character strength
'Others' have many different reactions to pain; awareness of differences is needed	There are appropriate and inappropriate responses to pain	Doctors are in a unique position with respect to the pain of others	Clinicians need to be aware of their pain-related values and acknowledge those of their patients
Caring is expressed by others to those in pain, the so-called 'humane response'	There is value in compassionate responses to patients	Empathetic awareness is necessary to treat those in pain	The development of compassionate responses is appropriate and perhaps essential

TABLE 4
Elements of a teaching plan in pain and the humanities (four sessions of 2 h each)

Philosophy	Fine arts	Literature	Drama
Team-based learning about philosophy dividing students into four philosophic schools: Aristotelian, Stoic, Epicurean and Utilitarian	Student presentations of selected artworks: Kahlo, Bosch, Caravaggio, Dix and others. Leads to close observation	Poetry: Kahlil Gibran's 'On Pain', and a discussion of the self-imposed nature of pain (or not), and differences due to culture	Movie excerpt: First 11 min of 'Glory' starring Broderick as a lightly wounded soldier observing unanesthetized leg amputation
Students work to answer detailed questions on how their philosophic school conceives of pain and then solve a challenge question of clinical management from their school's perspective	Guided observations and reflections on the evidence of pain exhibited in selected fine art works. Discussion of neurobiology controlling pain behaviour and what makes pain 'believable'	Prose: Contrast Stephen King's pain narrative 'On Impact' to that of Doris Lessing's childbirth narrative in 'A Proper Marriage'	Dramatic reading of John Milton's 'Samson agonists'. Samson is a man with many kinds of emotional degradation but little physical pain: important contrasts to physical pain here
Lecture presentation of philosophic perspectives holds the promise of great breadth but is not interesting to all students	Crucifixion scenes offer a longitudinal and multicultural series of pain images but are heavily laden with potent cultural messages	Poetry alternative: Haiku of Basho and Issa has imagery of winter, dry bones, snails crying in the frying pan, a worm eating a chestnut	Role play where students adopt the roles of patients with specific pain-illness or the role of interns; prompts awareness of pain in diagnosis

promotes contemplation and introspection and, in turn, fosters emotional growth (44,45,47,48). Preliminary data indicate that the essays that the students produce in the course demonstrate a serious effort to perceive and acknowledge the affective content of pain experience.

SYNOPSIS

It is the experience of many that physicians are not always prepared to attend to and address medical conditions in which pain predominates. Clearly, there is a need for physicians to be prepared in this area, most especially because pain is a feature of many clinical encounters (49). However, relatively little time is spent learning about pain in medical school.

Innovative approaches are needed to improve the training of health care providers in the area of pain. To be most effective, the approaches taken need to acknowledge the affective content of pain experience – to do otherwise leads to frustration and disappointment. In truth, we can be most helpful to our colleagues involved in the general education of the health professions if we adopt the stance of being able to do important work in the area of emotional development, by virtue of the emotional impact of pain. Fact-intensive curricula are necessary but not sufficient, and new methods of teaching in medical schools are rich in opportunities to shape emotional development. These methods include explicit mentoring, small groups with compassionate clinical experts, customized portfolios that are fully integrated into coursework and the use of humanities-based materials with strong medical ties. Attention to the emotional development of

health professions students is sorely needed. We know how to fill smart young people with medical facts, but we now need to discover how to fill them with the emotional strength to accomplish great and compassionate care.

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