

MEDICAL EDUCATION

A Shared Professional Framework for Anatomy and Clinical Clerkships

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Threats to the professionalism of medical practice in the United States have resulted in an intense focus by educational organizations on what professionalism is, on how to define it, and how to evaluate it. This essay discusses alternative educational frameworks in which professionalism can be located. As the traditional analytic framework (knowledge, skills, and attitudes) and developmental frameworks are more familiar, emphasis will be placed on a “synthetic” framework that expresses a student’s progress as “reporter,” “interpreter,” and “manager/educator.” This “RIME” framework attempts to capture the classic rhythm of observation–reflection–action that is familiar to all scientists and clinicians, and attempts to express in less generic, more behavioral terms how skills, knowledge, and attitudes must all be brought to bear *at the same time* by a successful student. It is argued that the complexity of professional development can be embraced with simplicity, without being simplistic. *Clin. Anat.* 19:419–428, 2006. © 2005 Wiley-Liss, Inc.

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INTRODUCTION

The purpose of this essay is to explore how teachers can place professionalism in alternative educational frameworks that embrace both anatomy in the basic science years of medical school and the clinical years. As a response to growing threats to professionalism in medical practice (Relman, 1998; Ludmerer, 1999; Shrank et al., 2004), there is intense focus on assessing professionalism in medical education (Arnold, 2002; Lynch, 2004), and this extends from entry into medical school until graduation. It may be worthwhile for anatomy faculty to consider alternative educational frameworks for teaching professionalism, for explaining to students what we expect of them, and for judging whether they have achieved society’s expectations. I will locate the discussion of professionalism within frameworks that may be used to describe goals and objectives for students, and describe their uses and limitations. I will then proceed to descriptions of professionalism, which are simple without being simplistic. In the hope of providing added value to the literature on this subject, the article will emphasize less familiar approaches.

Anatomy teachers are most familiar with the traditional framework used in medical schools to describe the goals of the educational process, which places

learning objectives into three different domains: knowledge, skills, and attitudes (often called the “KSA” approach). In this framework—which may be called “analytic,” since it “divides up” expectations for students into these domains (Pangaro, 2000)—professionalism would be considered as part of the attitudinal domain. However, in the task-oriented milieu of clinical medicine, faculty are often looking at tasks in which it is either difficult or undesirable to measure a single domain, isolated from the others. Therefore, an alternative, “synthetic approach” (so called because the three KSA domains are combined) may be used to describe a student’s progress (Pangaro, 1999). This article will first review analytic and developmental frameworks, and then emphasize how professionalism in anatomy teaching could be located within the synthetic model.

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THE ANATOMY OF PROFESSIONALISM: FRAMEWORKS

Analytic Models

In the traditional framework used in education, including elementary and secondary school, there are three domains: knowledge, skills, and attitudes. Professionalism is considered under the attitudinal domain. This underlying structural approach is seen in all of the recent attempts to define a framework for medical education, including professionalism. The Association of American Medical Colleges (AAMC, 1998) in its Medical Schools Objectives Project frames our expectations for medical students with four categorical statements: a physician is dutiful, a physician is altruistic, skillful and knowledgeable. These are immediately recognized as the three “KSA” domains with attitude formulated as duty (which, in turn, has six objectives) and altruism (which has seven objectives). More recently, the Accreditation Council for Graduate Medical Education (ACGME, 1999; Leach, 2004) has formulated expectations for finishing residents as six “general competencies,” one of which is explicitly labeled as Professionalism and which, in turn, includes seven attributes, such as respect, compassion, altruism, and accountability. In a recent invitational conference sponsored by the National Board of Medical Examiners (NBME, 2003), professionalism was further divided into a “template” with eight categories: altruism, honor and integrity, caring and compassion, respect, responsibility, accountability, excellence and scholarship, and leadership. Most comprehensively, the American Board of Internal Medicine (ABIM, 2002) articulated a Charter on Medical Professionalism, which is now been endorsed by more than a 100 professional organizations. This charter has three fundamental principles: the primacy of patient welfare, patient autonomy, and social justice. It is implemented through a set of 10 professional responsibilities among which are professional competence, honesty with patients, confidentiality, and scientific knowledge. In each of the four approaches just described, the need to describe professionalism by specifying a varied number of “objectives,” principals, competencies, and responsibilities shows the difficulty we have in defining the subject.

Given a national concern with how economic and social forces threaten the ethical practice of medicine, the principal focus of the AAMC, ACGME, NBME, and ABIM is on the personal characteristics and attributes of physicians in practice and physicians in training. In this context, professionalism is characterized as a set of personal qualities (honesty,

integrity, compassion) and commitments (respect for persons, accountability, scholarship, confidentiality, social justice). Commitment to knowledge, expertise, and scholarship are there, but usually compressed as one item in a list of many others. This is understandable, even desirable, given the profession’s desire to maintain its integrity in the face of internal and external threats, but overall, the effect has been to elaborate lists that fit into the attitudinal domain in the analytic model.

It is straightforward to place learning objectives for students in a clinical anatomy course into the three “KSA” domains: *knowledge* of the structures within a body cavity, *skill* in dissection, and a proper *attitude* toward the cadaver and the person whom it represents. In fact, there has been considerable attention from teachers of clinical anatomy in recent years on how the cadaver is, or is not, a focus for the development of professionalism; whether, for instance, contact with the cadaver helps medical students learn respect for persons and compassion (Weeks et al., 1995); whether contact with the cadaver leads to humanistic contemplation of death, or to a blunting of sensitivity (Charlton et al., 1994). Anatomy faculty have shown a willingness to accept the role of evaluating students’ professionalism (Bourguet et al., 1997), and it remains to be seen whether this will translate into the kind of documentation that might put a student’s graduation in question (Papadakis et al., 2004). Whether the anatomy experience is positive or negative, there is agreement that dissection of a cadaver can be a critical turning point in the socialization of students. Once done, students have crossed the Rubicon; there’s no going back, and they are different from their college mates (D.M. Elnicki, personal communication). In this sense, anatomy provides a unique contribution to the formation of professionalism in which, synthetically, head, hand, and heart are fused.

The analytic approach to formulating educational goals provides a generic set of terms that can be applied to all curricular tasks. The analytic approach is particularly useful when trying to measure discrete aspects, and anatomy teachers are quite familiar with using a single multiple-choice test as a measure of knowledge, and perhaps with using a checklist to rate skill in dissection or in the identification of organs. However, we might ask whether a multiple-choice question (MCQ) test might be thought of more “synthetically,” in which the exam score represents a final common pathway for multiple attributes of the student. These attributes would include not just knowledge stored in memory, but also students’ skill in reading quickly, their strategic learning style

(McManus et al., 1998), skill in weekly time management. In addition to these cognitive attributes, attitudinal qualities like motivation, personality style (Tutton, 1996), acceptance of accountability, and poise under pressure might also affect performance. In other words, an MCQ test may be a proxy for more than cognitive ability.

In our current emphasis in the clinical years on team-work as a trait of professionalism, a variety of teaching and assessment tools are being considered, and some of these may be useful in anatomy class. To some extent, this has already been implemented through a team-based learning approach in gross anatomy (Nieder et al., 2005) and explicit noncognitive goals in a cell and molecular biology course (Derstine, 2002) that included inter-professional communication and self-reflection. In assessment, “360-degree evaluations” (ACGME, 1999; Snell et al., 2000; Veloski et al., 2005) have students evaluated by those who surround them, and not simply by teachers; this includes their peers, their patients, nursing staff, and administrative staff. It would not be difficult for course directors in anatomy to solicit input about individual students from their classmates, dieners and assistants in the anatomy lab, departmental administrators, and clerical staff.

Developmental Frameworks

The growth and aging of human beings has often been used as a metaphor for the growth of students in an educational process. Piaget’s biologic model and Erikson’s psychological model frame development as a series of stages. In the well-known Taxonomy of Educational Objectives in the Cognitive Domain, Bloom et al. (1956) provide a vocabulary for describing the progressively higher mental skills acquired by students in primary education: knowledge, comprehension, application, analysis, synthesis, and evaluation. Dreyfus and Dreyfus (1986) provided a generic vocabulary of educational progress for adult learners from novice, to advanced beginner, competent performance, proficient performance, intuitive expert, and master. Developmental models are very useful for medical school faculty because they reflect the fact that students grow, and that not all learners are at the same level of performance. The models of Bloom et al. (1956) and Dreyfus and Dreyfus (1986) focus on cognitive aspects of development, and personal and attitudinal characteristics are not evident. However, their advantage over analytic models, which are structural and without an explicit terminology to capture change, is that the recognition of growth and progress is explicit, and

does not have to be inferred by the teacher or the student; to this extent, any curriculum that has learners at different stages, like medical school, requires some explicitly developmental aspect.

Teachers of anatomy, of course, use an implicitly developmental model like Bloom’s when, initially, they expect a student to learn the names of structures; followed by learning how the structures physically relate to one another in space; and then, for instance, by comparing and contrasting the structure of the right lung with that of the left lung. There is also an intuitive, and at times explicit, expectation that maturity and adjustment will accompany the study of anatomy. For instance, a student’s initial discomfort with the process of dissection may manifest as disrespect or gallows humor; this would prompt feedback from a teacher. However, later during the anatomy course, a repeat of such behavior might be grounds for formal counseling, and even a note to student affairs (Papadakis et al., 2004). But, developmental models often require long-term observation of students’ progress. Is the duration in months of an anatomy course sufficient for the development and professional maturation of a student to be noticeable, and can it be recorded with sufficient precision to form the basis of evaluation, and perhaps of grading? I could find no published studies that systematically looked at this question, but I suspect that experienced clinical teachers have developed a vocabulary with which they can describe to each other a students’ progress. However, there is a larger, long-term framework for the professional development of medical students and residents, developed in the late 1980s for use in the clinical setting, which may be useful in anatomy courses for medical students.

A Synthetic Model

As students progress toward eventual independence, there is an increasing expectation that they will bring all the necessary characteristics to bear, simultaneously, on the task of working with patients. In other words, knowledge, skills, and appropriate attitudes must all be present at the same time, and the student is him/herself responsible for successfully integrating all the necessary characteristics. For purposes of feedback, we might comment separately on a student’s fund of knowledge, or on their “attitude,” but in the final analysis, faculty must judge whether students have been able to acquire all the necessary attributes and, on their own, combine them successfully. A synthetic framework (Pangaro, 1999) “puts things together” in a vocabulary that emphasizes progressively higher expectations, as a

student progresses through the clinical years and through residency. The underlying premise is that the single best way to conceptualize the goal of education is growing independence. At the point of graduation from medical school, our trainees are given a medical degree that has been spoken of as a “license to commit medicine” (R.J. Joy, personal communication). Of course, interns are still in supervised practice, but their level of responsibility is clearly higher than ever before. At the point when residents leave their graduate program and move into practice, further independence must be guaranteed.

Independence does not mean a lack of accountability, or freedom to function outside of the medical care system; in fact, the opposite is now taught in training programs under the “system-based practice” competency of the ACGME. However, growing independence is the underlying premise of the synthetic model, and it has this in common with developmental models (differences will be discussed later). First, I will describe how the synthetic “RIME scheme” works in the clinical years, and then how anatomy teachers can use this model.

We can describe minimal performance expectations for trainees using the following progression: reporter, interpreter, manager/educator (RIME, Table 1). The framework includes aspects of the developmental approach, by distinguishing between basic and advanced expectations of performance. Each step is a final, “common pathway” of professional competencies representing a synthesis of skills, knowledge, and attitude, and may be useful for setting minimal expectations for learners in each year of training (Pangaro, 1999). The RIME framework differs from developmental models in that it is not always sequential and hierarchical. A learner’s progress toward higher steps is usually apparent in the earlier stages, and advanced learners typically gather and interpret clinical informa-

tion from patients and prepare for management all at the same time. Trainees might function at a “reporter” level for an unusual or complex problem, and at a higher level for problems that are common and straightforward; overall ratings of performance should reflect the level of consistent reliability. In other words, the RIME synthetic framework has an explicit developmental aspect, but is not, strictly speaking, developmental. It focuses more on visualizing what success looks like for learners at each level, and in this sense, it is behavioral.

Reporter. To be judged a successful “reporter” in the clinical setting, a learner must be trustworthy in working with patients, must accurately gather and communicate the clinical findings on his/her own patients, and can answer the “what” questions [P. Hemmer, personal communication] (what is the patient’s blood pressure? What medications is the patient on?). Proficiency in this step requires the basic skill to do a history and physical examination and the basic knowledge to know what to look for. This foundation should have been developed in preclinical courses, and depends upon the knowledge of anatomy, physiology, and other sciences that are basic to care of patients. Basic principles of anatomy and key features of the important human organs are student’s responsibility at the reporter level. If they had not been able to do so beforehand, within a day or two of participating in the care of a patient with abdominal pain, a student should be able to list key abdominal structures; for many clinical faculty, this would be required for success at the reporter level.

The reporter step emphasizes day-to-day reliability; for instance, being on time, or in follow-up of a patient’s test results, much like the desirable qualities of a newspaper reporter: accuracy and objectivity in data-gathering, timeliness, and honesty in communicating. Implicit in reporting is the ability to recognize

TABLE 1. The Rime Scheme: A Synthetic Framework for Progress of Clinical Trainees

Reporter	Fulfills the promise of reliably, respectfully, and honestly gathering information from patients, and communicating with faculty
	Gets the basic work done
	Answers the “what” questions
Interpreter	Reporting shows selectivity, prioritization, and implies analysis
	Fulfills the promise of active involvement in thinking through patient problems, and of acquiring the knowledge to offer a reasonable differential diagnosis
	Answers the “why” questions
Manager	Clinical planning fulfills a promise of working with patients on diagnostic and therapeutic decisions, and a promise of developing the expertise to do so
	Consistently answers “how” to resolve problems
Educator	Personal planning and reflection fulfill a commitment to deeper expertise for self and colleagues and patients
	Is committed to self-correction and self-improvement

normal from abnormal, and the confidence to identify and label a new problem. This step requires a sense of responsibility, and achieving consistency in “bedside” skills in dealing directly with patients. These skills are often introduced to students in their preclinical years, but by the clerkship year, they are often a “passing” criterion; and, they may be used as a non-negotiable, minimal expectation for any point after the clerkship year. Students who remain “observers” (Battistone et al., 2002) and do not have the knowledge, skill, or maturity to be reliable reporters may not be ready to progress beyond the clerkship year. Anatomy courses prepare a student by offering activities that expect participation, and not simply observation. Anatomy faculty prepare students by giving feedback to students who are behind their classmates in moving from a passive to enact a role.

Interpreter. Some transition from “reporter” to “interpreter” is an essential step in the growth of a clerkship-year student, and it is often the most difficult. At a basic level, a student must prioritize among problems they have identified. The signs of a student’s diagnostic reasoning, such as active mention of pertinent positives and negatives for each organ system that imply differential diagnosis, become apparent to teachers and penetrate the process of “reporting.” At this level, students’ summary problem lists for their patients identify syndromes, and shows “semantic competence” (Bordage, 1991); they do not merely repeat clinical findings, but subsume them into diagnoses. A successful interpreter consistently offers an explicit differential diagnosis, explicitly supported by findings they learned about in basic science courses, for problems that are common in medical practice. Interpreters can answer the “why?” questions (why does my patient have abdominal pain? Why is this liver enlarged?). Because a public forum can be intimidating to beginners, and students early in their clinical years cannot be expected to have the “right answer” all the time, we have defined success—at the student level—as offering at least three reasonable diagnostic possibilities for their patients’ major problems (finishing residents should be more than reasonable, they should be correct). Follow-up of patients’ laboratory tests provides another opportunity to “interpret” the data. Overall, interpreting requires a higher level of knowledge, more skill in stating the clinical findings that support possible diagnoses, and in applying test results to specific patients. A student has to make the transition, emotionally, from “bystander” to see himself/herself as an active participant in patient care.

Manager. Managing patient care takes even more knowledge, more confidence, and more judgment to

decide when action needs to be taken, and to propose and select among options; to answer the “how?” questions in diagnosis and therapy, including whether the patient understands and accepts the proposed actions. We ask clerkship-level students to include at least three *reasonable* options in their diagnostic and therapeutic plan, although minimal expectations are higher for interns and residents. An essential element in “managing” is negotiating with patients on what is planned for them; in other words, being a manager does not simply mean telling the patient what is going to be done, and in this sense is closely linked to student’s interpersonal skills and their ability to educate their patients. This is a high standard for students to meet, and we find that only 25–30% of students earn the highest grades in our clerkship.

Educator is part of being a manager, but the action is focused on a learning plan for the student, the patient, and perhaps the medical team. Success in each prior step depends on self-directed learning and on a mastery of basics; but to be an “educator” in the RIME scheme means to go beyond the required basics, to read deeply, and to share new learning with others. Defining important questions to look up in more depth takes insight. Having the internal motivation and time-management skills to look for rigorous evidence on which to base clinical practice, knowing whether current evidence will stand up to scrutiny, are qualities of an advanced trainee; to share leadership in educating the team (and even the faculty) takes maturity and confidence. Faculty might agree that understanding anatomy, physiology, and therapy well enough to explain it to more junior learners is a non-negotiable expectation for advanced residents. Learning from one’s own experience, one patient at a time, is essential for all students, but learning systematically from one’s own “practice” experience is now expected of finishing residents, as “practice-based learning and improvement” within the “general competencies” expected by the ACGME (1999).

Although it appears that the terms of the RIME scheme describe stages through which a student progresses systematically, this is not strictly true. Learners may be quite proficient at interpreting chest pain in a hospitalized patient, but complete novices in dealing with nodular goiter. This content-based expertise is true for both students and residents. The RIME framework describes how a learner interacts with particular patient, and it is up to a teacher to make a judgment about their overall level of performance with common, core problems that are expected to be seen within each clerkship. As noted

earlier, advanced learners do not typically separate the tasks of reporting and interpreting, or reporting and managing. For an expert, the fundamentals of differential diagnosis underlie the way patients are interviewed and examined; in other words, the task of interpretation is contained within the gathering of data, and a good oral case presentation typically contains an implicit interpretation. Likewise, the “manager/educator” relationship with patients is established during actively interviewing them, and so is also present within what appears to be merely the reporter function. The RIME scheme guides teachers’ observations in looking for the signs of interpretation or management within the student’s act of reporting. Perhaps more importantly, the apparent “stages” of the RIME scheme can be used to establish a minimally acceptable level of performance for learners at each level. A clinical clerk must always be an acceptable reporter, even though interpreting is not yet proficient. A resident on the other hand must always be successful as reporter, interpreter, and manager. In other words, the RIME is a “razor,” and can be used to set pass/fail thresholds.

Descriptive Terminology

Why is it necessary to have a vocabulary of descriptive evaluation for use by teachers in the clinical setting? Such evaluations are often felt to be “subjective” and susceptible to biases of the individual teacher (Epstein and Hundert, 2002), to student–teacher interactions, and to halo effects (in which the students strengths prevent adequate recognition of their limitations). “Objective” assessment tools, such as multiple-choice tests or an objective structured clinical examination using standardized patients, have been considered to be more reliable (Epstein and Hundert, 2002; Veloski et al., 2005). However, such highly structured examinations are resource intensive, under the control of course in clerkship directors rather than of everyday teachers, and are difficult to arrange frequently enough to provide ongoing feedback. Moreover, anatomy and clinical teachers spend so much time with students that some descriptive vocabulary and framework are essential if their observations are to be used for formative evaluation (feedback) or summative evaluation (grading). We hope to persuade teachers that their descriptions of a student’s behavior are not inevitably inferior to computerized tests and high-fidelity simulations using mannequins; in fact, in its feasibility and easy application, we feel that “low-tech is good tech.”

The RIME scheme is an attempt to help teachers make their observations more structured and more consistent, by providing a useful description of what success looks like for student. In fact, using the RIME scheme, it is possible to achieve the level of reliability that is sufficient for pass/fail decisions (Roop and Pangaro, 2001), has predictive validity for identifying poor performance during internship (Lavin and Pangaro, 1998), and which achieve a very high degree of inter-site consistency in a multi-site curriculum (Durning et al., 2003). In other words, evaluations using words can be both reliable and valid if they are part of a system of regular discussion with teachers and faculty development (Noel, 1987; Hemmer and Pangaro, 2000). It may be more appropriate to refer to such evaluations by teachers as “descriptive,” avoiding the term “subjective,” which often has a pejorative connotation for those trained in sciences. Teachers are more reluctant to offer comments on personal manner, which they or students might consider hard to measure (subjective); yet, these are exactly what we must capture if we are to give feedback on professionalism (Hemmer et al., 2000; Pangaro, 2000). Likewise, we should refer to numerical methods (such as multiple-choice examinations) as “quantified” or “objectified” rather than “objective” (Norman et al., 1991), so that they are not automatically presumed to have higher importance than the observations of faculty. The RIME descriptive vocabulary has been reported to be feasible and fair by students and faculty institutions other than our own (Battistone et al., 2002; Ogburn and Espey, 2003). Perhaps more importantly, several studies have shown what would probably seem obvious: that teachers will tell you what they will not write down on evaluation forms, and that this information is more sensitive in detecting students who have deficiencies of general knowledge on multiple-choice final examination scores, and in detecting students with professionalism problems (Hemmer and Pangaro, 1997; Hemmer et al., 2000). In other words, the low-tech method of asking teachers what they think about students can be helpful in providing students with interim information about their progress that can help them anticipate summative evaluations.

Could this help teachers of anatomy? It may provide a framework for structuring the observations of anatomy faculty in small group discussions with students, including the sessions in the anatomy lab. It may provide encouragement for course directors in anatomy to meet regularly with faculty, supervising students in small groups. Like most teachers, anatomy faculties are at their strongest and most com-

TABLE 2. The Rime Scheme as Framework for the Progress of Anatomy Students

Reporting	In answering the “what?” questions, a student observes and communicates what is seen in the field of dissection, in a radiographic image or in computer graphic—the size, shape, textural characteristics of structures seen. (This is analogous to a clerkship-level student obtaining the patient’s symptoms, physical findings, and laboratory results, but not yet consistently reaching reasonable conclusions)
Interpreting	The student can answer the “why?” questions, and justify identifying a structure as one thing rather than another (for instance, why is this the vagus nerve rather than the sympathetic chain?). Just as an advanced clinical student is actively looking for certain symptoms to support or refute a typical clinical pattern, the anatomy student knows what to look for, and where
Managing	Implementing a diagnostic plan in clinical medicine is analogous to a student in anatomy taking steps to resolve structural uncertainties, for instance, through further dissection, are deciding that MRI would be useful to define the relationship between structures. In the “synthetic” model, attitude is part of what is needed, and it needs to be emphasized that accepting responsibility for defining and answering uncertainties is part of the student’s responsibility, not only the teacher’s
Educating	Educating oneself, one’s peers or even one’s teachers can be made an explicit goal in the anatomy course, just as it can be in clinical rotations. In the synthetic model, the successful internalization of these higher levels of professional behavior are apparent in consistent self-direction, in the ability to self-correct, and in understanding anatomy so well, that he/she functions like an active teaching assistant. This standard is deliberately high, and meant to encourage excellence

portable when in a mentoring situation, helping novices start the long process towards independence; for this reason, we emphasize the use of the RIME framework as a way of providing feedback, which will help the student get to “the next step.” Anatomy is recognized as one of the most powerful formative influences in medical school (Weeks et al., 1995). Confrontation with one’s own memories and fears about serious illness and death (Rizzolo, 2002) lays a foundation for clinical training, because it identifies and perhaps modulates emotionally charged reactions that could interfere with the students’ ability to be a reliable, accurate reporter. Krych et al. (2005) have introduced reciprocal peer teaching in a gross anatomy laboratory; this would introduce a professional skill that would flourish at the “educator” level within the RIME scheme.

Applying the RIME Scheme to Anatomy Courses

Anatomy teachers can introduce a student to the RIME terminology that can be used through all 4 years of medical school, and into graduate education. More importantly, teachers can explain how within their anatomy experience students must “grow,” and must master stages of increasing skill and of increasing commitment to progress towards their eventual independence. Table 2 provides an outline of how the rhythm of RIME in anatomy parallels and anticipates the same rhythm in the clinical clerkships. Since the RIME approach uses behavioral (not generic) terms, success is more easily visualized. The behaviors of sustained progress towards professional independence can be communicated to students and teachers, so that the goals of the curricu-

lum are explicit and not “hidden,” and, they can be recognized and rewarded.

The Professionalism of Anatomy: Definitions

The synthetic RIME framework provides a way for teachers and students to visualize what success looks like for those in training. Its terms are more concrete, behavioral than the generic terms of the analytic models (knowledge, skills, attitudes) or the developmental model of Dreyfus (novice, beginner, expert, etc.). Since its “rhythm” (observation–reflection–action) parallels the day-to-day activities of clinicians and scientists, it has an intuitive value and acceptance by teachers (Table 3). There is probably not an intern in the United States who has not written a “SOAP” note in which classic rhythm of observation–reflection–action is reproduced, with observations recorded as “Subjective and Objective” and reflection–action as “Assessment and Plan.” In other words, the rhythm within the RIME scheme captures what physicians and scientists do everyday. It is simple, without being simplistic.

This article is, essentially, a discussion of words and terminology as a useful force in how teachers

TABLE 3. The Analogous Rhythm of the Scientific, Clinical, and Rime Processes

Classical scientific method	Clinical process	RIME scheme
Observation	History and physical	Reporter
Reflection	Diagnosis	Interpreter
Action	Therapy	Manager
Reflection/ Further observation	Follow-up	Educator

frame and define things for learners. Consider this recent definition of professional competence by Epstein and Hundert (2002): “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.” While not formatted in a long list like the AAMC, NBME, ABIM, ACGME, or General Medical Council of the United Kingdom (2003) frameworks of professionalism, it would still be challenging for a student and teacher in the anatomy lab to apply Epstein’s definition on a daily basis.

Is it possible to find a comparable terminology for professionalism at a time when the prevailing trend is to provide progressively more details and elaborate lists that characterize what constitutes professionalism? Pellegrino (1979, 1995) has articulated a powerful, simple formulation: professionalism is a promise, a promise of duty and of expertise. This formulation is synthetic in that all the elaborate lists of contributory skills, knowledge, and attitudes provided by other groups are summed up in a phrase; and, this may apply equally well to the teaching of anatomy. We expect from students a sense of duty to their calling: a commitment to patients’ welfare above our own, and to becoming experts on their behalf. Pellegrino has said that medical students have permission from society to do things (touch patients, dissect cadavers) which, were they not in the medical profession, would otherwise be illegal.

Pellegrino’s “promise” is a concise, synthetic definition of professionalism and what the medical profession “professes.” He has written in detail, and eloquently, about how professionalism may be manifest, and I find that the “promise” embraces the complexity of professional virtue better than the lists of other, more analytic approaches. The “promise” says all that there is to say, and everything else, including the RIME scheme, is detail. The RIME framework, too, is guilty of some elaboration, although its framework is not built on abstraction and generic terms. RIME is more behavioral, and a way of visualizing what fulfillment of the promise looks like at different stages of training. To this extent, the RIME scheme is a way of organizing observations that will imply interpretation, but it is actually intended to facilitate better observation and reporting by faculty of how students are doing. While not without a theoretical basis in classical theory of “observation–reflection–action” (which generates further observation and reflection upon the results of action), it is like Aristotle himself, practical and concrete, rather than generic and abstract.

The expertise and duty of a “reporter” can be described in very concrete terms, as we tried to do earlier. The duty of a resident is higher than that of a student; the promise of expertise is not just for basic understanding of anatomy and physiology, but also for detailed knowledge of the risks and benefits of diagnostic and therapeutic maneuvers. While a student promises to be nonjudgmental in gathering and communicating a patient’s information, a resident at the manager/educator level promises to be able to work with them on a plan that they understand, and agree with.

The manifestations of professionalism in anatomy class can also be straightforward: does the student demonstrate the duty of expertise appropriate to their level of training? In a sense, all basic science courses expect a student’s commitment to developing expertise, but anatomy, uniquely, places the student in direct contact with the “remains” of the human being. While it is possible to argue that three-dimensional simulations, or high-tech images, can provide an excellent way for students to visualize living tissue, and thus learn the relationships of organs within the human body (McLachlan, 2004), these do not demand the same “respect” as a cadaver. Can one make a promise to a hologram? In this sense, professionalism is only begun with an open declaration in a white coat ceremony, and potential must be seen daily in an anatomy lab or on the wards of a hospital. It is not sufficient for a student to “make” a promise of future actions; the student must demonstrate professional “virtue,” an ongoing disposition to habitually do, and want to do, the right thing (Pellegrino, 1995).

In the RIME scheme, preclinical students coming out of the basic science years are presumed to have earned the right to see patients in the clinical setting. In other words, they have the attributes necessary to function as reliable reporters in the care of patients, and to make the transition to interpreter. Using the KSA analytic framework to describe the prerequisites for seeing a patient with abdominal pain, they have acquired knowledge of the anatomy of the abdomen, the skills to ask appropriate questions and probe with their fingers, and the attitude of confidentiality and appropriate sensitivity to the patient’s discomfort.

Developing “reporters” should be able to answer the “what” questions: what organs are at the right lower quadrant? How are they physically related to each other in three dimensions? Developing “interpreters” address “why” this particular patient is having pain. Why do they have, or not have, fever? Both gross and microscopic anatomy are central to answer these questions. But even more importantly, we

might answer whether a student has earned the right to participate in patient care by observing that their performance in the anatomy course. Have they demonstrated that they have already made a promise of expertise and duty?

CONCLUSION

Frameworks are not inherently right or wrong. They are methods that can help teachers clarify, and students learn. Frameworks are useful in their different ways for assessing students' progress towards independence. Synthetic models are strongest in structuring observations about whether the student is successful at complex tasks that require multiple attributes. The RIME model is synthetic, but also includes elements of a developmental model, and this allows us to observe whether over time there is progress. If progress is not sufficient, we then move into an analytic framework that allows us to probe whether the deficit is due to a problem with knowledge, skills, or attitudes.

As importantly, synthetic approaches tend to be more concise. To some extent, the integrity of the assessment process for medical students depends on teachers using it, and using it consistently. This in turn may depend on its ease-of-use, its portability from one student or location to another, and its ability to be remembered. Our strategy is that simplicity leads to acceptance; acceptance leads to use; use leads to consistency, and consistency is an important element of fairness. Are increasingly elaborate lists of competencies and behaviors going to achieve this? The elaborate, complicated lists of these analytic approaches work well for those of us who run courses and clerkships, and whose lives are focused on medical education; but for students and for the majority of faculty, we need something simple, without being simplistic. Perhaps, the RIME framework can help.

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