

Amending Miller's Pyramid to Include Professional Identity Formation

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Abstract

In 1990, George Miller published an article entitled "The Assessment of Clinical Skills/Competence/Performance" that had an immediate and lasting impact on medical education. In his classic article, he stated that no single method of assessment could encompass the intricacies and complexities of medical practice. To provide a structured approach to the assessment of medical competence, he proposed a pyramidal structure with four levels, each of which required specific methods of

assessment. As is well known, the layers are "Knows," "Knows How," "Shows How," and "Does." Miller's pyramid has guided assessment since its introduction; it has also been used to assist in the assessment of professionalism.

The recent emphasis on professional identity formation has raised questions about the appropriateness of "Does" as the highest level of aspiration. It is believed that a more reliable

indicator of professional behavior is the incorporation of the values and attitudes of the professional into the identity of the aspiring physician. It is therefore proposed that a fifth level be added at the apex of the pyramid. This level, reflecting the presence of a professional identity, should be "Is," and methods of assessing progress toward a professional identity and the nature of the identity in formation should be guided by currently available methods.

Editor's Note: A Commentary by F.W. Hafferty, B. Michalec, M.A. Martimianakis, and J.C. Tilbert will appear in the same issue with this article.

In 1990, George Miller¹ published an article entitled "The Assessment of Clinical Skills/Competence/Performance." Its impact was immediate. Although no review article on its use or impact has since been published, a recent search of the literature using Scopus revealed 1,094 references to it in journal articles representing multiple countries and languages. Since its publication, Miller's article has had a constant presence in works devoted to undergraduate and postgraduate medicine, continuing professional development, other health care disciplines, and domains far removed from health care. Interest in the article

appears to have grown with interest in assessment. Citations per year grew from single digits in the 1990s, passing 100 in 2010, and remaining between 100 and 140 per year since then.

In the original article, Miller¹ stated that "no single assessment method can provide all the data required for judgment of anything so complex as the delivery of professional services by a successful physician." He then proposed a four-part pyramidal structure as a framework within which the multiple levels of mastery over the art and science of medicine could be assessed. Recognizing the necessary integration of teaching and assessment, Miller stated that "faculties should seek both instructional methods and evaluation procedures that fall in the upper reaches of this triangle."¹ Moreover, acknowledging the power of assessment to drive learning, Miller correctly predicted that if his proposed structure was adopted, patterns of learning would be altered. We have nothing but admiration for Miller's contribution, believing that the pyramid with four levels of achievement was entirely consistent with the state of knowledge of professional formation and assessment at the time. However, we believe that the growing understanding of the importance of professional identity formation in medical education²⁻⁴ suggests that the composition of the pyramid should be reexamined.

As is well known, Miller's pyramid, or triangle as he also called it (Figure 1), has knowledge as its base. Miller recognized the foundational importance of knowledge, that an individual "Knows" what is required to carry out the functions of a professional. Moreover, he understood that merely knowing was insufficient for the practice of medicine, and stated that assessing knowledge was relatively easy. The next layer was based on the fact that graduates must "Know How" to use their knowledge as an indicator of "competence," and he reviewed methods of assessing the analysis, interpretation, synthesis, and application of knowledge. The third level, "Shows How" was related to "performance," referring to the necessity for learners to demonstrate, through performance, that they are capable of using their knowledge while being supervised and observed. Miller described the then emerging methods designed to assess this level of accomplishment. Finally, the apex of the pyramid was occupied by the verb "Does," representing an attempt to determine whether learners are capable of functioning independently in clinical situations. Miller¹ stated that "this action component of professional behavior is clearly the most difficult to measure accurately and reliably," an observation that is still accurate.

The pyramid that Miller created has been used extensively as a template for

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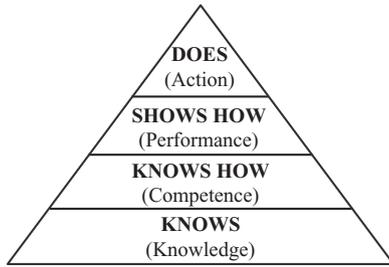


Figure 1 Miller's original pyramid. Reprinted with permission from Miller GE. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9 suppl):s63–s67.

designing programs of both teaching and learning and has served as a background for the development of systems of evaluation using multiple methods, each with its strengths and weaknesses,⁵⁻⁷ that are capable of being integrated into a holistic assessment of an individual's professional competence.⁸ The move to competency-based education and milestones has emphasized the usefulness of the triangle, as the sequence of descriptors from “Knows” to “Does” serves as the basis for developing milestones in many disciplines.⁹ Of relevance to the assessment of professional identity, it has also been used as the basis of the assessment of professionalism.^{5,7,10}

When Miller conceptualized his pyramid, it seems likely that most observers would have considered it sufficient and satisfactory if they could ensure that those entering practice would consistently use their knowledge and skills effectively and demonstrate the behaviors expected of a professional. Theoretically, this could be accomplished

by practitioners consciously acting in the prescribed ways expected of them. The movement to ensure that professionalism is taught throughout the continuum of medical education assumed this approach to assessment.^{10,11} It is based on the expectation that if practitioners understand the nature of contemporary professionalism and the obligations that they must fulfill in order to meet societal expectations, they will consistently exhibit professional behaviors.¹⁰

Hafferty² and others^{3,4} wondered whether this is sufficient. Is professional behavior something that is only used when necessary? After asking, “Does it really matter what one believes as long as one acts professionally?” Hafferty² answered his own question by stating that “the fundamental uncertainties that underscore clinical decision making and the ambiguities that permeate medical practice, require a professional presence that is best grounded in what one is rather than what one does.”² Others, believing in the importance of a professional identity, have agreed, stating that “being” is a sounder basis for the consistent presence of professional behaviors than is “doing.”^{3,4,12} We would therefore propose that above “Does,” the apex of Miller's pyramid should be occupied by an added level: “Is” (Figure 2).

From Professionalism to Professional Identity Formation

The word “profession” can be traced to Hellenic Greece, first appearing in the work of Scribonius.¹³ Through the ages, society and physicians have used

the word “professional” to describe medical practitioners. Professional behaviors were expected of physicians, but professionalism was not taught. The “professionalism movement”¹⁴ of the past few decades arose because medicine and society believed that medicine's professionalism was threatened by its own failures and by the evolution of modern health care.^{15,16} As a result, medicine's professionalism was analyzed, including its origins and the reasons for its continued existence. Definitions were developed,¹⁷ and methods of teaching¹⁸ and assessing professionalism^{6,19} were devised. Some definitions actually emphasize observable behaviors,^{11,18} as do many methods of assessment. Even though there has been a consistent emphasis on the moral nature of medicine and on the transmission of its values to future practitioners, the emphasis has been on “Does.”

Professional identity as a concept has also had a long existence in medicine. The Aristotelian term “phronesis” is largely descriptive of a professional identity and has come down to us in modified form through the ages.^{20,21} In 1957, Merton,²² in the introduction to a classic study of the sociology of medical education, stated that it is the function of medical education to

transmit the culture of medicine and ... to shape the novice into an effective practitioner of medicine, to give him the best available knowledge and skills, and to provide him with a professional identity so that he comes to think, act, and feel like a physician.

This was followed by two other classic studies by Becker and his colleagues²³ and Bosk,²⁴ both of which emphasized the centrality of identity to a physician's “self.” In spite of the considerable impact of these contributions, professional identity as an educational objective received little attention, although the term was frequently invoked as an aspirational goal.

This lack of attention has been remedied in recent years. The Carnegie Foundation report on the future of medical education brought the issue to the forefront. Its authors stated that “professional identity formation—the development of professional values, actions, and aspirations—should be the backbone of medical education.”²⁵

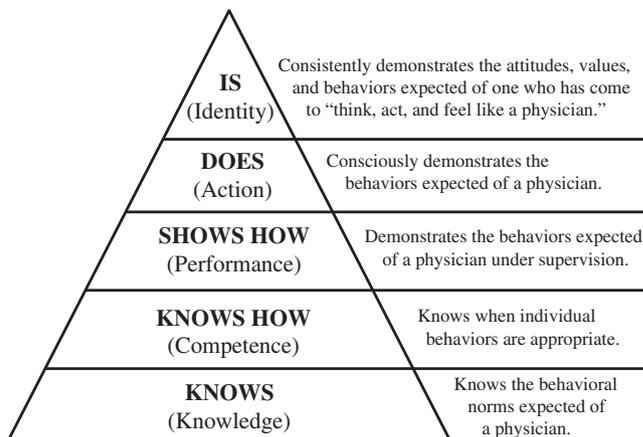


Figure 2 The amended version of Miller's pyramid with the addition of “Is” and an outline of what is to be assessed at each level. Sources: Adapted with permission from Miller GE. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9 suppl):s63–s67. Quotation from Merton, 1957.²²

There is now a rich literature in medical education that analyzes the nature of the professional identity of physicians and the many factors that influence the development of this identity.^{2,4,26–42} Those creating this literature have leaned heavily on the concept of identity formation established primarily in the field of developmental psychology.^{3,4,28,29} Professional identity formation is superimposed on the process of identity formation that occurs naturally, independent of careers in medicine. The nature of the professional identity narrative in medicine is now clear. Individuals enter medical school with existing identities developed since infancy. They desire to join the community of practice that is medicine⁴³ and successively acquire the identity of medical student, resident, and practitioner, with a final strong sense of belonging to their chosen specialty.⁴⁴ Their professional identity is developed gradually in stages as a result of both conscious decisions taken and the impact of the totality of their clinical and nonclinical experiences.⁴⁵ The aim throughout the process is to construct an identity that represents a “fully integrated moral self (one whose personal and professional values are fully integrated and consistently applied).”³ The nature of the desired identity is neither monolithic nor static. Every individual acquires multiple personal and professional identities that continue to change throughout their lives. Although there are some societal expectations, such as the desire for a caring and compassionate physician who will listen, that seem to be relatively timeless, other aspects of a professional identity will change as both society and health care delivery systems evolve.^{3,12} The emergence over past decades of the importance of respect for patient autonomy represents such a change.⁴⁶

The impact of the literature on this evolving understanding of professional identity formation, with the Carnegie Foundation report being of great consequence,²⁵ has been significant, causing many individuals to reexamine their approach to teaching professionalism. Professional identity formation has been identified as “a necessary foundation for professionalism.”³¹ Our group has gone further, proposing that the real objective of teaching professionalism

has always been to assist students as they develop their own professional identities and that professional identity formation should therefore become a principal objective of medical education.^{46,47} If this is to occur, it will be necessary to trace the progress of each individual toward the acquisition of a professional identity. It thus appears that the original formulation of Miller’s pyramid is incomplete. If the objective of medical education is assisting learners to develop their own professional identities so that their behaviors spring from who they are, then “Does” is not sufficient.

From “Does” to “Is”: Assessing Professional Identity

Miller’s intent was to address the issue of assessment, and if his pyramid is to be altered, this contextual framework cannot be ignored. Valid, reliable, and feasible methods of assessing learners’ progress are required as they transform themselves from members of the laity into individuals demonstrating that they have developed a professional identity. If the revised version of the pyramid is to be of assistance, methods of assessment must be available for each level of achievement, including “Is.”

The assessment of professionalism and of professional identity formation have different objectives and will require different methods. “Does” is different from “Is.” However, we can learn from one to inform the other. Miller’s pyramid has already been used as an analytic tool to guide the assessment of professionalism at the “Does” level.^{5,7,10} As an example, Hawkins and his colleagues⁵ used it effectively in discussing “who, what, when, where, how, and ... why” to assess professionalism. For the foundation of the pyramid, “Knows,” they stated that the knowledge base should include “Knows/understands core principles of professionalism.” For “Knows How,” they gave as an example “Describes a process for addressing a specific moral conflict.” As a representative of “Shows How,” they suggested “Demonstrates cultural sensitivity in interviewing,” and for “Does” they proposed “Advocates for patients in complex healthcare systems.” For each, they provide an overview of the methods available at the time for assessment.

In Figure 2 we have attempted to provide a similar template for assessing the development of a professional identity at the “Is” level. For “Knows,” learners would be expected to “Know the behavioral norms expected of a physician.” For this to occur, the behavioral norms of medicine’s community of practice must be communicated explicitly to every learner. At the “Knows How” level, it would be necessary to “Know when individual behaviors are appropriate”—again, something that must be communicated explicitly in the curriculum. As learners progress up the pyramid, they would model “Shows How” by demonstrating the behaviors expected of a physician while under supervision. At the “Does” level, the expectation would be that a learner consciously demonstrates the behaviors expected of a physician. Finally, at the apex of the triangle, behaviors at the “Is” stage would occur naturally because the individual has come to “think, act, and feel like a physician.”²² This would encompass the individual’s attitudes, values, and beliefs. The literature tells us that this occurs over time as a result of experiences and social interactions within medicine’s community of practice, during which each individual repeatedly plays the role of a physician.^{2,4,12,37} With time, the role comes to represent the individual’s identity or identities. The process does not proceed linearly as there are sentinel occurrences (as an example, the first contact with death) that advance and solidify a professional identity.^{3,29,30} A learning environment that fails to support individuals during their journey can retard the process.^{2,32,38}

As Miller¹ pointed out, assessment becomes more complex as one ascends the pyramid, and the assessment of “Is” will undoubtedly prove to be more difficult than the assessment of “Does.” The base—knowledge—continues to offer the fewest difficulties for assessment. It has been recommended that students and residents become actively involved in the process of developing their own identities.^{12,31,46} This requires knowledge of both the nature of the professional identity and socialization, the process by which a professional identity is formed. The presence or absence of knowledge can be assessed easily by traditional methods, as noted by Miller. As one progresses up the pyramid, methods currently recommended for

the assessment of professionalism can be reexamined and reformulated through the lens of professional identity formation. As the attitudes, values, and characteristics of the desired identity are largely subjective in nature, and therefore difficult to assess directly,⁴⁸ it is probable that there will continue to be a reliance on the observation of behaviors representative of those attitudes, values, and characteristics as a surrogate for the assessment of identity.⁴⁶ In addition, professional lapses and unprofessional behaviors will continue to require attention. They can indicate that a learner is having difficulty in developing a professional identity reflective of his/her stage of development.

However, it is recognized that reliance on observable behaviors alone misses important aspects of professionalism,⁴⁹ a situation that will undoubtedly persist in the assessment of professional identity. The tools that have been developed thus far to document progress in developing a professional identity have relied heavily on the interpretation of individuals assessing their own progress, and it seems likely that this will represent a rewarding direction in the future. In addition, some form of narrative description by knowledgeable individuals who have had sufficient contact with learners will undoubtedly emerge. Assessment is further complicated by the fact that it is axiomatic that each individual learner is unique and each will possess multiple personal and professional identities.^{3,4,46} Thus, a single standard as an educational objective is not only impossible, it is undesirable. Frost and Regehr³⁹ have pointed out that the objective of medical education is not the homogenization of all individual identities into a standardized medical persona imposed on those entering medicine. They stress the importance of both maintaining an individual's personal identity and a diversity of identities within the medical profession. Although it is not possible to acquire the identity of a physician without changing one's identity, the nature of the "self" that enters medical school must be allowed to persist. However, there are certain core attributes of the "good physician" that are expected both by society and by the profession.^{15,29,50} Competence, caring and compassion, and honesty and integrity have always been regarded as essential components of a physician's identity, a situation that will undoubtedly persist into the future.⁴⁶ The

objective of the assessment of "Is" is to try to ascertain whether these attributes have become an integral part of the identity of learners.

Methods Currently Available to Assess Professional Identity Formation

Although no current method of assessing the state of an individual's professional identity appears to have sufficient rigor for summative assessment, validated methods have been developed, both within medicine and in other professions, that can provide valuable information and feedback.

Methods developed in medicine

One of the earliest studies of professional identity formation assessed the state of the professional identity of medical students during their preclinical years.²⁶ The theoretical basis of the study was provided by Marcia,⁵¹ who stressed the importance of self-perception. He developed an "identity status paradigm" which provided operational definitions for the stages of identity development proposed by Erikson.⁵² On the basis of this framework, Niemi²⁶ used qualitative methods to analyze "learning logs" and "identity status interviews," both of which depend heavily on guided reflection. Students were given specific instructions on how to record their personal responses during early clinical experiences in the "learning log." The "identity status interviews" were designed to elicit students' responses to specific questions about the firmness of their commitment to their chosen direction in medicine and the reasons for their choices. At the end of their preclinical training, students were evenly distributed between four categories: those who had achieved a stage-appropriate professional identity; those still actively exploring specific alternatives; those dealing with vague fantasies and tentative ideas about their identities; and those who remained with a very diffuse identity status.

Another relevant tool is the "Professional Self Identity Questionnaire" developed by Crossley and Vivekananda-Schmidt³¹ to examine the curricular features that contribute to the development of a professional identity. Students were asked to respond to a series of questions designed to place them on a scale between

"first-day student and qualified doctor/nurse/social worker, etc." Although the sample size was small and the authors make only modest claims, they were able to demonstrate a more secure identity in students who had had prior health care experience and who were at a more advanced educational level.

Madill and Latchford⁵³ developed two "repertory grids" to trace the development of professional identity of first-year medical students before and after human dissection. They noted significant changes in identity and professionalism after human dissection and identified the factors that appeared to be most influential in effecting these changes. In addition, they noted the stress and sense of frustration that accompanied the process.

Thus, there is already an emerging body of information in the medical literature indicating that identifying the nature of professional identity (or identities) and changes in its development is possible using relatively accessible and feasible means.

Methods developed in other professions

There have also been solid studies in dentistry³ and in the officer corps of the U.S. Army⁵⁴ that confirm the possibility of assessing "Is" in other professions.

Bebeau and colleagues^{55,56} have assessed professional identity development in dental students. Bebeau leans heavily on the six-stage theoretical framework of identity development proposed by Kegan⁵⁷ that she has adapted for use in dental education. She describes three methods that she has used: standardized inventories, open-ended interviews, and open essays.

An example of a standardized inventory is the Professional Role Orientation Inventory that was developed to assess "action tendencies and underlying values." Individuals self-assess themselves against models of professionalism (commercial, guild, service, agent), compare themselves with others in the profession, and set personal learning goals. Both learners and educators can compare individuals against group norms. The second strategy uses "individually administered subject-object interviews" that were developed to trace the progress of individuals

through the various stages of identity development proposed by Kegan.⁵⁷ These interviews require intensive training of the interviewer and are time consuming, but appear to be capable of discriminating between the various stages of development outlined by Kegan, thus delineating the individual nature of the “Is.” They have been used in a large study of identity formation in students and graduates of West Point.⁵⁴ Finally, “professional identity essays” written in a monitored setting to avoid the possibility of coaching can provide information about “individuals’ conceptual differences in understanding professional roles and responsibilities.”⁵⁵ It is noteworthy that Bebeau has actually used these methods to assess the impact of programs of remediation for unprofessional behavior in medicine.⁵⁶

Thus, there is a growing body of knowledge in the nonmedical literature that can be adapted and added to those methods currently in use in medicine.

The Implications for Teaching

It is self-evident that introducing the assessment of a new level of accomplishment in medical education must be linked to changes in what is taught. In previous publications we have outlined some of our thoughts on how to best bring this about.^{46,47} Professional identity formation should become a goal of medical education, thus acknowledging its importance as the foundation of professionalism. The explicit teaching of the nature of professionalism, the reasons for its existence, its link to medicine’s social contract, and the actions necessary to sustain medicine’s professional status will remain important. To this should be added explicitly outlining the process of professional identity formation and socialization. In this way, learners can become engaged in the development of their own identity, tracing their own progress toward this goal in collaboration with role models and mentors.^{10,47,56} The assessing of “Is” should be primarily formative in order to guide students as they join medicine’s community of practice. Summative assessment will remain necessary to meet medicine’s obligation to society to ensure that practicing physicians have come to “think, act, and feel like a physician.”²²

Conclusion

As professional identity formation becomes more central to medical education, changes in goals, objectives, and educational strategies are required. Because of the utility of Miller’s pyramid, revising it to include an added level—“Is”—appears to be desirable. In this way, the pyramid can continue to serve as a guide to assessment, using adaptations of methods currently in use for assessing professionalism. Tools developed in medicine and other professions to directly assess professional identities can also serve as a basis for further progress as we move from an emphasis on “doing” to “being.”

It is appropriate to close with a quote from George Miller: “If we are to be faithful to the charge placed upon us by society to certify the adequacy of clinical performance ... then we can no longer evade the responsibility for finding a method that will allow us to do so.” As professional identity formation becomes an educational goal, explicitly assessing progress toward the achievement of this goal becomes a responsibility, and an amended version of Miller’s pyramid can serve as a guide.

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References

- 1 Miller GE. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9 suppl):S63–S67.
- 2 Hafferty FW. Professionalism and the socialization of medical students. In: Cruess RL, Cruess SR, Steinert Y, eds. *Teaching Medical Professionalism*. New York, NY: Cambridge University Press; 2009:53–73.
- 3 Bebeau MJ. Evidence based character development. In: Kenny N, Shelton W, eds. *Lost Virtue: Professional Character Development in Medical Education (Advances in Bioethics, Volume 10)*. Oxford, UK: Elsevier; 2006:47–87.
- 4 Monrouxe LV. Identity, identification and medical education: Why should we care? *Med Educ.* 2010;44:40–49.
- 5 Hawkins RE, Katsufraakis PJ, Holtman MC, Clauser BE. Assessment of medical professionalism: Who, what, when, where, how, and ... why? *Med Teach.* 2009;31:348–361.

- 6 Hodges BD, Ginsburg S, Cruess R, et al. Assessment of professionalism: Recommendations from the Ottawa 2010 Conference. *Med Teach.* 2011;33:354–363.
- 7 Hays R. Assessing professionalism. In: Walsh K, ed. *Oxford Textbook of Medical Education*. Oxford, UK: Oxford University Press; 2013:500–512.
- 8 Schuwirth LW, Van der Vleuten CP. Programmatic assessment: From assessment of learning to assessment for learning. *Med Teach.* 2011;33:478–485.
- 9 Accreditation Council for Graduate Medical Education, American Board of Pediatrics. The Pediatrics Milestones Project. <http://acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PediatricsMilestones.pdf>. Accessed July 29, 2015.
- 10 Levinson W, Ginsburg S, Hafferty FW, Lucey CR. *Understanding Medical Professionalism*. New York, NY: McGraw Hill; 2014.
- 11 Royal College of Physicians. *Doctors in Society: Medical Professionalism in a Changing World. Report of a Working Party of the Royal College of Physicians of London*. London, UK: RCP; 2005.
- 12 Jarvis-Selinger S, Pratt DD, Regehr G. Competency is not enough: Integrating identity formation into the medical education discourse. *Acad Med.* 2012;87:1185–1190.
- 13 Hamilton JS. Scribonius Largus on the medical profession. *Bull Hist Med.* 1986;60:209–216.
- 14 Wear D, Kuczewski MG. The professionalism movement: Can we pause? *Am J Bioeth.* 2004;4:1–10.
- 15 Cruess RL, Cruess SR. Teaching medicine as a profession in the service of healing. *Acad Med.* 1997;72:941–952.
- 16 Goldie J, Dowie A, Cotton P, Morrison J. Professionalism. In: Walsh K, ed. *Oxford Textbook of Medical Education*. Oxford, UK: Oxford University Press; 2013:275–287.
- 17 Birden H, Glass N, Wilson I, Harrison M, Usherwood T, Nass D. Defining professionalism in medical education: A systematic review. *Med Teach.* 2014;36:47–61.
- 18 Birden H, Glass N, Wilson I, Harrison M, Usherwood T, Nass D. Teaching professionalism in medical education: A Best Evidence Medical Education (BEME) systematic review. *Med Teach.* 2013;35:e1252–e1266.
- 19 Wilkinson TJ, Wade WB, Knock LD. A blueprint to assess professionalism: Results of a systematic review. *Acad Med.* 2009;84:551–558.
- 20 Kinghorn WA. Medical education as moral formation: An Aristotelian account of medical professionalism. *Perspect Biol Med.* 2010;53:87–105.
- 21 Kumagai AK, Wear D. “Making strange”: A role for the humanities in medical education. *Acad Med.* 2014;89:973–977.
- 22 Merton RK. Some preliminaries to a sociology of medical education. In: Merton RK, Reader LG, Kendall PL, eds. *The Student Physician: Introductory Studies in the Sociology of Medical Education*. Cambridge, Mass: Harvard University Press; 1957:3–79.
- 23 Becker HS, Geer B, Hughes EC, Strauss AL. *Boys in White: Student Culture in Medical School*. Chicago, Ill: University of Chicago Press; 1961.

- 24 Bosk CL. *Forgive and Remember: Managing Medical Failure*. Chicago, Ill: University of Chicago Press; 1979.
- 25 Cooke M, Irby DM, O'Brien C. *Educating Physicians: A Call for Reform of Medical School and Residency*. San Francisco, Calif: Jossey-Bass; 2010.
- 26 Niemi PM. Medical students' professional identity: Self-reflection during the preclinical years. *Med Educ*. 1997;31:408–415.
- 27 Beagan BL. Everyday classism in medical school: Experiencing marginality and resistance. *Med Educ*. 2005;39:777–784.
- 28 Forsythe GB. Identity development in professional education. *Acad Med*. 2005;80(10 suppl):S112–S117.
- 29 Shulman S. Signature pedagogies in the professions. *Daedalus*. Summer 2005;134:52–59.
- 30 Lempp H. Medical-school culture. In: Brosnan C, Turner BS, eds. *Handbook of the Sociology of Medical Education*. London, UK: Routledge; 2009:69–71.
- 31 Crossley J, Vivekananda-Schmidt P. The development and evaluation of a professional self identity questionnaire to measure evolving professional self-identity in health and social care students. *Med Teach*. 2009;31:e603–e607.
- 32 MacLeod A. Caring, competence and professional identities in medical education. *Adv Health Sci Educ Theory Pract*. 2011;16:375–394.
- 33 Monrouxe LV, Rees CE, Hu W. Differences in medical students' explicit discourses of professionalism: Acting, representing, becoming. *Med Educ*. 2011;45:585–602.
- 34 Weaver R, Peters K, Koch J, Wilson I. "Part of the team": Professional identity and social exclusivity in medical students. *Med Educ*. 2011;45:1220–1229.
- 35 White MT, Borges NJ, Geiger S. Perceptions of factors contributing to professional identity development and specialty choice: A survey of third- and fourth-year medical students. *Ann Behav Sci Med Educ*. 2011;17:18–23.
- 36 Burford B. Group processes in medical education: Learning from social identity theory. *Med Educ*. 2012;46:143–152.
- 37 Goldie J. The formation of professional identity in medical students: Considerations for educators. *Med Teach*. 2012;34:e641–e648.
- 38 Helmich E, Bolhuis S, Dornan T, Laan R, Koopmans R. Entering medical practice for the very first time: Emotional talk, meaning and identity development. *Med Educ*. 2012;46:1074–1086.
- 39 Frost HD, Regehr G. "I am a doctor": Negotiating the discourses of standardization and diversity in professional identity construction. *Acad Med*. 2013;88:1570–1577.
- 40 Monrouxe LV. Identities, self and medical education. In: Walsh K, ed. *Oxford Textbook of Medical Education*. Oxford, UK: Oxford University Press; 2013:113–123.
- 41 Wilson I, Cowin LS, Johnson M, Young H. Professional identity in medical students: Pedagogical challenges to medical education. *Teach Learn Med*. 2013;25:369–373.
- 42 Hill E, Bowman K, Stalmeijer R, Hart J. You've got to know the rules to play the game: How medical students negotiate the hidden curriculum of surgical careers. *Med Educ*. 2014;48:884–894.
- 43 Wenger E. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge, UK: Cambridge University Press; 1998.
- 44 Ludmerer KM. *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine*. New York, NY: Oxford University Press; 2015.
- 45 Hilton SR, Slotnick HB. Proto-professionalism: How professionalisation occurs across the continuum of medical education. *Med Educ*. 2005;39:58–65.
- 46 Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. Reframing medical education to support professional identity formation. *Acad Med*. 2014;89:1446–1451.
- 47 Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. *Acad Med*. 2015;90:718–725.
- 48 Ginsburg S, Regehr G, Lingard L. Basing the evaluation of professionalism on observable behaviors: A cautionary tale. *Acad Med*. 2004;79(10 suppl):S1–S4.
- 49 Hodges B. Assessment in the post-psychometric era: Learning to love the subjective and collective. *Med Teach*. 2013;35:564–568.
- 50 Daniels N. *Just Health Care*. New York, NY: Cambridge University Press; 1985.
- 51 Marcia JE. Development and validation of ego-identity status. *J Pers Soc Psychol*. 1966;5:555–558.
- 52 Erikson EH. *The Lifecycle Completed*. New York, NY: Norton; 1982.
- 53 Madill A, Latchford G. Identity change and the human dissection experience over the first year of medical training. *Soc Sci Med*. 2005;60:1637–1647.
- 54 Forsythe GB, Snook S, Lewis P, Bartone PT. Making sense of officership: Developing a professional identity for 21st century army officers. In: Snider DM, Watkins GL, eds. *The Future of the Army Profession*. New York, NY: McGraw Hill; 2002:357–378.
- 55 Bebeau MJ, Monson VE. Professional identity formation and transformation across the lifespan. In: McKee A, Eraut M, eds. *Learning Trajectories, Innovation and Identity in Professional Development*. Dordrecht, the Netherlands: Springer; 2012:135–162.
- 56 Bebeau MJ, Faber-Langendoen K. Remediating lapses in professionalism. In: Kalet A, Chou CL, eds. *Remediation in Medical Education: A Mid-Course Correction*. New York, NY: Springer; 2014:103–127.
- 57 Kegan R. *The Evolving Self: Problems and Process in Human Development*. Cambridge, Mass: Harvard University Press; 1982.