Perspective: **Toward a Competency Framework for Faculty**

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Abstract

Today, faculty in academic medicine face challenges in all three mission areas—research, education, and patient care—and require a broad set of competencies to survive in this changing environment. To support faculty and to design assessments that match new expectations, the authors argue that it is essential to capture the full scope of skills, knowledge, and behaviors necessary for a successful faculty member. Thus, it is timely to explore and define competencies for faculty in academic medicine.

The authors describe three approaches to identifying faculty competencies. Each reveals diverse but overlapping sets of competency domains, reflecting the breadth of activities expected of today's faculty. To organize these competencies into a coherent framework, the authors propose a model based on a typology of competency. A key feature of the model is the division between occupational competencies, which are largely role-specific, and personal competencies, which are necessary for all faculty. A competency framework also must be developmental, to reflect the growth in skills, knowledge, and behaviors from trainee to expert and to allow for an individual's changing roles over a career. Such a competency framework will inform professional development activities and require assessment of competence. The generation of competencies also will reveal areas of faculty practice that are poorly measured, requiring new tools to be incorporated into existing processes of faculty evaluation. The authors provide general principles to guide the identification of a competency framework for faculty and invite the academic medicine community to engage in further discussion.

Academic health centers are facing dramatic changes in how they educate the next generation of physicians, conduct research, and deliver health care.[1] The call to reform medical education,[2] the focus on teamwork in research,[3,4] and the growth of interprofessional teams in clinical care[5–7] illustrate the need for academic medicine to respond to this new agenda with different priorities. As a consequence, individual faculty characteristics that led to success in the last century are no longer sufficient in this one—to survive in today's changing environment, faculty will require a broad set of competencies. To support our faculty and to design assessments that match new expectations, we argue that it is essential to catalog the full scope of the skills, knowledge, and behaviors necessary for a faculty member to advance and to excel at an academic health center. It is time to explore and define the competencies for successful faculty in academic medicine.

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Acad Med. 2011;86:1204–1210.
First published online August 24, 2011
doi: 10.1097/ACM.0b013e31822bd524

Why Competencies?

Competencies are defined as the "knowledge, skills, attitudes, and personal qualities essential to the practice" of a specific profession, such as medicine.[8] The terms "competency" and "competence" are both used commonly to convey this concept. In their article, Le Deist and Winterton[9] describe that there is no clear distinction in the use of these terms. For clarity, we use the terms "competency" and "competencies" in this article. The concept of competency has been applied extensively in business—both to individuals[10] and to the strategic functions of corporations.[11] In human resource management, definitions of job descriptions and measurement of performance are commonly competency based.[9,12] This approach is based on the premise that measurement of competencies is a more valid evaluation of performance than measurement of innate abilities such as intelligence.[13]

Although proposed earlier by public health scholars,[14] competencies first entered the health science professions in the context of outcomes-based medical education.[15–20] Demand for a more accountable system of education for resident physicians drove the development of a competency framework for graduate medical education, known as the Accreditation Council for Graduate Medical Education (ACGME) Outcome Project.[21,22] The use of competency frameworks expanded to other areas of medical education, and medical trainees are now measured using competency standards at each stage of their education.[21–25] The National Academy of Sciences report, *Health Professions Education: A Bridge to Quality*,[26] proposed core competencies for health professionals, and competency frameworks also have been defined for physicians in practice.[27–29] Competencies have been proposed for trainees in graduate and postgraduate science education programs,[30–32] for nurses and nurse educators, health services staff, and health care leadership,[33–37] as well as for the members of professions such as

pharmacy, dentistry, and veterinary medicine.[38–40] These examples support a strong argument for the need to develop a competency framework for faculty in academic medicine.

Over 25 years ago, Bland and Schmitz[41] described the characteristics of successful research faculty. Later, these characteristics were extended to multiple domains of faculty activity.[42–44] Others have defined competencies for the administrative roles of faculty[45] and developed frameworks to define and assess competencies for family medicine faculty.[46,47] Although the use of competency frameworks is widespread, we maintain that none of these frameworks capture the full identity of what it means to be a faculty member in academic medicine—now and for the future.

Once established, competencies will provide a consistent structure to establish performance expectations, inform faculty development, and drive the evaluation of faculty. How should the competencies for faculty be defined? And how can they be assessed? In this article, we present the application of a competency framework that addresses all aspects of the role of a faculty member in academic medicine. Our goal is to stimulate discussion and engage academic institutions and professional organizations in a process to define and apply competencies to faculty in academic medicine.

Defining a Competency Framework for Faculty

Typically, competency frameworks are composed of domains, each defining an area of skills, knowledge, and behaviors. For example, the ACGME framework for residents consists of six domains: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.[22] These competencies were derived by a process that included a review of published documents, input from experts in medical education, and information from physicians, residents, and other stakeholders obtained by interviews and surveys.[21] Similar approaches have been used by other professional groups to reach consensus on competency domains.[31,37,41,48]

The domains of a competency framework for faculty should capture the full scope and identity of faculty practice in academic medicine. In the next paragraphs, we describe three approaches for identifying these domains: the faculty characteristics proposed by Bland and colleagues,[42–44,49] the competency framework used to design the curriculum of an established faculty development program,[50] and expert opinions obtained from workshops conducted on the topic at national professional meetings (see List 1 for more details about these three approaches). Our goal is not to define competency domains absolutely but to seed the discussion with illustrations.

First, Bland and Schmitz[41] conducted a literature review to identify the characteristics of successful researchers—effectively, they identified competencies to conduct research. Subsequently, these characteristics were expanded and divided into individual, institutional, and leadership characteristics and validated by a survey of medical school faculty.[42] Recently, these characteristics have been expressed as essential competencies for faculty[44] (see the left panel of List 1).

Second, in designing the Junior Faculty Development Program (JFDP) at the Penn State College of Medicine and Milton S. Hershey Medical Center, a comprehensive, competency-based development program for junior faculty,[50] we used an existing competency framework as a foundation. To ensure continuity, we chose to build the program on the well-established ACGME framework developed for medical residents.[22] The competencies were expanded to apply to all faculty and to incorporate all mission areas (see the middle panel of List 1). For example, our faculty practice competency is related to the ACGME patient care competency but is expanded to include both the specific skills required for mission-related responsibilities as well as the general skills necessary for academic success. In recognition of the importance of scholarly activity for faculty, we replaced the ACGME medical knowledge domain with a competency in scholarship. The remaining JFDP competencies (practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice) are much closer in scope and definition to their corresponding ACGME competencies.

Third, to illustrate the use of expert opinion to identify competency domains for faculty, we report the results of three workshops conducted at professional meetings sponsored by the Association of American Medical Colleges. Attendees included faculty and administrative leaders with expertise in faculty affairs, professional development, and education. The competencies proposed by participants at these workshops were reviewed, common themes were identified, and redundancies were eliminated to generate a single inventory (see the right panel of List 1).

What can we learn from these examples of faculty competencies, each derived by different approaches? First, there is considerable breadth in the domains identified by the three approaches, although there is consistency of some items across the lists of domains. Second, specific knowledge, skills, or behaviors are distributed under different domains in each approach. For example, the domains of education competencies and research competencies in the framework by Bland and colleagues are combined within the domain of faculty practice in the JFDP framework. This overlap is a common challenge to the process of defining competency domains, where specific skills or knowledge might be relevant to two or more domains.[51] Third, differences in the lists may reflect varying perspectives on what is most important for a successful faculty member. Importantly, these examples illustrate the power of using multiple approaches to capture the full scope of faculty practice. A competency framework is essentially a hypothesis that predicts specific outcomes—faculty members who possess or acquire the defined competencies are most likely to be successful. As with any hypothesis, the framework must be tested and continually refined.

A Model to Organize Faculty Competencies

To facilitate the organization of competencies into a coherent framework, we offer a model based on a typology of competency.[9] In this model, the competencies required for a particular occupation can be divided into four areas: cognitive, functional, social, and meta competencies. To demonstrate this

List 1

Examples of Competency Frameworks for Faculty in Academic Medicine Generated by Three Different Approaches

Literature Review: Essential faculty competencies proposed by Bland and colleagues*

Professional academic competencies
- Effectively manage productive career in academia
- Understand values, ethics, behavior codes of academia
- Establish and maintain network of professional colleagues

Education competencies
- Design curricula
- Develop courses, presentations, course materials
- Instruct small and large groups in different educational settings
- Assess student performance
- Evaluate program effectiveness

Research competencies
- Use a range of information-searching tools
- Synthesize theory and empirical findings in a research area and relate to one's own research
- Formulate a research question, operationalize variables
- Design descriptive and/or explanatory studies
- Collect and analyze data
- Use design and statistical consultants
- Evaluate and discuss study findings, strengths, limitations
- Conduct and manage research projects in an ethical manner
- Locate appropriate funding sources

Communication competencies
- Prepare clear written documents
- Speak clearly
- Use computer technologies for communication, education, research, and administration

Administration competencies
- Understand the impact of trends (economic, social, political) on academic life
- Understand academic organizational structures and their relationships
- Provide leadership for small- and large-group academic tasks
- Manage self, others, money, time on projects

Existing Competencies Framework: Framework used in the Junior Faculty Development Program at Penn State College of Medicine and the Milton S. Hershey Medical Center†

Faculty practice
The general skills necessary for success in academic medicine and the specific skills appropriate for an individual's assigned responsibilities within the missions of the institution (education, research, clinical practice)

Scholarship
A scholarly and rigorous approach in applying academic knowledge and the maintenance of a record of scholarship in support of career goals

Learning and improvement
The ability to assess and evaluate activities to achieve personal growth and career advancement

Communication
Effective oral and written communication skills in interactions with colleagues, trainees, staff, patients, and the public

Professionalism
A commitment to professional responsibilities, adherence to ethical principles, and a respect for individuals

Understanding the system
An understanding of the administrative and financial structures of the institution and of the external structures that govern medicine and biomedical research

Expert Opinion: Competencies compiled during workshops conducted at recent professional meetings‡

Collaboration/networking/teamwork
Communication
Content expertise:
knowledge/technical skills
Cultural competency
Faculty practice/mission contribution:
- clinical practice
- education
- research

Financial literacy
Information technology
Interpersonal skills/ emotional intelligence
Leadership
Lifelong learning and improvement
Mentoring
Professionalism
Reflective practice
Scholarship
Self-management/goal setting
Community engagement
Understanding/navigating system

* From Figure 4.4, "Illustrative list of essential faculty competencies," in Bland and colleagues.[44] Reproduced with permission.
† Based on the existing Accreditation Council for Graduate Medical Education Outcome Project competencies.
‡ Workshops on faculty competencies were conducted at the 2008 and 2009 Association of American Medical Colleges (AAMC) Annual Meeting and at the 2009 Meeting of the AAMC Northeast Group on Educational Affairs.

model, we illustrate where some of the suggested faculty competency domains would be placed (see Figure 1).

Cognitive and functional competencies represent the knowledge and skills, respectively, required for performing the specific aspects of the occupation and are linked as *occupational* competencies. For faculty, cognitive and functional competencies include the knowledge and skills necessary to perform their responsibilities in the three missions of an academic health center—education, research, and patient care. However, faculty require different combinations of cognitive and functional competencies depending on their roles in their institutions. For example, physicians require specialty-specific clinical skills, and basic science faculty require skills in research and in laboratory management.

Social and meta competencies are linked as *personal* competencies that are essential to any individual, regardless of

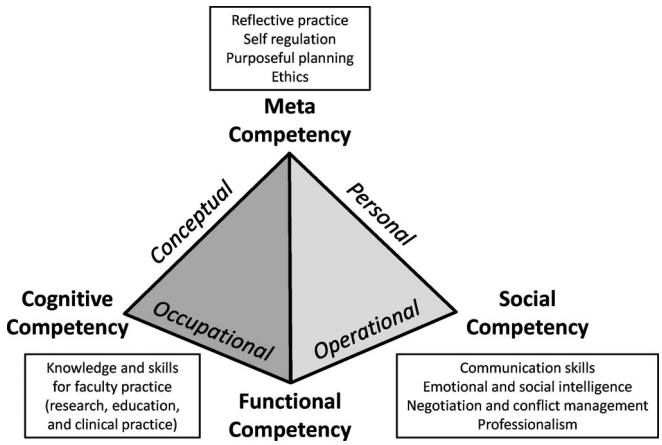

Figure 1 A model to organize faculty competencies. This model is derived from the model proposed by Le Deist and Winterton.[9] The four areas of competency are represented at the corners of a tetrahedron; the edges of the tetrahedron link pairs of competencies that are related. The boxes contain examples of specific faculty competencies.

his or her job description. Social competency includes the abilities, attitudes, and behaviors necessary for effective interaction with others, such as skills in communication, negotiation, conflict management, and social and emotional intelligence. Meta competency is the set of abilities required for the acquisition of the other competencies[9] and thus is represented at the apex of the tetrahedron in Figure 1. Meta competency is described as "learning to learn"[9] and includes skills in reflective practice, self-regulation, and purposeful planning, as well as ethical behavior. The concept of meta competency is perhaps best expressed as the ability to engage in mindful practice,[17,52] where the practitioner is aware of, and monitors, performance of other competencies. For example, a clinical investigator may, on reflection, determine that he requires additional training in epidemiology or biostatistics to advance his career. A basic scientist, troubled by the high turnover rate in her lab, may identify the need to improve mentoring and advising skills to retain promising trainees. A clinician, recently named as a residency program director, may enroll in a professional development course to enhance his skills as an educator.

An important feature of this model is the distinction between the occupational competencies (cognitive and functional), which are largely role-specific, and the internal competencies (meta and social), which are necessary for all faculty. The four competencies may be paired in other ways as well (see Figure 1).[11] Cognitive and meta competencies are *conceptual* competencies, related to personal effectiveness through knowledge and understanding. Functional and social competencies are linked as *operational* competencies, required for external effectiveness in the workplace.

Competencies Are Developmental

An additional dimension to consider in creating a framework for faculty competency is time. A competency framework should both incorporate the growth in skills, knowledge, and behavior from trainee to expert and also allow for an individual's changing roles over a career.

Expertise develops through distinct stages. The influential model proposed by Dreyfus and Dreyfus[53,54] defines five stages of skill acquisition: novice, advanced beginner, competent, proficient, and expert.[16] The early stages reflect the acquisition of explicit knowledge, which is rule based and context-free. For example, medical students learn the pathophysiology of a disease, and residents learn the protocols for diagnosis and treatment. On completing residency, physicians are considered to have reached the competent stage of clinical expertise.[21] Although these graduates have met the educational requirements to practice medicine unsupervised, as new faculty members, they need to refine their clinical skills to become expert physicians. The most advanced stages of the Dreyfus model are intuitive and context dependent, incorporating tacit knowledge acquired largely through practice. Thus, as soon as a patient steps into the room, an expert clinician can begin diagnosis without consciously using a rule-based process to develop a differential diagnosis.[55] Junior research faculty acquire the ability to conduct research independently from their doctoral and postdoctoral training but still need to hone their abilities to write effective proposals and manage budgets. In the typology of competency, development of expertise in mission-related responsibilities largely reflects cognitive and functional competencies.

Junior faculty often need further development in social and meta competencies.[49,56] For example, many junior faculty need to enhance their social competency abilities to manage personnel or establish effective collaborations. They also need to refine skills in mindful practice, an element of meta competency important for the development of expertise.[17,52] Later in their careers, senior faculty who take on new roles or responsibilities (such as leadership positions) will require additional competencies.[10]

A competency framework that is developmental allows a faculty member at a particular career stage to display different levels of expertise in different competency domains (see Figure 2). In particular, the growth of the functional and cognitive competencies, which are related to mission-based skills, knowledge, and behaviors, occurs in step with career stages. In contrast, growth of social and meta competencies may occur at different rates and times for different individuals. This concept should be reflected in the goals of faculty development programs and in the evaluation of faculty.

Application of Competencies to Faculty Development

Professional development programs should be designed using a competency framework. Competency domains are translated into curricular topics that support faculty in attaining the corresponding knowledge, skills, and behaviors. In the framework by Bland and colleagues,[44] for example, the

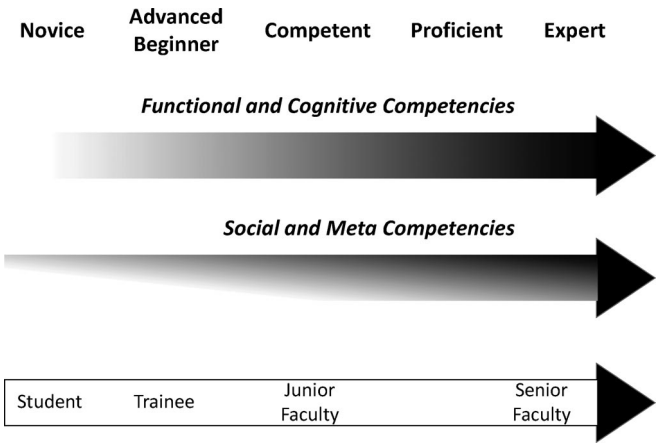

Figure 2 The development of expertise and competencies. The stages of expertise (novice to expert) are aligned with career stages (student to senior faculty). The development of all four areas of competency across these stages is represented by two shaded arrows.

domain of professional academic competencies is defined as the need for faculty to describe academic values, manage an academic career, and maintain a collegial network (see List 1). In that faculty development curriculum, these competencies are addressed by topics, such as governance of the institution and professional networking.[49] In the JFDP framework, the competency domain of scholarship is addressed by sessions on the types of scholarship and the steps required for scholarly activity (see List 1). Ideally, faculty development programs should incorporate both the typology of competencies (see Figure 1) and the developmental nature of these competencies (see Figure 2). For example, a program for junior faculty might emphasize personal competencies (meta and social) rather than occupational competencies, such as research or clinical skills, which should be more advanced and less dependent on instruction for further development. Thus, junior faculty will need sessions on topics such as goal setting, negotiation, and collaboration. In contrast, more senior faculty will benefit from topics reflecting their changing career roles and responsibilities, such as leadership, team building, and financial literacy.

Application of Competencies to Faculty Evaluation

A competency framework is neither complete, nor useful, without a mechanism to assess competence. Therefore, in applying a competency framework to faculty, we must also define how the competencies will be assessed and how demonstration of these competencies will contribute to academic advancement. Although faculty performance is routinely evaluated through annual reviews and promotion and tenure processes, these measurements focus largely on mission-specific activities and may not address the full scope of faculty practice.

Evaluation of competencies has been used extensively to measure the performance of medical students and residents[21–25] and has required a major effort to develop new tools and assessment methods.[57] But medical educators have encountered challenges. For example, among the ACGME competencies for residents, only medical knowledge seems to be measured effectively. Assessments of the other competencies, particularly professionalism, are still incomplete.[51]

Similar challenges will be faced in the development of assessment strategies for faculty competencies, requiring new tools that must be incorporated into the existing processes of faculty evaluation. The application of a competency framework will reveal areas of faculty practice that are essential for success yet are poorly measured by the current systems of evaluation. For example, the ability of faculty to mentor others is a critical skill.[58] Although there have been attempts to measure the effectiveness of mentorship,[59] existing evaluations of faculty performance typically do not include assessment of mentoring activities. Further, the value placed on a particular competency may change over time in response to external factors and should be reflected in the assessment of those skills. The current focus on team science and collaboration[3,4] should be matched by an increase in expectations for faculty to demonstrate skills in collaboration and networking. Ideally, the definition of competencies should drive assessment. A dynamic competency framework and the assessment of competency will adjust to changes in the academic environment in response to external forces.

Principles for the Identification of Faculty Competencies

To develop a competency framework for faculty in academic medicine, we recommend several general principles to guide the process. These principles are derived from the literature and our collective experience working with faculty and faculty development leaders in academic medicine.

- A broad exploration of the scope of faculty competencies is necessary and requires multiple approaches, including a literature review, expert opinion, and input from stakeholders.
- The framework should include common competencies that apply to all faculty regardless of their mission responsibilities.
- The framework should include all of the mission responsibilities and reflect the need for appropriate competencies in those areas.
- Faculty competencies should be congruent with and build on those defined for learners and trainees in medicine and biomedical sciences.
- Competencies for faculty should be developmental, reflecting the pathway to expertise and changing faculty roles over time.
- Competencies should be measurable. The generation of corresponding assessment tools must be an integral part of the process.

In Summary

We submit that there is value in defining a competency framework for faculty within academic medicine. Competency frameworks provide clear expectations

that focus professional development programs and drive the assessment of individual performance. To seed further discussion, we have presented here three approaches to identify faculty competencies and have suggested principles to define a competency framework. We now call on the community to continue this conversation through a formal process to define competencies for academic medicine faculty.

Acknowledgments: The authors wish to thank R. Kevin Grigsby, DSW, Association of American Medical Colleges, for providing critical comments on the manuscript. The authors also wish to thank Dr. Grigsby and Larry D. Gruppen, PhD, University of Michigan Medical School, for participating in the workshops on faculty competencies.

Funding/Support: None.

Other disclosures: None.

Ethical approval: Not applicable.

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