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The Question of Competence: Reconsidering Medical Education in the Twenty-First Century

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The Question of Competence: Reconsidering Medical Education in the Twenty-First Century

Abstract

[Excerpt] The real challenge for those involved in designing competency-based educational programs is to recognize the complexity of competence as a concept. Only then can they effectively delineate the knowledge, skills, and attitudes that learners must acquire to be able to perform within each domain at a predetermined level and to recognize that the expected level of performance within each domain will vary depending on the learner's stage of education and the specialty he or she is learning. The authors of this book help us do just that. They examine the challenges facing medical education and introduce the concept of "discourse" as a mechanism both for examining the idea of competence and considering how to implement competency-based education. In so doing, they provide us with a new way to ask the questions that are at the heart of every report advocating change, every criticism of medical education, and every conversation that questions why health care is the way it is today.

Keywords

competency, medical education, health care, performance

Comments

The Question of Competence

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THE QUESTION OF COMPETENCE

Reconsidering Medical Education in the Twenty-First Century

EDITED BY

BRIAN D. HODGES AND LORELEI LINGARD

WITH A FOREWORD BY M. BROWNELL ANDERSON

For the Wilson Centre: A place that has inspired so many of us to think and to see in ways not imagined before we walked through its doors

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FOREWORD

Medical education has been the subject of repeated examinations and in-depth reports about changes that are needed to improve the education of physicians. In 1910, Abraham Flexner wrote a report, funded by the Carnegie Foundation for the Advancement of Teaching, that advocated for changes and promoted standards for medical schools and is credited with changing the way doctors are educated. Perhaps most important, Flexner made medical education a social cause, demonstrating its importance in everyone's life. Flexner's work exposed poor educational content and processes in the preparation of physicians and began what has been a century-long concern with the quality of physician education and practice.

Today, at the beginning of the twenty-first century, the concern with the preparation of physicians continues unabated with significant changes underway in the content, pedagogy, and assessment of physicians and other health care professionals. Two U.S.-based organizations, the American Board of Medical Specialties (ABMS) and the Accreditation Council for

Graduate Medical Education (ACGME), have taken the lead in promoting competency-based training for all physicians.

In addition to the work of the ABMS and the ACGME in the United States, the importance of competence and the attention being paid to it in medical education is reflected in a group of reports that have been published in the past twenty years. Each report defines the qualities and outcomes desired in the "competent" physician. The reports include: *Tomorrow's Doctors* from the General Medical Council in the United Kingdom; the Medical School Objectives Project (MSOP) reports from the Association of American Medical Colleges (AAMC); *Good Medical Practice-USA; The Future of Medical Education in Canada* from the Association of Faculties of Medicine of Canada; *Scientific Foundations for Future Physicians* from the AAMC and the Howard Hughes Medical Institute; and its companion report, *Behavioral and Social Science Foundations for Future Physicians* from the AAMC.

As we see from the focus and titles of these efforts and reports, accountability and responsibility to the public have led to yet another shift in the paradigm of medical education. The key concept in this new paradigm is competence. But just what constitutes competence?

We use many words to define competence—capability, know-how, experience, expertise, aptitude, fitness, skill, and proficiency—but as the title of this book suggests, questions remain about competence. This is why an exploration that provides critical insights into the idea of competence could not be more needed and more timely.

Medical education is now moving from a structured, process-based system that specifies time spent in a classroom or clinical experience (such as a ten-week clerkship in internal medicine) and defines this as the amount of time needed to "learn" the content, to a competency-based system that defines the desired outcome of training, the outcome driving the educational process (such as competence in the ability to take a history and physical examination). The paradigm shift from the structure- and process-based curriculum to a competency-based curriculum and evaluation of outcomes is among the most profound changes in medical education. The outcomes we want from medical education now are physicians who bring a humanistic approach to medicine; who have a patient-centered approach to medical care; an appreciation of the value of fundamental

research for the advancement of medical science; a global perspective on contemporary health issues; and an appreciation of the importance of the biological and population sciences for the advancement of medicine. We want practitioners who are able to participate effectively in multidisciplinary and team approaches to patient care; to contribute to eliminating medical errors and improving the quality of health care; and who know how to balance individual and population health needs when making decisions about patient care.

The real challenge for those involved in designing competency-based educational programs is to recognize the complexity of competence as a concept. Only then can they effectively delineate the knowledge, skills, and attitudes that learners must acquire to be able to perform within each domain at a predetermined level and to recognize that the expected level of performance within each domain will vary depending on the learner's stage of education and the specialty he or she is learning. The authors of this book help us do just that. They examine the challenges facing medical education and introduce the concept of "discourse" as a mechanism both for examining the idea of competence and considering how to implement competency-based education. In so doing, they provide us with a new way to ask the questions that are at the heart of every report advocating change, every criticism of medical education, and every conversation that questions why health care is the way it is today.

The chapters in this book range from an exploration of the discourse on cognition and teamwork to the role of emotion in becoming a competent health care professional. The concepts presented in each chapter are rich, even complex, and they are presented articulately and elegantly. Compelling and thought provoking, the essays invite the reader to engage in a range of conversations about competence. The book also provides a comprehensive literature review of the most important work on defining, articulating, and measuring competence. Having all of these references in one place makes for a powerful resource.

This book is rich with new ideas and invites ongoing debate, discussion, and further research (as suggested in several chapters). I hope that the ideas presented in the book will help regulatory organizations and those devoted to assuring the health of the public assess the language and ideas needed to advance the concept of the competent physician/healthcare worker.

Read this book. Share it with colleagues, family, and anyone concerned about the education of future physicians. From the thoughtful reflections of each author, you will learn something new, you will find ideas with which you do not necessarily agree, and you will be thinking about the ideas presented for a long time to come.

M. Brownell Anderson

Acknowledgments

ABBREVIATIONS

AAMC	Association of American Medical Colleges
ABIM	American Board of Internal Medicine
ABMS	American Board of Medical Specialties
ACGME	Accreditation Council for Graduate Medical Education
CBME	competency-based medical education
CEX	clinical evaluation exercise
CIHR	Canadian Institution of Healthcare Research
CME	continuing medical education
CVP	central venous pressure
EI	emotional intelligence
EPR	electronic patient record
ESR	electron spin resonance
IPC	interprofessional collaboration
IPE	interprofessional education
KBE	knowledge-building environment
MOC	maintenance of competence

MSOP   Medical School Objectives Project
OSATS   objective structured assessment of technical skills
OSCE   objective structured clinical examination
PBLI   problem-based learning and improvement
PFL   preparation for future learning
SBP   systems-based practice
SPS   sequestered problem solving
SSHRC   Social Sciences and Humanities Council of Canada

The Question of Competence

Introduction

Brian D. Hodges and Lorelei Lingard

Every way of seeing is also a way of not seeing.

Kenneth Burke, *Permanence and Change*

In the past decade, *competence* has grown to the status of a "god term" in medicine and in many other health care disciplines (Burke 1935): an idea with such power that it readily trumps other, competing ideas to shape our educational values and decisions in innumerable—and often invisible— ways. It is, hands down, the governing notion underpinning our sense of what medical education should be striving for in the twenty-first century, overshadowing other popular notions including simulation, objective assessment, professionalism, and patient-centeredness.

The Origins of the Idea of Competence

Almost ten years ago, the shift from a traditional content-based curriculum to a competency-based curriculum was called the "Flexnerian revolution of the 21st century" (Carraccio et al. 2002). This in spite of the fact that

competence broadly, and competency-based education specifically, are both old and evolving ideas, much debated in higher-education institutions and in the professions. Calls for competency-based education go back more than half a century (Grant 1979). Competence-based education has been defined as a form of education that derives a curriculum from an analysis of a prospective or actual role in modern society and attempts to certify student progress on the bases of demonstrated performance in some or all of the aspects of that role (Grant 1979). The movement has infused the educational mind-set of a wide range of disciplines, including management (Albanese 1989), psychology (Rubin et al. 2007), engineering (Dainty, Cheng, and Moore 2005), health care (Anema and McCoy 2010; Fullerton et al. 2001; Long 2000), teacher education (Houston 1973), and music (Madsen and Yarbrough 1980).

Predicated on the rise of behavioral objectives in the 1960s and 1970s, the competency-based education movement was originally driven by the need for greater accountability in training, the desire to support students to progress at their own pace, and the call to ensure that training programs were relevant to the goals of society (McAshan 1979). These drivers remain influential today. For instance, the Educating Future Physicians Project of Ontario, which resulted in the CanMEDS competencies for medical education, was driven by a perceived need for medicine to be more accountable to the needs of society (Whitehead, Austin, and Hodges 2011). Because of this, the development of competency frameworks, such as Can-MEDS and the competency model for general practice in the UK, commonly involves a process of seeking public input (Patterson et al. 2000).

Within medical education, the argument for competency-based education has been under way for over fifty years (McGaghie et al. 1978). Recently, however, the wider social-accountability movement has breathed new life into the debate (Leung 2002). As Sullivan (2011) has argued, accreditation bodies now expect professionals to demonstrate that they are indeed achieving what they set out to do. Competencies and outcome-based education are measures that the profession has adopted to better regulate itself in the context of public concerns about patient safety, differential access to care, and the medical profession's struggle with the increasing complexities of practice. What counts as competence is evident in the ways in which programs are structured and in the accountability processes that are implemented around them.

It is hard to find a single health care reform initiative that has not given significant attention to the process of health professional education, which

is, in turn, linked to fostering the "competencies" thought necessary for practice in environments that are increasingly complex and stressful in the face of twenty-first-century political, economic, and technical demands. While there are ongoing concerns about "competencies hype," their operationalization in a clinical apprenticeship model of education (ten Cate 2005), and the challenges they present for reliable and valid assessment (Jefferies et al. 2011; Lurie, Mooney, and Lyness 2009), there is no question that the idea of competence has effectively taken over the way we think about medical education goals and enact its curricular strategies. Within universities and other organizations that determine health professional curricula, hardly a discussion or meeting takes place in which competence is not central to the agenda.

The Ubiquity of the Idea of Competence

Competency frameworks now underpin (Simpson et al. 2002) all of medical training in the Western world. These include the Outcome Project of the U.S. Accreditation Council for Graduate Medical Education (ACGME 2011), the General Medical Council's Tomorrow's Doctor (General Medical Council 1993), the Scottish Doctor (Simpson et al. 2002), and the Canadian CanMEDS (Frank 2005) framework. The latter has enjoyed global uptake in countries such as the Netherlands and Australia (American Medical Association 2010a). Similar frameworks are beginning to proliferate globally (Stern, Wojtczak, and Schwarz 2006; Zaini et al. 2011), with implications for global human-health resource strategies and international medical education partnerships.

The idea of competence has proliferated conceptually as well as geographically. There is apparently no limit to the domains in which competence language is relevant. In addition to the usual suspects—clinical competencies such as medical expert and communicator—a range of candidate competencies have been promoted in recent years. In fact, as universities and their affiliated teaching hospitals recognize that attention to patient safety, team-based practice, lifelong learning, and the ability to understand and navigate systems are crucial to the delivery of safe and effective care, "new" competencies have become the lingua franca. Recent entries include science competency (Association of American Medical

Colleges-Howard Hughes Medical Institute Committee 2009), patient-safety competencies (Walton and Elliot 2006), cultural competence (Taylor 2003), and humanitarian response, interestingly advocated as "the competency of competencies" (Hein 2010).

Not only geographically and conceptually pervasive, the idea of competence participates in some of the most critical debates in medical education. It has entered the medical school admissions discussion, offered as an improved candidate-selection strategy (American Medical Association 2010b) to ensure that the "right" individuals get through the gate into the medical profession. It also features prominently in accreditation; for instance, it governs the Liaison Committee on Education's (LCME) standards for accrediting North American medical schools, particularly in relation to standard ED1, which outlines a medical school's responsibilities to define objectives that guide curriculum content and evaluation strategies (LCME 2011). Competence is also arguably the backbone of the past decade's wildly popular global medical education movement, whose agendas not only reflect national concerns but also respond to global forces. Reflecting the rise of a global economy in human resources generally and health human resources specifically, medical schools are embracing a global orientation and marketing their programs to students from around the world. Driven by a need to generate revenue, many medical schools have established contracts to sell services, curricula, or offshore, co-branded campuses to other countries.

Competence is also at the epicenter of the burgeoning field of medical education research and policy development. Competence rhetoric underpins investments in centers for research and development in health professional education around the world. More than twenty peer-reviewed journals publish a swath of literature dedicated to the pursuit of competence in the health professions. When health professional educators and researchers gather together nationally and internationally, competence is always an invited guest at the head table. For example, at the 2011 meeting of the Association of American Medical Colleges (AAMC) in Denver, Colorado, which attracted over four thousand participants, presenters sought to engage the audience by employing titles such as "Competency-Based Medical Education: The Time-Dependent 'Gestational' Approach vs. Milestone-Dependent 'Developmental' Approach," "Do New Models for Early Clinical Experience Produce More Competent Students?" and

"Toward Achieving Competence across the Continuum of Medical Education." A session on "Core Competencies for Collaborative Practice" aimed to "define foundational competencies for interprofessional collaborative practice," tying this imperative to patient-centered care and quality outcomes (AAMC 2011).

Similarly, the nearly three thousand participants from more than seventy different countries who attended the 2011 Association for Medical Education in Europe Conference (AMEE) in Vienna, Austria, could attend more than twenty different sessions with "competence" in the title and many more oriented around the topic (AMEE 2011). The same pattern can be found in programs of the Asia-Pacific Medical Education Conference, held annually for over five hundred medical educators in Singapore, and the International Ottawa conferences, held every two years on a different continent, and attended by more than two thousand health professional educators from around the world. Both feature numerous sessions that focus on competence and its many offspring, including "competency frameworks," "competence-based curricula," "competence assessment," and the like. Not only are academic seminars, keynotes, and workshops devoting large amounts of time to discussing variations on the theme of competence, but entire regulatory, licensure, and certification organizations around the world owe their existence to it.

The Debate about Competency-Based Medical Education

As the revolutionary rhetoric surrounding it suggests, the competence "turn" in medical education promises—and threatens—to change both the work medical educators do and the physicians we graduate. Which is why this book could not appear at a more timely moment. Any idea with the kind of power that "competence" currently wields in medical education deserves careful, critical attention. In the field of health professions education, there are many books and articles on how to *do* competency-based education. Many educators and researchers are also debating the wisdom of competency-based medical education, with some supporting and others challenging it. Supporters emphasize the transformative potential of competency-based education. One critical transformative point regards the tradition of "time-based training," which medical educators have

been chafing against in recent years in the face of the problems of physician shortages, physician education debt, and patient wait lists.

Competency-based training is promoted as a solution to this complex problem and, perhaps not surprisingly, surgeons are taking the lead in educational experiments to test this theory. The Royal Australasian College of Surgeons' new Surgical Education and Training program, which commenced training in 2008, is competency based and shorter than any designed previously (Collins et al. 2007). Innovators at the University of Toronto are trialing a competency-based pathway as a solution to the problem of homogeneous postgraduate training regimens that can be prohibitively long and constraining to high performers Their competency-based pathway experiment is promoted as facilitating the fast-tracking of individuals who can show steep learning curves with all aspects of surgical competency (Grantcharov and Reznick 2009).

Critics point to the history of competency-based education in other professional fields and caution against the application of an approach based in technical and vocational fields to the complex, judgment-based profession of medicine. Arguing that the whole is more than the sum of the parts, detractors warn against the atomism, emphasis on routine skills, teaching-to-the-test, and checkbox-driven assessment that are common to competency-based approaches (Huddle and Heudebert 2007; Malone and Supri 2010). Competency-based education has been likened to "tyranny" (Brooks 2009) and to "striving for mediocrity" (Brawer 2009). Educators have worried that it promotes "monkey see, monkey do" education (Talbot 2004), and that it may have "incapacitating effects" on learners (Grant and Murray 1999) and focus our attention on minimum requirements (Bleakley, Browne, and Bligh 2010). Regarding the last point, some argue that preparation in the professions attends almost exclusively to the knowledge and skills required, paying minimal attention to the profession's social ends and civic foundations (Colby and Sullivan 2008). Furthermore, while the drive to turn things into competencies may suit operational and instrumental skills, it is not only insufficient when it comes to more complex and relational aspects of medicine, but may in fact be a dangerous wrong turn motivated by a "lust for assessment" (Wear 2008).

In 2009, an international theory-to-practice consensus conference on competency-based medical education (CBME) was convened by the Royal College of Physicians and Surgeons of Canada (Frank et al. 2010). This

group reviewed the broad educational literature to comprehensively lay out both "the promise and the potential perils" of this approach for the future of medical education. They characterized the promise of CBME in terms of its commitment to outcomes, potential for learner-centeredness, de-emphasis of time-based training, and promotion of portability in health human resources. Perils include CBME's threat of reductionism, emphasis on lowest common denominator, tendency toward utilitarianism, and the potential logistical chaos of a progress-at-your-own-pace model. Offering redefinitions of key terms, the group recognized the transformative potential of CBME and called for ongoing debate about its utility and impact.

Another peril not as explicit in this report is the way in which competency definitions, lists, roles, and frameworks may, inadvertently or purposefully, transport purposes and values from their original setting to other settings (in time or in place) where those purposes and values may have invisible or unintended consequences. That is, the language of competence is not only descriptive but also constructive. Eraut (1994, 159) explains that "definitions of competence . . . may be designed for one purpose, and in practice serve quite a different purpose. . . . The definition of what in practice was meant by 'competence' reflected the political purpose it was intended to serve." A 2011 analysis of the origins of the CanMEDS roles framework provides an illustration of the political purposes that may underpin definitions of competence; similarly, the energetic commentary this analysis prompted reveals that much is at stake in both the definitions themselves and the assertion of political purposes underpinning them (Sherbino et al. 2011; Whitehead, Austin, and Hodges 2011).

Debates about "competence" also have arisen in the globalizing world of medical education (Hodges et al. 2009). A case in point is the flurry of activity aimed at developing "global standards" for medical competence (Institute for International Medical Education 2002; Karle 2006). This push to identify a shared, global definition of competence or to operationalize global competence in one set of standards or roles is a logical extension of a global medical education market, but it raises the critical question of who decides what these elements of global competence are. Writing about medical education, Bleakley, Brice, and Bligh (2008) have raised a concern articulated by social scientists more generally (Navarro 1999) that the dominance (economically, culturally, linguistically) of particular countries or regions is almost certain to lead to the marginalization of priorities, values,

content knowledge, and exposure to learning contexts of less dominant countries or regions. The dominance of language requires particular attention. If one is to take seriously writing since the mid-twentieth century about the "linguistic turn""—the shift in many scholarly disciplines that foregrounded the constructive function of language—how does one think about "universal standards" expressed in only one language? Ho and colleagues at the University of Taipei have conducted research showing that the construct of "professionalism," a construct operationalized almost entirely in English-language medical education journals, is a subtly but crucially different notion when seen through the language and cultural filters of Taiwan. A greater emphasis on competence as an individual trait in North America as opposed to competence as a collective trait in Asia is just one of the nuances that renders a universal definition of a competence like "professionalism" difficult (Ho et al. 2011).

The Unique Contribution of This Book

While some debate the pros and cons of competence-based medical education and others explain how to achieve various competencies, the authors of the seven chapters in this book offer something very different. Together, the essays in this volume offer something new to the scholarly discussion of competency-based medical education. They do not mount philosophical arguments for or against embracing the idea of competence in medical education. They do not join instrumental debates about how to do competency-based medical education. Instead, they critique the very notion of competence itself and attend to how it has shaped what we pay attention to—and what we ignore—in the education and assessment of medical trainees.

In differing ways, the leading medical education researchers who have contributed to this book all argue that we have only just scratched the surface of developing a sophisticated concept of competence with our various frameworks, taxonomies, checklists, and the like. Indeed, the risk is that as these lists get longer and longer, incorporating ever more diffuse elements, the word "competence" will actually stand in for so many things that it will come to represent nothing at all. While much attention has been paid to the operationalization of competence (and in particular the development of assessment tools), not enough has been paid to the fact that there are some

dramatically different paradigms or "discourses" about what competence actually *is*. The goal of this book is to look critically and thoughtfully at several of these different conceptions, or "discourses," of competence and to analyze the educational, moral, political, and scientific implications of adopting certain of these over others. To that end, the seven chapters in this book explore concepts of competence from a range of disciplinary perspectives.

The first chapter, "The Shifting Discourses of Competence," by Brian Hodges, begins with the observation that if one reads the history of medicine, or any of the health professions, it is obvious that the elements used to define competence have changed considerably over time. Competencies move on and off lists of sanctioned and appropriate professional activities for various reasons that include advances in the science, but also include economic, political, and sociological factors. Analyzing the five key discourses that are used to conceptualize medical competence in North America today—knowledge, performance, psychometrics, reflection, and production—Hodges explores each in terms of the implications for learning, assessment, relationships, and the nature of educational institutions. Inspired by a Foucauldian genealogical approach, Hodges dissects the interrelations and power dynamics making each discourse possible. Finally, Hodges reflects on the practical and ethical dilemmas that students and teachers face if they are prepared to accept the notion that competence is a constantly shifting construction.

In chapter 2, "Rethinking Competence in the Context of Teamwork," Lorelei Lingard considers the health professions' traditional approach to competence as something that individual practitioners acquire, perform for assessment, and seek to maintain over their practice life. This individualist discourse of competence does not equip us well to address team situations, particularly those in which individually "competent" health professionals combine to form an "incompetent" team. She reviews the conventional, individualist discourse on competence that underpins much health professional education specifically—and Western culture in general—considering its theoretical origins and the ways in which it inclines medical educators to attend to some things and ignore others. After introducing a more emergent discourse that characterizes competence as a shared and distributed construct, she weighs the implications of viewing competence through both lenses. What kinds of education and assessment might be possible if our conventional discourse of competence

were extended? How would such an extension challenge our traditional approaches to "measuring" and "maintaining" competence?

In the third chapter, "Perturbations: The Central Role of Emotional Competence in Medical Training," Nancy McNaughton and Vicki LeBlanc explore the role of emotion as an integral, and often underappreciated, component of competency in the health professions. The authors bring two different scientific perspectives to the discussion. One perspective views emotion as a social construction, influenced by sociocultural processes. Viewed from this perspective, we would discover a better understanding of the nature of emotion and its relationship to competence through studying social processes, including the way that certain emotions come to be acceptable or unacceptable and, therefore, come to be associated with competence or incompetence. The second perspective views emotion as a neurobiological phenomenon that is related to other cognitive functions such as attention, memory, and decision making. Using this lens to understand how emotion affects competence means measuring cognitive and neurophysiologic variables such as performance, emotion, and salivary cortisol levels. The authors compare and contrast the implications of using each of these different approaches to understanding emotion and its relation to education and practice.

In chapter 4, "Competence as Expertise: Exploring Constructions of Knowledge in Expert Practice," Maria Mylopoulos problematizes a commonly held view—that excellence in the education and training of future *experts* is crucial to the success of all professions—by exploring developments and debates in the conceptualization of *expertise*. She reviews the extensive literature on expertise over the last half century, pointing out that the understanding of expertise has recently expanded to include previously unexplored facets of expert performance. In particular, scholars and researchers are increasingly revisiting the role of knowledge in expert development and practice. Mylopoulos thus analyzes various cognitive constructions of expertise, with a particular focus on the differing ways in which the role of accrued knowledge has been conceptualized in models of expert development and practice. Her chapter discusses key implications of the various treatments of knowledge in theories of expertise for those seeking to understand competence through the lens of expert performance.

In the fifth chapter, "Assessing Competence: Extending the Approaches to Reliability," Lambert Schuwirth and Cees van der Vleuten ask the question, what makes an assessment of competence a good assessment?

Traditionally, assessment of competence has been viewed as a sort of psychological test, by which student characteristics that are not directly visible can be captured through the indirect measure of proxy behaviors. Quality criteria for assessment methods, therefore, are based on those used for psychological tests, the most well-known being reliability and construct validity. Reliability is expressed as reproducibility of the outcomes of the assessment tool—for example, had a group of students been given another test of equal difficulty on the same topic, would they then have obtained similar scores? Validity is understood to be a marker of whether the test actually measures the characteristic it purports to. Both criteria are currently determined using psychometric formulas applied to numerical data. Yet there are major limitations to the assumption that all elements of competence must be inferred from the numerical scores on reliable and valid tests. The authors argue that many current competence assessment instruments do not fit well into this paradigm. They contend that, to properly assess competence, subjective human judgment and qualitative language-based data are required. With the understanding that important decisions made about students must be fair and defensible, they consider the challenge associated with finding subjective assessments that meet high quality standards. These challenges notwithstanding, however, the authors address the urgency of exploring new directions in the assessment of competence.

In chapter 6, "Blinded by 'Insight': Self-Assessment and Its Role in Performance Improvement," Kevin Eva, Glenn Regehr, and Larry Gruppen examine the foundations on which many modern theories of self-improvement are built. From athletic coaches to business leaders, there is a general belief that the path to better performance involves "looking in the mirror" to openly and honestly identify one's weaknesses and take steps to improve on them. With the health professions as perhaps the most extreme example, the industry's current models of maintenance of competence and self-regulation seem to be formalizations of the instruction "Physician, know thyself." The authors caution against reliance on self-assessment of competence.

While each of us has more information with which to judge our own abilities than is available to external observers, Eva, Regehr, and Gruppen argue that it is this very wealth of information that may prevent us from generating accurate impressions of our own abilities. The authors review research that raises questions about the adequacy of self-assessment, explores reasons why inadequate self-assessment may actually be adaptive,

and looks at the many ways in which we can all fool ourselves into believing that we have privileged insight into our own capacities. Their chapter raises fundamental concerns about the way in which the health professions typically conceive of self-assessment and the purposes for which it can be productively and reliably applied. The chapter concludes with a description of the way in which models of professional self-regulation can be effectively modified, given the evidence base that has accumulated to date.

In the seventh chapter, "The Competent Mind: Beyond Cognition," Annie Leung, Ronald Epstein, and Carol-Anne Moulton examine competence as the "moment-by-moment" activities of health care professionals. Popular opinion would have us believe that experts, through appropriate and exhaustive training, "just have the answer"; they simply "know what to do" and "know how to do it." The authors in this chapter, however, question this reassuring assumption. While it may be true for many daily activities, they argue that professionals are unable to stay in this "automatic" mode all the time. By virtue of the complexities of professional practice, there will necessarily be times of uncertainty—when the usual rules might not apply or when knowledge does not seem adequate.

During these moments of practice, experts must transition out of the routine mode and into the more effortful mode of thinking: in fact, they engage in "slowing down when they should." Leung, Epstein, and Moulton argue that these slowing-down moments mark the more critical moments of professional practice. From this, they ask: How can experts monitor their activities to ensure they make the transition when appropriate? What are the influences on them as professionals during these moments, both cognitive and social, that may prevent them from slowing down appropriately? Bringing together literatures on reflection and mindfulness that inform the phenomenon of slowing down, the authors examine the initiators and influences of this transition and explore ways that expert physicians "stay out of trouble." Calling into question the concept of automaticity in expert professional activities, they explore the role of mindful practice as an alternative way of remaining attentive.

Mindfulness is precisely what this book brings to the issue of competence. As so many have pointed out, the idea of competence is indeed one of the biggest shifts in medical education since the Flexner Report. Because of the power of this idea, it is critical that we understand the notions and assumptions underpinning it; that we highlight the dangers of unthinking

acceptance of the idea of competence and all its attendant frameworks and taxonomies; and that we critically consider its impact on prelicensure education, professional practice, and continuing professional development and recredentialing. In the history of medicine, some very popular ideas have turned out to be gods with feet of clay, which is why this latest "god term," competence, deserves close and careful scrutiny. We invite readers to join in this scrutiny, to be challenged by the ideas in this book, and to contribute to a critical debate about what we see and don't see in our current ways of looking at, and for, competence in medicine.

1

The Shifting Discourses of Competence

Brian D. Hodges

Competence Is a Shifting Construct

Competence is a word that is so frequently used, in so many different ways, that it risks having no meaning at all. As mentioned in the introduction, Lingard (2009, 625) has called *competence* a "god term," a word so weighty that its mere use trumps other considerations. To articulate the need for better tools for the assessment of competence is to invite a concerted nodding of heads. But what *is* competence? A common approach to this question is to concretize the term in a list of skills and attributes that presumably, taken together, define competence. A more recent and increasingly popular approach is to define a set of roles that professionals should play and to think of competence as the degree to which individuals fulfill them. Some think of competence as a capacity. Others imagine competence as an attitude to deepening one's expertise. More provocatively, some argue that competence is neither role, trait, capacity, nor attitude but a mechanism tied up in the way professional groups maintain their status in society.

No matter how it is understood, there is no escaping the centrality of discourses of competence to health professional education and practice. Rather than being distressed by the diverse definitions and disparate uses of the notion of competence, in this chapter I turn the lens around and explore how various definitions—emphasized at different times and in different places—can help us better understand the nature of health professional education itself; that is, I explore the way in which competence is defined as a means of shedding light on the way in which health professionals conceptualize our role in society, our relationship to other professions, and our *professionalization project*. Here, then, I wish to look at competence, not in its unity, but in its dispersion.

If we read a history of medicine, or of any health profession, it is rapidly apparent that the practices accepted as competent change considerably over time. Indeed, it seems we live in an era marked by particular urgency to pin down the specific competencies that belong to and define each of the health professions. This can lead to some interesting and occasionally amusing conflicts. Reeves, Fox, and Hodges (2009) recount a skirmish between nurses and nutritionists over which profession *owns* the competence of breast-feeding, dividing up the woman's breast into the process of breast-feeding latch (nurses) and the nutritional value of breast milk (nutritionists). Amusing anecdotes aside, historical study reveals that competencies have moved on and off lists of activities sanctioned by each profession with regularity, partly as a result of advances in the science but also for economic, political, and sociological reasons (Hodges 2005; Shorter 1985).

An oft-cited example is the competence of delivering babies. Today, medical students assume that delivering babies has always been a core competence of physicians. This is not the case. In the early nineteenth century a *competent* physician gave purgatives and performed bloodletting, but certainly did not deliver babies. That was a core competence of midwives (Shorter 1985). Yet in only a few decades, physicians in Scotland managed to shift the competence from midwifery to medicine, arguing that physicians were the only professionals competent to independently deliver babies. A similar history played out in the United States where between 1900 and 1930 physicians added obstetrical practices, traditionally provided by midwives, to their list of competencies. Gieryn, Bevins, and Zehr (1985) explain that this shift resulted from a combination of tactics that included physicians depicting midwives as unscientific and therefore

risky while simultaneously lobbying for government licensing programs to reduce the range of services that midwives could legally provide. Witz (1992), recounting the same history, adds that the key means physicians used to adopt the competence of delivering babies from midwives was to incorporate delivery onto a list of physician competencies and then assess it on medical licensure examinations.

While it may seem common sense to argue that something appears on a medical licensure examination because it is an established domain of medical competence, this example illustrates that sometimes things can become competencies *because* they are codified on a list and then tested on examinations. Similar historical examples can be found in anesthesia (once the province of nursing) and prescription medications (once the province of pharmacists). Witz (1992) emphasizes that this phenomenon is not specific to the medical profession, nor is it simply about doctors appropriating skills from other professions. Rather she sees the space between professions as a sort of semipermeable membrane, subject to forces that allow competencies to move back and forth from one group to the other. This uptake and download of competencies (in her analysis the structure is vertical because of the dominance of some professions over others) is in constant ebb and flow at the professional boundaries. Particularly active *boundary work* can be observed, for example, between nurses and nursing assistants; physical therapists and massage therapists; radiologists and radiology technicians; physicians and physician assistants. In medicine, boundary work has characterized the relationship of family physicians and specialists ever since the two divisions of medical practice emerged.

This constant redefinition of the content, skills, attitudes, and aptitudes that characterize competence is the purpose and focus of this chapter. However, I am interested less in *which* elements should or should not be part of professional competence than in *how* specific activities or domains come to be associated with competence and to belong to particular professions in different times and places. The significance of such an analysis is not simply to amuse historians and sociologists of the professions. The definition and operationalization of competence is a very high-stakes activity. Competence frameworks act as barriers to entry (by predefining traits and attributes necessary for study); affect progression (forming the basis of in-training evaluation); and are implicated in graduation, certification, and licensure (determining the content of examinations) and processes of

discipline and maintenance of certification. Each of these mechanisms is becoming more and more codified and rigorous in the United States, Canada, the United Kingdom, and other countries around the world. I am also particularly interested in the ethical dimensions of creating powerful high-stakes admissions, assessment, certification, and licensure examinations for domains that are subject to such frequent shifts.

Competence Is Constructed by Discourses

Viewed from a traditional scientific background, my approach may appear strange. What does it mean that medical competence is "constructed" by discourse? The concept is perhaps more readily understood when looked at from a long historical perspective. An exercise I find useful is to examine archival images of physicians over several centuries. I was first inspired to think about how dramatically the image of competence has changed when I came across the *Book on the Physician Himself* (Cathell 1890). Published at the end of the nineteenth century, the book is filled with advice for newly graduated physicians on how to appear competent. Much emphasis is placed on proper appearance (a three-piece suit and a walking stick with a silver head), office decoration (a reflection of one's *station in life*), and behavior in society (such as never being seen alone with young women or *undesirables*). Of course, at that time in history, few effective medical treatments were available and the European practices of physical and laboratory examinations were just being adopted in North America (Shorter 1985). The author seemed not to be embarrassed about advising graduates that their *image* of competence would be created more through gentlemanly dress and particular social habits than any aspect of actual practice. Deep in the library stacks, I found a dusty book with images of a physician galloping through the night on horseback. Presumably the doctor was racing to enact some heroic measure, such as removing an appendix on a patient's kitchen table, a fatal intervention that terminated the short life of my own great-uncle at the turn of the last century. Perhaps the doctor's skill in horseback riding exceeded his facility with a scalpel, but his sweaty gallop through the night nevertheless conveyed something about competence, at a time when there were no operating rooms or anesthetics to be had in the countryside. On the Internet, meanwhile, I found

old images from the television show *Marcus Welby, M.D.* that ran during the 1960s and 1970s. No longer wearing a three-piece suit and certainly not on horseback, this character dressed in a white coat. His confident demeanor conveyed an air of competence, reinforced by the starched creases of his lab coat—a piece of clothing reserved at that time for doctors alone. Physicians of Marcus Welby's time, of course, considered it appropriate, professional, and presumably competent not to tell dying patients that they were dying (for fear of worrying them), to call up the male head of the household to talk about the health of his wife or children (of any age), and quite possibly to appear in advertisements to promote a brand of cigarettes.

While these seem like caricatures today, they are helpful to illustrate how behaviors and attitudes associated with competence have changed rather dramatically. These changes occurred because the construction of medical practice and of medical competence also changed. Of course a good bit of this evolution is the story of science. Certainly, the doctor who sniffed a patient's urine as a diagnostic test in the nineteenth century did not have the benefit of laboratory analysis. Operating on the kitchen table in the early twentieth century was necessary because of the absence of adequate operating theaters and modern anesthesia. We may even be prepared to excuse the 1950s physicians who promoted cigarette smoking as being simply unaware of the yet-to-emerge science underlying the dangers therein. These changes do indeed correspond to the advancement of science. But what of strolling around the wards in gentlemanly attire and expecting the nurses to stand at attention? How about talking to a woman's husband instead of the patient herself about her illness? Is there a link to the end of these practices (which surely would now seem bizarre, unprofessional, and incompetent) and the fact that women, who were once thought to be too feebleminded to pursue studies in science (Strong-Boag 1981), now represent more than half of most medical school classes? What about withholding the truth from a dying patient? Today, changing values rather than scientific advances mean that respecting a patient's autonomy is linked to competent, professional practice. Finally, is it science that has made it unlikely that we would see a doctor promoting smoking, or is it more related to questions about the ability to practice competently while using addictive substances or while beholden to a contract to advertise products for industry?

These dimensions of professional competence reflect a set of cultural expectations and norms that are constantly shifting. Historical perspective

is helpful to "make strange" things that we take for granted today (Kuper and Hodges 2010). Another way of examining socially constructed practices is to look at our context from the vantage point of another culture. Think of this as reverse anthropology. Many years ago I attended the wonderful presentation of a researcher from south Asia who "went to a land called Florida to live among the cheerleaders" for a year. Taking photos and making anthropological observations about a practice as familiar as cheerleading turned it into something exotic and interesting for riveted audiences in India, but also in the United States.

In a similar vein, imagine holding a debate with doctors from different countries of the world as to whether talking to a woman's husband about her health is "competent" behavior or not, and what regional, national, cultural, or other variations would be reflected in the answer. Or more simply, ask your colleagues or friends why it is important for a doctor to wear a white coat rather than a three-piece suit or jeans. The question "What is appropriate dress for a doctor?" always leads to spirited debates depending on one's generation, specialty, or geographic location. During my years as an examiner with a U.S. specialty board I recall attending a required "cultural sensitivity training" session. We were warned to be careful about holding stereotypes about competence that could be associated with the way people dress in different parts of the United States. A candidate from Hawaii wearing a floral-patterned short-sleeve shirt and sandals, for example, might appear less competent to an examiner from New York, where the uniform of competence (at least for an exam) is a blue suit. Southerners, on the other hand, might well be chewing gum and have long red fingernails and a big beehive hairdo, according to the presenter. I was glad of this latter bit of advice when my second candidate appeared just that way.

Stepping back from our own culture can help us see the constructed nature of things we assume to be *natural* or *normal*. Certain North American practices seem unusual, even bizarre, to those from other places. For example, a colleague visiting my university hospital from the Philippines commented recently that she found it sad that the patients in our intensive care unit had *no family.* She was shocked to learn that rather than valuing the constant presence of family members at the bedside, we instead regulate their presence with something called visiting hours. In many countries, the family is present at the bedside twenty-four hours a day and during all

discussions with the health care team. This is one of several examples I have written about that illustrates how practices that become normalized among health professionals can seem bizarre to anyone encountering the hospital and its culture for the first time (Hodges 2010). Consider that we make people take off their clothes, walk around in public spaces wearing a half-open blue gown, refer to them loudly in the third person with labels like "the fracture in room 5," and introduce ourselves as "Hi, I'm Ortho." These practices strike the uninitiated as part of an unusual, and not particularly respectful, culture.

Foucauldian Discourse Analysis Is Helpful to Understand Shifts in Competence

The notion that competence is not a fixed entity may be unsettling to those accustomed to the positivist research tradition. Positivism is characterized by assumptions of fixed, objective phenomena that can be confirmed through empirical study. What positivist approaches leave unexplored, however, are the political, cultural, and economic contingencies in particular times and places that make it possible to think in certain ways, say certain things, and act, dress, carry oneself—in short, to *be*—a particular way.

Rather than framing all developments as part of a continuous line of progress, researchers taking a critical, constructivist view emphasize power, equity, and justice, forces that can hardly be said to follow a continuous and linear upward slope (Kincheloe and McLaren 2000). In the words of Starr (1982, 3–4), "The dream of reason did not take power into consideration.... The history of medicine has been written as an epic of progress, but it is also a tale of social and economic conflict over the emergence of new hierarchies of power and authority, new markets and new conditions of belief and experience." Seen through a critical constructivist lens, not all changes in society, and therefore in health care or professional education, are progressive or even rational. Good and bad ideas and practices come and go (Calhoun 1995), shaped by the political, social, and economic imperatives of the time. These imperatives can be unearthed by studying what Michel Foucault called *statements of truth:* strongly articulated arguments about what is true/untrue, just/unjust, legitimate/illegitimate, permitted/forbidden in a given place or time. Statements of truth

are the surface manifestation of deeper and more complex systems of *discourse*. Discourse used in this Foucauldian sense is a highly useful way of thinking about the ebbs and flows of competence. I think of the *discourses of competence* as all of the current linguistic (speech and text), behavioral (performance and appearance), and material (architectural, institutional) representations of what it is to be a competent professional at a particular time in history or in a particular place. *Discourse analysis* thus involves paying attention to how these elements systematically construct particular versions of the social world (Rogers et al. 2005).

I previously conducted a discourse analysis about competence examinations. This involved semistructured interviews in the United States, Canada, and the United Kingdom and the analysis of hundreds of published articles (Hodges 2009). Since then I have had the opportunity to reflect on the specificity of these Anglo-Saxon discourses and compare them with discourses used in other countries of the world such as China, Denmark, Ethiopia, Israel, Japan, Jordan, New Zealand, Pakistan, and Poland. More formally I undertook, with French colleagues, a preliminary comparison study of the discourses of competence in Canada and France (Segouin and Hodges 2005). These analyses involved characterizing some of the major discourses in use in medical education, today and in the past, by paying particular attention to recurring key words, metaphors, and conceptions. I was then able to delineate the roles created for students and teachers as a result of the dominance of certain discourses. Finally, I was able to describe how different discourses have led to increases or decreases of power for various organizations and institutions.

During the analysis of examination discourses, I collected information related to discourses of competence more generally. Ultimately, I identified discourses related to competence (*knowledge, performance, psychometrics, reflection,* and *production*). Below I present a detailed description of each of the five discourses.[1]

For each I have selected a representative symbol and an associated name. Though I do not mean to imply that these named individuals alone created the various discourses, their names and ideas do appear frequently

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1. An earlier, simplified version of these descriptions of the discourses of knowledge, performance, psychometrics, and reflection appeared in the paper "Medical Education and the Maintenance of Incompetence" (Hodges 2006).

TABLE 1. Symbols, Roles of Teachers and Students, and Common Measures of Competence Associated with Five Discourses

Discourse of competence	Symbol	Role of teacher	Role of student	Common measures of competence
Knowledge discourse	Harrison's textbook	Providing facts and knowledge; elaborating mechanisms	Reading and memorizing facts for recall	Knowledge tests; often multiple-choice questions
Performance discourse	Miller's pyramid	Teaching skills; creating simulations; making observations	Practicing and demonstrating skills	Performance-based assessments; observed "real" or simulated scenarios
Psychometric discourse	Cronbach's alpha	Shaping student characteristics and behaviors toward a "norm"	Adapting self to required "norm" so as to maximize data points on standardized measures	Standardized scales and rating; often checklists
Reflection discourse	Schön's reflective practitioner	Guiding introspection; mentoring; acting as "confessor"	Reflecting and demonstrating self-assessment and self-regulation	Portfolios; reflective exercises
Production discourse	Taylor's scientific management	Managing the production of a quality product	Conforming to the standards of quality	Quality control measures; audits

in association with each discourse. The symbols also provide a form of shorthand to facilitate the discussion of the discourses and their interrelations. The five discourses and their associated names and symbols are as follows (see table 1):

1. Knowledge discourse: Harrison's textbook (Kasper 2005) and competence-as-knowledge
2. Performance discourse: Miller's pyramid (Miller 1990) and competence-as-performance
3. Psychometric discourse: Cronbach's alpha (Cronbach 1951) and competence-as-reliable-test-score
4. Reflection discourse: Schön's reflective practitioner (Schön 1987) and competence-as-reflection
5. Production discourse: Taylor's scientific management (Taylor 1911) and competence-as-product

Knowledge Discourse

> [A]ll but the very brightest students are submerged by the torrent of
> information. It is no wonder if they say "I have so much to remember,
> I have no time to learn."
> (Dornhorst 1981, 513)

Knowledge discourse is characterized by use of the words facts, foundational knowledge, basic science, first principles, fund of knowledge, classic textbooks, classic articles, and multiple-choice tests (see table 2). In this discourse, the role of teacher is to be a source of wisdom, and teachers' main activities revolve around helping students receive or elaborate knowledge. Core teaching activities are didactic lectures and seminars that aim to transmit knowledge. The most common measure of competence-as-knowledge is a written test, often consisting of multiple-choice questions. This combination of teaching and assessment methods requires students to memorize and reproduce information, and much time is spent reading. The ideas, roles, and activities associated with the notion of competence-as-knowledge construct a competent individual as one who can memorize, reproduce, and elaborate on large amounts of factual data. This age-old conception is based on the idea that the accumulation of knowledge is linked to, and indeed central to, competence. For thousands of years, in

TABLE 2. Key Words, Concepts, and Theoretical Foundations Associated with Five Discourses

Discourse	Key words	Concepts	Theoretical foundations
Knowledge discourse	Facts, foundational knowledge, basic science, first principles, fund of knowledge, classic textbooks, classic articles, multiple-choice tests	Competence is based on the mastery of a body of complex and specialized knowledge.	Contemporary: cognitive science; ancient: monastic scholarship
Performance discourse	Simulations, simulated patients, feedback, performance, skills, OSCE, multiple observations	Competence is revealed through observable behaviors and the performance of skills.	Contemporary: behaviorism; ancient: dramatic arts
Psychometric discourse	Reliability, validity, generalizability, data, psychometricians, candidates, checklist, item banking, cut point, standardization	Competence is captured via the conversion of human attributes and behavior to numbers using reliable and valid psychometric measures.	Contemporary: psychometrics; ancient: mathematics
Reflection Discourse	Reflection, self-directed learning, learning contracts, portfolios, adult learner	Competence is manifested and ensured through self-reflection, self-assessment, self-regulation	Contemporary: self-actualization, psychoanalysis; ancient: philosophical/religious introspection/ confession
Production discourse	Cost, production, finished product, accountability, outcomes, efficiency	Competence is a product resulting from processes that are productive and efficient.	Contemporary: production/capitalism; ancient: alchemy

cultures as diverse as classical Greek, Roman, Arabic, and Chinese societies, the memorization and mastery of vast amounts of information was required for scholars in diverse fields. In Western cultures, this knowledge discourse has roots in the monastic traditions of memorizing and reproducing religious books.

After the 1960s, however, in the United States, George Miller (1990) and other medical educators began to argue that too much emphasis on knowledge risked creating knowledge-smart doctors who had poor interpersonal and technical skills. Jacques Barzun argued in the *New York Times* that a preoccupation with doing well on recall tests "conditioned the way young people in America think" (1988, 27) and that they have "better-developed cognitive abilities to recognize random facts than to construct patterns or think systematically" (ibid.). Critics continue to argue that an overemphasis on knowledge discourse may lead to incompetence as a result of the poor integration of knowledge in practice, a lack of appropriate interpersonal behaviors, and poor technical abilities.

Performance Discourse

> In many places they would ask students to write an essay on the origin of the word shoelace, or give them a multiple choice question on the design of shoelaces or even ask them to describe the steps in tying a shoelace. Whereas really the only way of doing it is showing you know how to tie a shoelace.
>
> (R. HARDEN, cited in Hodges 2009, 76)

Performance is observed. In psychological terminology, performance relates to *behavioral* aspects of human activity. Performance thus has less to do with cognitive processes and more with action, movement, speech, and gesture, though behaviors are also often used as proxy indicators of underlying attributes (personality) or abilities (cognitive reasoning). In the behaviorist tradition, performance can be learned or modified through practice, repetition, and the iterative loop of performance-feedback-performance. Integral to performance discourse is an observer or observers who may simply watch, or who may critique or evaluate. Given the strong tie to practice, performance discourse often invokes methods of simulation because it is cumbersome or unreasonable to perform the same behaviors repeatedly in clinical settings. The goal of those who use performance discourse is the shaping of behaviors in desired directions and a