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MEDICAL EDUCATION AND THE TYRANNY OF COMPETENCY

MICHAEL A. BROOKS

ABSTRACT Those who educate medical students and physicians work in a world suffused with the concept of competency. This article examines the intellectual origins and hidden assumptions of this concept and argues that it is an inadequate, and even harmful, concept to use as a guiding motif for professional education. The competency model—which tends to be top-down and prescriptive—does not provide the framework for objective educational assessment that it claims to provide. The alternative apprenticeship model is more appropriate for professional education and is more consistent with what psychological research has shown about the acquisition of expertise.

COMPETENCY IS POSSIBLY the most prevalent buzzword in medical education today. To read a journal article or an official document in medical education is to be washed over by waves of general competencies, core competencies, cultural competency, communication-skills competency, competency assessment, and competency-based you-name-it.

Competency sounds good, of course, as all buzzwords do. Who could possibly be opposed to the idea that physicians should be competent? But is competency the right tool for the job? Does this concept do what we demand of it? What if it is like a child's security blanket—it doesn't do anything, but it feels good to have it around. Or even worse, it could be an example of one of those group-think fads which, as the phrase goes, seemed like a good idea at the time, but which became a source of embarrassment with time and perspective.

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I shall argue that the concept of competency is incapable of assaying those qualities that should be the most important to us in medical education. In other words, competency is not what we want to use when trying to determine if someone is a good, or even an adequate, physician.

THE DEFINITION OF COMPETENCY

We don't just say that someone *is* competent, we say that someone is competent *at* something. This something is generally a defined task or set of tasks. Competency is not used when discussing characters or features of persons themselves. We do not say that Sally is competent at being honest, or that Steve is competent at being courageous. We may say that Jane is competent at performing total knee replacement surgery. Or we may describe competence across a range of related tasks associated with a particular job, such as when we say that Jim is a competent harbor pilot.

Competency implies action (Naquin and Holton 2003). Mere knowledge does not suffice. We do not say that Betty is competent at knowing the Krebs cycle, but we might say that she is a competent student, or even that she is competent at sketching out the Krebs cycle, if such a thing were of interest to anyone. But knowledge is important, in that a competent person must possess the knowledge necessary to perform the task.

Lastly, competency is a minimum standard. A competent person is not worthy of commendation, but rather is judged capable—perhaps just capable—of performing a task.

COMPETENCY AND BEHAVIORISM

People who invoke the concept of competency rarely mention that the historical origins and current theoretical underpinnings of this concept in education lie within the realm of behaviorist ideology (Pearson 1980; Talbot 2004). We are now far removed from the 1940s and 1950s, when behaviorism was the sultan of psychology, and behaviorists with white coats and stopwatches had taken over academic psychology departments. Although behaviorism was once a powerful research program in the Lakatosian sense, and elements of this program remain embedded within modern psychological and educational theories, it is based on a number of assumptions that now seem peculiar, if not bizarre.

Behaviorism views the person as an unknowable black box interposed between stimulus and response. We know everything we can know about persons by observing their behavior—their responses to various stimuli. In behaviorist educational theory, the student is John Locke's blank slate, or *tabula rasa*. Students are formed entirely by the training they receive, so given the appropriate training, anyone can be trained to be a competent performer of any given task. A crystal example of this view of people as infinitely malleable, and the complete

denial of any such thing as human nature, can be seen in B. F. Skinner's chilling utopian vision, *Walden Two*. Of course, these ideas represent an affront not only to common sense, but also to what we know about the human animal from biological science. People just aren't what behaviorism assumes them to be: the idea that, with appropriate training, you can make anyone into a competent physician or a competent sculptor is silly. Behaviorist researchers also tend to atomize, breaking down all complex roles into a series of discrete tasks. They do not adequately consider the connections between tasks or the integral framework incorporating the tasks into a purposeful whole.

It is not surprising that a competency-based view of medicine derives nicely from this educational model, with its checklists and "objective" criteria. We can see the influence of behaviorism in the use of the term *training*. We speak of training resident physicians as though this is synonymous with education, but it is not. When behaviorists say "training," they mean just that: people are trained to perform certain tasks, to respond in certain ways to certain stimuli. According to the behavioral model, training a physician is qualitatively no different than training a touch-typist; it is just that training a physician entails more tasks, and thus more time. Competency is a training-specific concept: you are measuring the performance of defined tasks according to predetermined criteria. Competency is useless for assessing the education of the professional in the broader sense. It cannot evaluate the idiosyncratic application of knowledge, which is a key component of expertise. It cannot even accurately assess the performance of the defined tasks, because experts do not perform the tasks in the same way as beginners, or even in the same way as other experts (Grant 1999; Hodges et al. 1999).

COMPETENCY AND OBJECTIVITY

How is the assessment of competency to be accomplished? Proponents of the competency concept wish to use objective means of assessment—means of assessment that remove the subjective human element from the process (ACGME 2008). By definition, an objective assessment system should be observer-independent. For example, assessment of track and field athletes is objective, and assessment of gymnasts is not. In an attempt to make the gymnastic assessment objective, a detailed checklist and scoring system could be devised in order to remove any subjective judgment from the process.

This is precisely what is being attempted in medical education. It is difficult to imagine, on the face of it, that you could develop a set of criteria by which it would be possible for anyone to assess the competency of another at performing a complex task. Could I develop a checklist by which anyone could assess the competency of a surgeon at performing aortic valve replacement? Or, to use a more prosaic example, could the driver's licensure office employ, say, a highly intelligent, responsible 12-year-old, who did not himself drive an automobile, to

sit in the passenger seat and assess the competency of a driver during her driving test? Surely the answer to this type of question is no.

But what does this mean exactly? It means that the expert judgment of another competent person is necessary to assess competency. Or, put another way, there are no objective criteria by which we may determine someone's competency. The existence of objective criteria would mean that the assessment of competency is independent of the assessor. But in all cases, when closely examined, the subjective element of the competent judge is always present. This is simply another manifestation of the fact that expertise is not fully codifiable, a fact well known in the expert systems and artificial intelligence fields (Cowan 2001; Thornton 2006). It is not possible to reduce expertise to a set of rules that can be applied without subjective thought or judgment, without the presence of what Michael Polanyi (1958) first called "tacit knowledge." One example of tacit knowledge would simply be knowing when and how to apply certain rules in individual cases, rather than knowing the rules themselves. Polanyi emphasizes that such knowledge must be acquired by example and practice and is often never stated explicitly when passed from teacher to student, or from master to apprentice. Later psychological experiments have demonstrated that tacit knowledge forms a key component of expertise (Wagner and Wagner 1985).

Unfortunately, the way the concept of competency is used in medical education usually implies—or, more commonly, baldly states—that competency assessment is an objective assessment (Brown et al. 2008). There are numerous other examples in the medical literature, but it is enough to consider the now-ubiquitous Objective Structured Clinical Exam (OSCE) used to assess medical students' patient examination skills. Despite the "objective" nature of the assessment, the variability among physicians scoring medical students in the OSCE is quite high. Of course, one explored possibility is to take the competent judge out of the mix. Frequently, these examinations are also scored by the standardized patients. Standardized patients are not real patients, but actors, who are, of course, not themselves competent clinicians. Scores from standardized patients are even more variable and have little or no correlation to other measures of the student's competency (Martin et al. 1996; McLaughlin et al. 2006). In other words, using the 12-year-old for the driver's license exam doesn't work very well.

We can certainly pretend to devise lists of criteria for determining competency, but these criteria serve only to obscure the subjective judgment innate in competency assessment. The assessment of competency always requires the exercise of judgment by another person competent, or preferably expert, in the task or procedure. An amusing example of this fact can be seen in a recent study designed to assess the competency of resident physicians in performing a lumbar puncture, or "spinal tap" (Lammers et al. 2005). In an attempt to provide objective criteria to assess competence, the authors divided this simple procedure into a risible 26 major and 44 minor steps and developed a scoring system based on

these steps. The “objective” scoring system cannot conceal the fact that the judgment of experts is necessary to assess the subjects. If truly objective criteria for competency were possible, subjects could be evaluated for competency by those incompetent to perform the procedure themselves, or, one could imagine, by machine. The evaluator would simply follow the checklist, and those subjects with a sufficient score would be deemed competent. Returning to our lumbar puncture example, despite the use of a detailed scoring system, significant inter-observer variability was seen among experts attempting to evaluate the residents performing the lumbar puncture. This variability indicates the exercise of subjective human judgment by the expert evaluators. Even at a level of detail as fine as that of minor step 41 (“Avoid excessive fluid loss”), the examiner must judge whether the resident competently performed that step. How much fluid loss is “excessive”? The “objective” scoring system had merely atomized the assessment of competency of lumbar puncture into a large number of tiny competencies, whose assessment still required the presence of an expert examiner and the exercise of judgment on the part of that examiner.

I do not mean to criticize the authors of this study: they are simply employing the dominant paradigm in medical education. There are scores of other studies like this one. My disapproval is directed at the paradigm. Further, I do not disagree that it is possible to assess the competence of a resident physician at performing a lumbar puncture. I simply assert that an expert assessor is all that is required. Is the resident competent, yes or no? The checklist and scoring system are superfluous, and the pretense to objective criteria is nonsense. So why do we strive to pretend that what we are doing is objective?

The drive for make-believe objective data in medical education is a juggernaut. It is impossible to read a policy paper, position statement, or the like, emanating from one of the numerous bureaucratic entities governing medical education around the globe, without encountering the claim of objective assessment. This unfortunately even spills over into direct patient care. Anyone who has ever seen a patient in pain in a modern hospital—or worse, been in that situation themselves—would be familiar with the nurse’s insistence that the patient rate his pain on a scale of 1 to 10. No matter how much pain he may be in, the patient does not receive his pain medicine until the nurse has a number to record. Thus are “objective” data born from one of the most uniquely subjective of human experiences. All can be satisfied as that number is inscribed in the chart and the morphine is administered.

COMPETENCY AND AUTHORITY

The competency paradigm also presupposes a certain type of authority structure, one that does not seem to be compatible, at its root, with the traditional view of medicine as a profession, or with traditional views of liberal education. Competency assessment is, by its very nature, a top-down, prescriptive process

(Tarrant 2000). It is difficult to place competency within the framework of liberal education, with its ideals of creating good and virtuous citizens and of maximizing human potential. Rather, the emphasis is on vocational performance, on the *training* of an individual to perform a specific job, a job specified in advance and in great detail by an authority or governing body. This approach depreciates individual professionals and devalues their own practical wisdom in the application of their education to particular patients.

With this authoritarian model, we have witnessed the growth of a variety of intersecting governmental, private, and corporate regulatory entities that have involved themselves in medical education. As a result, there is a proliferation of certifications. To be a competent physician, I not only need my medical school degree and my medical license, but also my specialty board certificate. But I also need some sort of subspecialty certification. I now may need certification to perform a certain technique, to handle a certain type of material, or to use a certain piece of equipment in the operating room. If I change jobs and work in a new hospital, I need to provide documentation of all the different types and subtypes of procedures I performed at my old job, so that the new hospital can be confident that I am competent to perform these procedures, in spite of the fact that I may have been the person teaching those procedures to others around the country. I need to fill out paperwork and attend courses every year to maintain all these various certifications, lest some regulatory body or insurance company deem me to have become incompetent at something, and therefore not worthy of employment or reimbursement.

As those of us who work within this regime are well aware, all these certifications have little to do with actual competence. To obtain certification to use a fancy piece of equipment in the operating room, one typically pays a couple of thousand dollars for a weekend course, listens to a few lectures, plays with said piece of equipment for some mock cases, and receives the requisite piece of paper that one can use to document competence. But what does this really have to do with competence? I, like all other practicing physicians, know other physicians whom I wouldn't let near me or my family members, regardless of the number of pieces of paper they might sport. Conversely, I know a number of physicians who are superior to me in my chosen field, despite the fact that they lack the subspecialty certification that I have. Why is this? Because they are smart, dedicated, and have loads of practical experience—qualities that are not captured by competency-based assessment.

Unfortunately, the top-down competency mindset is beginning to take its toll on medical education. Physicians trained with this vocational orientation are not properly equipped with the conceptual tools needed for their professional role (Grant 1999). The professional does not need a set of canned techniques but rather the ability to apply specialized knowledge to new and ever-changing specific situations and patients, and to develop new techniques, invent new therapies, and conceptualize new diagnostic approaches. The checklist mentality in-

culcated in the competency paradigm does not do well when confronted with the difficult or unusual. Already it is common to see what I call the “boxes and lists” approach to medical care. Patients with a certain set of symptoms and lab test results fit into a specific “box,” such as the community-acquired pneumonia box. Once the patient is placed in his appropriate box, there is an approved list of things that you do to treat him—any medicine resident knows the “evidence-based” list of things to do for the community-acquired pneumonia box, or rather patient. The problem, of course, is that many patients do not neatly fit into a box. When confronted with such a patient, a typical response from the recently trained physician is to order staggering numbers of diagnostic tests in an attempt to locate the right box. There is seldom any evidence of logic or rational thought in the diagnostic workup. This may be one of the causes for the startling increase in the use of diagnostic tests, many of which have little impact on the overall care of the patient (Broder 2008; Partrick et al. 2003).

COMPETENCY AND VALUE JUDGMENTS

The concept of competency not only implies action and assessment of that action by others, but focuses on action to the exclusion of the agent. This educational model strives to avoid value judgments about the agent. We are not saying that Sue is a bad doctor, we are merely saying she does not demonstrate the core competencies of a physician. It is easy to see that this, too, fits nicely within the behaviorist framework. There is an important difference between an assessment of competence and a value judgment that says something about the worth of the agent.

It is well known that a physician who is addicted to narcotics is capable of functioning normally in his job for a long period of time. Likely, this is because the addict’s job provides him with access to the fuel for his addiction. His family, personal, and financial life may be an utter ruin, but his work may be unaffected for a long time. If we were evaluating his job performance during this time, we would say that he was a fully competent physician, or if we were evaluating an individual task, we could say that he was competent at appendectomies. Nevertheless, we would be wrong if we called him a good physician.

Medicine is fundamentally a moral pursuit. At its heart is the physician-patient relationship, a relationship between two people. The atomistic and action-focused concept of competency does not embody this view of medicine. We want to have good doctors, not competent ones. By this, I do not mean that “competence” cannot be subsumed into “good.” But I also do not mean that “good” is an improved version of “competent”: to say “good” does not mean that I have moved the competency bar higher, and that I measure good in the same way as competence. I use these terms in a qualitatively different way. As a medical educator, or a patient, I am interested in the doctor as a person, not as an action-performing black box.

Any medical student or physician knows which of her colleagues is a good physician. I may not know whether Dr. Green is competent at lumbar puncture, but if I have any professional contact with Dr. Green, I certainly know if I would like Dr. Green to care for me or a member of my family. As well, patients will quickly determine whether Dr. Green is a good physician. Patients don't usually have any experience with a lumbar puncture, but they have a lifetime of experience evaluating the character of other people.

Perhaps Dr. Green doesn't really care about his patients and only cares about himself. This character trait will not prevent him from being competent at technical tasks, nor even from being competent at "interpersonal skills," to pick an item from a typical checklist. But this character trait would certainly prevent Dr. Green from being a good physician. Further, it may be that no amount of lecturing on medical ethics, no number of mentored peer-review feedback sessions, no behaviorist training program will succeed in making Dr. Green a good physician. I know a number of Dr. Greens. You do, too. The concept of competency simply fails to address the most important things about a physician.

WHY COMPETENCY?

Why do we use this concept at all? Why do we feel the need to focus on "objective" educational "outcomes" rather than on the student? Is it a fad? If so, this particular fad has the potential to be quite damaging to the medical profession. It is certainly true that the educational establishment, like the business world, is particularly prone to fads (Abrahamson and Fairchild 1999; Birnbaum 2000; Carson et al. 2000; Gibson and Tesone 2001). You may have been subjected to the New Math as a child, or if you have school-age children now, they may be suffering through the "spiral curriculum" and thus need supplementation of their education at home, as mine do. If you are an educator, you may have seen objectives-based education, problem-based learning, vertical integration, and others come and go. And of course, many fads transfer themselves from the corporate world to our door, often in belated fashion after they have been discarded, as fads, by the business world. Find a medical school without a mission statement, or a core values statement. Find a medical school that doesn't use the words *quality* and *excellence* in numbing repetition in everything it does. I have even seen a recent manufacturing fad, the Six Sigma method, with its bizarre terminology of Black Belts and Green Belts and acronyms like DMADV, being adopted at some medical schools. This is in spite of the fact that Six Sigma methodologies are intended to apply solely to manufacturing processes, are utterly inappropriate for knowledge-based institutions such as universities, and have the effect of suppressing innovation (Goh 2002).

As a further example of corporation-to-education transfer, let us look at the Accreditation Council for Graduate Medical Education (ACGME). The ACGME is a nongovernmental body that accredits medical residency programs in the

United States. In 1999, this entity, supported by corporate funding, developed the idea of general or core competencies that would be required of all resident physicians in the United States. In 2001, these core competencies were adopted as a requirement. The six competencies are patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

These core competencies have been a source of great consternation among the medical residency programs forced to implement assessment of them, not in small part because no one seems to be exactly sure what they mean. One recent paper does an excellent job in documenting the confusion over the implementation of competency-based education in dentistry, for example (Licari and Chambers 2008). What does it mean to say that someone is competent at medical knowledge, given that the literature on competency is quite clear that competency assesses action and measures knowledge only indirectly? Assessment of communication skills competency is already known to be unreliable and cannot be generalized; in other words, there doesn't appear to be any such thing as a general communication skills competency, at least not that anyone can measure (Mazor et al. 2005). Or how, for example, is someone competent at professionalism? What does that mean? These are all difficult questions (Huddle and Heudebert 2007).

But the very idea of "core competencies" is itself lifted from corporate business-speak. The term was first employed by Prahalad and Hamel in a 1990 *Harvard Business Review* article, an article laden with the sort of jargon-filled, meaning-poor, and ungrammatical English often satirized in the comic strip "Dilbert": "Core competencies are the collective learning of the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies" (p. 82). As originally employed, core competencies referred to the qualities of corporations—not individuals—which made them competitively successful. Are these the kinds of concepts we wish to import into an already over-mechanized, dehumanized Western medical practice?

What about the "360-degree evaluation," now mandated by the ACGME for all resident training programs? This is *another* corporate fad, now in decline in the business world (Pfau and Kay 2002). It requires evaluation of the resident by peers, nurses, hospital staff, patients, etc. This is not necessarily bad, but the evaluation is expected to proceed along the lines of those same core competencies described above.

A full exploration of the possible answers to the question "why competency?" is beyond the scope of this essay, but surely there is more to the answer than the facile fad response. One explanation may lie in the well-known tendency of bureaucracies to ever expand the domains of their control, which has certainly occurred at top speed in graduate medical education (von Mises 1944). Medical schools and residency programs are forced to employ a number of full-time physicians and staff who do nothing other than generate the mandated competency paperwork. We shouldn't really be surprised about this. After all, since the

patient no longer holds the purse-strings and since the physician is now either a de facto or de jure employee of a government agency or corporation, it is to be expected that agencies and corporations will seek to control even the education of physicians, to ensure that patients and physicians march in predictable lockstep.

It should be clear that the competency mindset is one that views the physician as a technician, not as a professional. It engenders an educational system that is purely focused on vocational training. Physicians trained under such a scheme will have a large repertoire of prescribed behavioral skills but will not have the tools necessary to place these skills within a wider social, humanistic, or scientific context. They will have knowledge but will lack the practical wisdom that Aristotle called *phronesis*, the ability to know when and how to apply this knowledge to best help individual patients. The best surgeons, for example, are not those who have a high degree of technical skill—those who know *how* to do something—but rather those who know *what* to do, and *when*, and *why*, and especially, when *not* to do something. Vocational training is learning how to run a piece of machinery, but it does not make good doctors. In an era of growing dissatisfaction with our dehumanized, expensive, high-tech health care, we need to be educating real physicians, not training more “health care providers.”

APPRENTICESHIP: THE RIGHT MODEL

Medical education has been, and should be, an apprenticeship. True expertise is transmitted not by lectures or textbooks, but by guided practice (Patel, Kaufman, and Magder 1996). This fact has been recognized since the dawn of Hippocratic medicine. For most of the history of Western medicine, one became a physician by apprenticing to a practicing physician. Despite the rise of the modern medical school over the last century, the importance of apprenticeship has not been diminished, and it is demonstrated by the existence of clinical clerkships, traditionally performed in the third and fourth year of medical school, and by the existence of internships and residencies, which used to be apprenticeships, plain and simple. Now, more and more time during residency and beyond is spent doing paperwork, fulfilling various competency requirements, performing mandatory “interactive modules,” and the like, and less time is spent performing the activity that produces expertise—diagnosing and treating patients under the supervision of a more expert colleague. It has even been suggested that the length of medical residencies could be shortened to the time it takes for resident physicians to complete their checklist of various competencies, a proposition that demonstrates a frightening ignorance of what is actually learned during a residency (ten Cate and Scheele 2007). Apprenticeship teaches more than just technical competence. Ethics, caring, and kindness are best taught by directed practice and apprenticeship—a fact recognized in ancient Greece, as well as today (Branch 2000).

The apprenticeship model is surely the right one, and one that applies to a vast number of domains of human expertise, not just medicine. What courses of action might we propose by contrasting the apprenticeship model with the behaviorist worldview currently in vogue? To begin with, we could simply scrap the whole competency industry. We could stop pretending to objectively measure student performance at predefined tasks and go back to asking the real question: “Is Sarah a good doctor?” While I would argue that this reactionary step would, unlike most reactionary measures, actually improve our present situation, we could also use the opportunity to think more radically and improve medical education a good deal more.

It is not my intent to perform an armchair revision of the entire medical education system in this essay. But we can begin to think about some possible improvements. For example, over 95% of the students who matriculate at a medical school in the United States will graduate with their medical degree and go on to practice medicine (Garrison, Mikesell, and Matthew 2007). By definition, they have fulfilled their requisite competencies, and this is a manifestation of the behaviorist claim that we can take anyone and make them into a doctor with an appropriately designed four-year program. Yet, anyone who works in medical education knows that we willfully graduate medical students every year whom we would never trust with a family member’s medical care. This is not because of technical incompetence or the inability to pass a test. Our distrust stems from knowing the person—those who put their own comfort and convenience over the welfare of patients, those who are in medicine purely for the power and prestige, and the like.

Other fields of intellectual endeavor have a high “washout” rate. If you can’t handle the math and think creatively to solve problems, you won’t graduate from an engineering program. You might be able to pass all the classes and the exams, but if you can’t think independently and rigorously create new knowledge, you won’t graduate from your Ph.D. science program. You might be highly technically competent, but without the interpretive gift of a true musician, you can’t be expected to graduate with your degree in musical performance. So why do we graduate doctors who don’t care about patients? Because this involves a subjective judgment? The judgment of a Ph.D. committee at a dissertation defense and the judgment of a graduation jury at a fine arts school are equally subjective. And so are our current judgments of competency, as I have shown—but they judge the wrong thing. If we are serious about our apprenticeship model, we should stop graduating doctors whom we ourselves would not want to see if we were patients.

CONCLUSION

The competency framework is not compatible with what is known about the development of expertise. The medical professional does not follow a learned set of

rules when diagnosing and treating patients. Rather, the professional decides whether to follow a rule and which one to follow (Tanenbaum 1999). The knowledge derived from medical research relates to statistical aggregates, but such knowledge must be applied using the practiced judgment of the professional in order to be useful. Physicians operate within the cloud of uncertainty that is each individual patient. A physician's personal experience, intuition, ability to reflect, interpret, and perceive are vital to the health of patients, and these qualities are even more vital to future advances and innovation in medical practice. A prescriptive, sclerotic model of education such as is proposed by the partisans of competency would be disastrous. The practice of medicine is not a checklist.

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