The Educational Attributes and Responsibilities of Effective Medical Educators

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Abstract

Of the many roles that the academic–educator may fulfill, that of teacher is particularly challenging. Building on prior recommendations from the literature, this article identifies the skill set of teachers across the medical education continuum—characteristics of attitude and attributes, knowledge, and pedagogic skills that permit effective teaching to be linked with effective learning and understanding. This examination which characterizes teachers’ attitudes, knowledge, and skills serves to reemphasize the centrality of teaching within medical education, provides direction for faculty and institutions alike in the discharge of academic responsibilities, and makes educational accountability clear. This listing of teacher attitudes and responsibilities was vetted in 2009 by medical education leaders from across North America during a national conference on faculty development.

A set of recommendations concerning faculty development issues for medical teachers is offered. The recommendations from the assessment of meaningful learner outcomes.6

We were invited along with other medical education leaders from North America to participate in the 2020 Vision of Faculty Development Across the Medical Education Continuum2 conference, and we participated in the working group that dealt with the topic of faculty development and defining the desirable attitudes, knowledge, and skills (AKS) of effective teachers at all teaching levels of the medical education continuum. To begin the process of identifying a concrete set of these AKS, one of the authors (C.H.) examined relevant literature dealing with teaching skills and proposed a draft list of qualities supported by the literature. The other authors vetted the draft and arrived at a consensus for the recommended AKS in this article. The task of characterizing the AKS of the effective teacher across the continuum is complex, and there is ample room to advocate for the inclusion of attributes not listed here or to exclude or modify those that are. There is no single, all-encompassing definition of the effective teacher’s AKS, though the literature reveals substantial concordance with the definition of the AKS offered here. Before examining the AKS, we review the frameworks that emerged from the literature. The framework we chose for our recommendations identifies the core elements of the AKS which define developmental end points for faculty and institutions alike. We seek to encourage debate about these recommendations within the medical education community as substantial agreement on the AKS is necessary to ensuring their development, adoption, and study. Hopefully, the competencies listed here could be the basis for a nationally derived, evidence-based set of skills, the definition of which demands refinement and evaluation.

Frameworks for the Development of Medical Teacher Characteristics and Competencies

Harden and Crosby,4 in an early study outlining the skill set of effective teachers, emphasize that “[t]eaching is a demanding and complex task.” Deconstructing that task to characterize qualifications for teaching staff,9 a national task force in the Netherlands examined the roles of the teacher across the spectrum of education in the health sciences (including dentistry and veterinary medicine) and offered a comprehensive framework of core teaching competencies, which allows for local institutional modification.9 This
framework distinguishes six domains of teaching (development, organization, execution, coaching, assessment, and evaluation), three levels in the organization at which teachers function (micro—small teaching units; meso—coordinating a coherent part of the curriculum; and macro—leadership), and the competencies themselves (KSA). The task force chose not to provide the components of the KSA competencies.\(^9\)

However, they noted,

The framework provides a common language that may be used not only by teachers and teacher trainees, but also by quality assurance committees, human resource managers, and institutional boards.\(^7\,9\,10\)

Moreover, these definitions help to guide the design and delivery of faculty development programs and activities aimed at different levels of educational responsibility, address societal expectations for teacher (and learner) competence, and buttress the role of the teacher in medical education.

In a similar effort characterizing the work of the medical educator, Harden and Crosby\(^*\) identified 6 key areas and 12 derivative roles that reflect the teacher’s repertoire. As with the definition from the Dutch task force, we see that teachers may, and frequently do, have one or more roles in the system as well as in any given teaching encounter. This framework serves as an aid in the definition and development of resources needed for curriculum construction, faculty development, and promotion.

Regarding teaching skills development, Skibb and colleagues\(^10\) have created a highly successful faculty development effort fashioned around a seven-category framework for analyzing the teaching process: (1) establishment of a positive learning climate, (2) control of the teaching session, (3) communication of educational goals, (4) promotion of understanding and retention of knowledge, (5) evaluation of the learner, (6) provision of feedback to the learner, and (7) promotion of self-directed learning.\(^15\) These domains and their subcomponents serve to identify behaviors indicative of enhanced teaching effectiveness when these educational concepts are understood and practiced.\(^10,11\)

Hesketh and colleagues\(^17\) offered another very detailed framework for the development of clinical educators. Their framework includes (1) the tasks the doctor as teacher is able to do—teach in large and small groups, teach in a clinical setting, plan curricula, develop and work with learning resources, facilitate and manage learning, assess trainees, evaluate courses, and undertake research in education, (2) how the doctor approaches his or her teaching—with understanding of principles of education, with appropriate attitudes, ethical understanding and legal awareness, and with appropriate decision-making skills and best evidence-based education practices, and (3) the doctor as a professional teacher—the role of teacher or trainer, developing within the university and personally with regard to teaching.

The power of these frameworks and other studies outlining teacher competencies helps physician–educators more easily recognize their educational responsibilities and the other personal and professional attributes which contribute to being effective medical educators.\(^12–17\)

### Attitudes and Attributes

Our examination of the literature helped us outline the AKS that ought to be present in the educational repertoire of teachers at all levels. We begin with the identification of attributes as well as attitudinal objectives of this “universal” teaching skill set. For all teachers, effective teaching is defined not by technique but by whether learning and understanding have been achieved. The bedrock of our desired skill set therefore is indeed a matter of attitude.

All recommended AKS can be found in List 1. Below, we define and discuss important or necessary AKS for those who teach across the medical education continuum.

### Acknowledges that the goal of effective teaching is effective learning and understanding.

Teaching is more than technique, despite the teacher’s need for effective educational strategies. The challenge for the teacher is not to be the dispenser of facts but to be the organizer of material for understanding and retention such that it can be recalled for future use. Norman’s\(^18\) work is a cogent reminder of this need to enhance

### Advocates for education.

A role that medical educators must assume in addition to their teaching commitments is that of effective advocate for the educational mission of the organization, particularly in an era of shrinking resources. Without advocacy and representation for this part of the mission in resource allocation decisions, the quality of education stands to suffer. Support must be provided for both faculty development and the infrastructure necessary to support the educational mission of schools. However, these concepts can easily be lost when clinical and research support represent the greatest proportion of most institutional budgets. Therefore, teachers must not shy away from reminding their colleagues about the mission of education.\(^1\)

### Believes in a teacher’s code of ethics for teaching medicine.

Reiser\(^19\) wrote a code of ethics for teachers aimed at medical educators, and it is a powerful directive throughout the continuum of medical education. In part, this code states that teachers’ duties to students should revolve around the attributes of candor, trust, and respect. Similarly, students’ duties to teachers are those of reciprocity, honesty, and openness. Moreover, this code of ethics strongly argues that teaching should be valued by the faculty and the institution.

### Demonstrates passion as a teacher.

From educational passion comes the sustained enthusiasm that is characteristic of effective and memorable teaching. Wassermann\(^20\) reminds us of the need to distinguish in our teaching the difference between \(T\) and \(T\)—between technique (\(t\)) and passion for teaching (\(T\)), including stimulation of curiosity along with fostering self-directed learning in the learners. Passionate teachers set high standards for themselves and for their students and match these high expectations with high degrees of support to reach those goals. The power of being a role model worthy of emulation comes from this commitment to teaching, to scholarship, and, most of all, to the learner.

### Demonstrates kindness in all interactions.

A contemporary of Osler’s said that Osler’s unspoken motto seemed...
The Attitudes and Attributes, Knowledge, and Skills of Competent Teachers

List 1

Attitudes and Attributes
- Acknowledges that the goal of effective teaching is directed at effective learning and understanding.
- Advocates for education.
- Believes in a teacher's code of ethics for teaching medicine.
- Demonstrates passion as a teacher.
- Demonstrates kindness in all interactions.
- Demonstrates awareness of own limitations and is not afraid to say, “I don’t know.”
- Is accessible to learners.
- Manifests and stimulates curiosity.
- Seeks and obtains knowledge of learners.
- Values and establishes a safe learning environment.
- Values and functions as an effective role model.

Knowledge
- Demonstrates an awareness of and tacitly or explicitly employs basic pedagogic principles.
- Displays awareness of and uses teaching techniques in line with current neuroscience and cognitive psychological findings.
- Is knowledgeable and up-to-date in one's discipline.
- Promotes scholarship.

Skills
- Communicates knowledge effectively and makes it relevant to the learner.
- Demonstrates leadership in educational settings.
- Demonstrates the basic skills for effective lecturing and facilitating small- and large-group discussion.
- Questions, listens, and responds effectively.
- Establishes a learning community that values education and the process of continual learning.
- Establishes an educational contract with learners, identifying learners’ needs and clarifying the teacher’s expectations.
- Gives praise as well as critical feedback in a manner acceptable to the learner.
- Is a reflective, mindful teacher.
- Is able to capture and maintain attention.
- Is adaptable and flexible.
- Promotes critical thinking.
- Promotes self-directed learning.
- Provides timely summative evaluations.
- Uses information technology effectively.

Is accessible to learners. Unlike some forms of teaching that occur only in a classroom, medical education occurs in many places and does not stop when the teacher leaves a specific area. Teachers must be available to their learners to provide feedback, evaluation, or simple advice beyond the time set aside specifically for teaching. Learners should feel comfortable contacting teachers at any time if difficult questions or situations arise. This is a particularly valuable lesson in residency training, when many trainees learn to consider asking for help a sign of weakness, even when optimal patient care may be at stake.

Manifests and stimulates curiosity. Curiosity, on constant display by the teacher, is a prime catalyst for effective teaching and learning. As Fitzgerald notes,

> I believe it is our duty, as those who now teach young physicians, to identify medical students with a gift for curiosity and take infinite pains not to suppress but to encourage that gift.

Cultivating an image of omniscience is less appropriate than sincerely and actively seeking out knowledge at every opportunity.

Seeks and obtains knowledge of learners. One of the fundamentally validating human exchanges is to know—and use—another's name, a particularly important precept in the educational arena. Ferguson, a well-known professor of literature and law, makes the point eloquently:

> You cannot hope for a substantive exchange with your students if you do not know their names. This amounts to a near law of human nature: your knowledge of the name is a primal signification of your interest....

Additionally, committed teachers seek a broader understanding of their students and strive to know them in personal contexts. Without an understanding of students as persons, the teacher’s ability to succeed as an educational guide is compromised.

Values and establishes a safe learning environment. The skilled teacher appreciates the need for an educational environment where mutual respect and civility govern every interaction. The fear of being ridiculed should not have a place...
in the safe educational environment. From the feeling of safety comes a receptivity for knowledge and a willingness to explore one’s own ignorance. Of all the strategies for the creation of a safe environment, the teacher’s willingness to admit ignorance is crucial. As already noted, the willingness to say “I don’t know” may be the effective teacher’s most powerful tool.

Values and functions as an effective role model. Albert Schweitzer’s oft-quoted remark—“Example is not the main thing in influencing others. It is the only thing”—is a testament to the power of what we do versus what we say. Cruess et al remind us what is required to effectively use that power:

The conscious recognition of the importance of role modeling as a teaching and learning strategy, and the positive or negative impact of what we are modeling, is fundamental to improving performance.

Knowledge
The attributes just presented are essential to the truly effective teacher. But they are not enough. Appropriately, effective teaching also requires expertise in one’s discipline and an understanding of the fundamental principles of teaching. The following recommendations describe the knowledge-related characteristics necessary for effective teaching.

Demonstrates an awareness of and tacitly or explicitly employs basic pedagogic principles. Many teachers become highly skilled as educators from experience, reflection, imitation, and study. The teacher’s tacit and explicit knowledge informs the teaching process, and a study of cognitive science’s contribution to educational design noted that there is reason to believe that good knowledge and understanding of the basics of pedagogy can sensitize teachers to the process of learning, provide logic for understanding repeated successes and failures, and serve a critical function in informing teaching practice.

Displays awareness of and uses teaching techniques in line with current neuroscience and cognitive psychological findings. Experienced teachers often possess tacit understanding of well-founded basic educational principles, and a growing body of literature links cognitive neuroscience findings with educational practice. These findings ought to be included in faculty development programs to promote understanding and refine the effectiveness of teaching practices.

Is knowledgeable and up-to-date in one’s discipline. Learners want their teachers to “know their stuff.” Irby in studying what clinical teachers need to know, notes:

Educational researchers assert that knowledge for teaching requires an in-depth and flexible understanding of subject matter. Teachers need to know their subject well enough to make connections within the subject, across disciplines, and with their learners. Alternative conceptions of content help teachers switch back and forth between the student’s, the discipline’s, the textbook’s, and their own conceptions. Clearly, the goal of enhanced understanding rests significantly on the teacher’s mastery of his or her discipline.

Promotes scholarship. Teachers should take a scholarly approach to teaching. Teaching is a profession, and the knowledge base of teaching and learning should be a second discipline in which teachers develop expertise. Scholarly teachers reflect on their teaching, use classroom assessment techniques, discuss teaching issues with colleagues, try new things, and read and apply the literature on teaching and learning in their discipline.

Skills
Having identified the essential role of “knowing” for the educator, it is equally vital to identify the “knowing how” in the teacher’s repertoire. Each of the AKS components is an indispensable element in the development of the effective teacher. In this section, we define the skills required for effective teaching.

Communicates knowledge effectively and makes it relevant to the learner. Relevance of material relates to its utility in understanding the concept at hand or in solving a problem now or in the future. This is a challenge throughout medical education and represents a particularly notable challenge for basic scientists in facilitating learning. Indeed, “instruction that divorces mechanisms from clinical correlates will likely be of little value.”

Demonstrates leadership in educational settings. A competent teacher should lead by example because, as mentioned above, what is often emulated by learners may not be what was taught in the curriculum. To demonstrate such leadership, great teachers should stand out to students and peers alike. They should not only be confident and competent in their own skills but should also be able to grow and develop new leadership skills and willingly take leadership positions that may be required for the overall good of the institution.

Demonstrates the basic skills for effective lecturing and facilitating small- and large-group discussion. Effective lecturing as well as facilitating small-group discussion calls on the whole spectrum of a teacher’s educational repertoire. Given the widespread use of lectures and small-group teaching, it is fortunate that excellent reviews of the core elements of these modes of teaching exist.

Questions, listens, and responds effectively. Questioning, listening, and responding are core skills of the effective teacher. Educators must practice these essential skills to refine them and be able to use them effectively. Self-reflection, peer review, learner input, and a well-organized framework for questioning, listening, and responding are vital for the professional growth of the teacher and ought to be a regular part of educational practice.

Establishes a learning community “that values education and the process of continual learning.” Osler’s referring to his learners as “fellow students” wonderfully captures the spirit of the bidirectional intellectual exchange found in teaching and learning. This mindset of lifelong commitment to learning characterizes the medical education enterprise and implies a communal responsibility for education shared among its members.

Establishes an educational contract with learners, identifying learners’ needs and clarifying the teacher’s expectations. Pratt and Magill introduced the concept of educational contracts nearly
three decades ago. This concept of identifying four key elements in the teaching encounter—needs of learner, expectations of teacher, discussion of roles, and discussion of course content—is one of the most powerful in teaching. It is, at the very beginning of the educational encounter, a tangible expression by the teacher of inviting the learner to be a partner in the process. The contract expresses the teacher’s high expectations and support of the learner to meet those expectations. A fifth crucial element—arranging for mutual feedback during the learning period—must also be added to the educational contract. Educational contracts are not static devices; they ought to be viewed and used organically as needs or expectations change over time.

**Gives praise as well as critical feedback in a manner acceptable to the learner.** At all levels of teaching, teachers must provide meaningful and timely feedback to learners. The legitimacy of that feedback rests on the clarity of the original educational contact and its subsequent evolution. Teachers must deliver both positive and critical feedback in a timely, sensitive, caring manner acceptable to learners. Committed teachers make themselves readily available to provide this feedback.

**Is a reflective, mindful teacher.** Reflection and mindfulness require a safe learning environment, as we’ve noted. The benefits are significant, as Jason, an early pioneer in medical education, points out:

> The process of encouraging reflection and inviting questions, in an environment that is supportive and free of hurtful judgments, provides the foundation for helping learners become committed to and effective at being continuously self-assessing during and after whatever they do. Accurate, continuous self-assessment is a hallmark of mature professionals and is the basis of both safe performance and future learning.

The active practice of reflection is undeniably a core skill in excellent teachers.

**Is able to capture and maintain attention.** In many ways, teaching is a performing art. In writing of the parallel between teaching and acting, Timpson performing art. In writing of the parallel between teaching and acting, Timpson

> ...better preparation for teaching than

performs because the challenges are the same—getting people’s attention and holding it.” Effective teachers employ a variety of strategies to capture and maintain the interest of the learner. They are not afraid to take educational risks, nor are they reluctant to demonstrate the joy of engaged teaching. Teachers are good storytellers. They come prepared.

**Is adaptable and flexible.** Today’s teachers must be able to adapt and be flexible in their approach to the learner. Teachers can control which material they decide to teach, but components of the educational encounter, such as the venue or the level of knowledge of the learner, can suddenly change the method that should be used and the information that should be transferred. Teachers must be flexible enough to adapt to unforeseen situations without becoming overwhelmed to the point of sacrificing the students’ education.

**Promotes critical thinking.** The literature about the cultivation of critical thinking is increasing, and it has been suggested that ”...critical thinking is a cognitive skill that can be taught and learned,” though not without its own challenges. "Success in developing critical thinking is tied to successful learning ... and requires providing the learner with significant experiences that are reflected on by the learner/teacher. As Harasym and colleagues, note,

> There are multiple educational strategies that teachers can use … student-focused, active learning, type of assessment methods, early patient exposure, integration of basic and clinical sciences, learning objectives … multiple learning methods, and … broad picture first followed by details, or details presented first to create the broad picture.

**Promotes self-directed learning.** Self-directed learning has been characterized as a process in which individuals take the initiative, with or without the help of others, to diagnose their own learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes.

This orientation is particularly important in medical education where learning is essential throughout one’s career. Learner curiosity lies at the heart of self-directed learning and, as noted, is fueled by the curiosity of the teacher.

**Provides timely summative evaluation.** Learners deserve prompt summative evaluations based on all relevant information. Despite multiple time demands, teachers are responsible for doing this efficiently, honestly, and with the least amount of time between the end of the educational experience and the submission of a summative statement.

**Uses information technology effectively.** Faculty members should be content experts and not necessarily technology experts, but institutions should allocate resources to support appropriate use of information technologies in teaching. Information technology has created new teaching and learning opportunities that faculty members can embrace to more effectively meet educational objectives. Because these technologies evolve rapidly, faculty members need to focus on fundamental principles of teaching and learning rather than specific technologies.

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**Faculty Development to Promote Educational AKS**

Given the rationale for effective teaching and desired impact on learning, the challenge before us is clear: How do we implement what is already known about effective teacher training across the medical education continuum? Who will insist that the AKS be in place for the medical education faculty? How will faculty development initiatives support the development of these AKS? How will faculty who acquire or demonstrate the AKS be recognized and academically advanced? What resources are needed to answer these challenges? Speaking to these challenges, the following recommendations concerning teacher competencies emerged from the 2020 Vision of Faculty Development Across the Medical Education Continuum conference:

1. Institutions must fund and value a cadre of faculty whose central responsibility is to teach in the same way they value faculty with the responsibility of clinical care and research.
2. Institutions must provide evidence that they have addressed both individual and organizational needs...
by employing a variety of faculty development programs.

3. External funding must be available for centers of excellence in faculty development.

4. A nationally derived, evidence-based set of competencies for teaching across the medical education continuum must be established and promulgated. (Our list of AKS could serve as a starting point.)

5. Accrediting bodies must require institutions to ensure that teachers develop and demonstrate the achievement of evidence-based teaching competencies.

In meeting these challenges we must strive to illuminate teaching as a viable and desirable career path, and such commitment needs to be reflected in recruitment, retention, faculty development, and promotion and tenure policies. The literature underscores that comprehensive faculty development programs cannot focus solely on individual improvement; they must also address the increasingly complex institutions in which teaching and learning occur. Teachers need to be appropriately recognized and rewarded for the magnitude of their contributions and the level of excellence they embody. And, vitally, all teachers need to bear in mind their important responsibilities to ensure that academic health centers remain true to medical education as one of their core missions. It is ironic that in an academic environment one must make the argument for demonstrated teaching abilities as a necessary prerequisite to their exercise. But the time for that argument is now, and we must face the challenges of skill definition, program development, funding, and ongoing evaluation. Our faculty members, our fellow learners, and the patients they serve deserve no less.

**References**

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