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 ARTICLE TITLE: Using observations of clinicians' teaching practices to build a model of clinical instruction  
 ARTICLE AUTHOR: Graffam B  
 VOLUME: 83  
 ISSUE: 8  
 MONTH:  
 YEAR: 2008  
 PAGES: 768-774  
 ISSN: 1040-2446  
 OCLC #:  
 CROSS REFERENCE ID: 208758  
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# Using Observations of Clinicians' Teaching Practices to Build a Model of Clinical Instruction

Ben Graffam, PhD, Lori Bowers, MD, and Karen N. Keene, MA

## Abstract

### Purpose

To discover, define, and describe the teaching behaviors of a set of clinical instructors and then, on the basis of those findings, to build a model of clinical instruction so that clinical faculty could find support through self-reflection.

### Method

More than 100 hours of direct observation of 16 clinical instructors were conducted at a state university physicians' clinic and a teaching hospital. Medical students, residents, and clinical faculty were interviewed. Clinical teaching practices were

observed, identified, and juxtaposed with education research and theory.

### Results

The observed clinicians' teaching practices were made up of seven interrelated behaviors, labeled as *engage, model, converse, measure, structure, conceptualize, and empower*. Some physicians exhibited developed use of these behaviors, whereas others struggled to assimilate them into their teaching. The degree to which clinicians talk about teaching philosophy generally correlates with the quality of their teaching. The authors then created a

model of clinical instruction positing five core and two ancillary behaviors.

### Conclusions

The model provides guidelines for professional and critical reflection on the teaching practices of clinicians. The model offers a framework from which clinical faculty can regard their own teaching practices. Within this self-reflective process, clinicians can find ways to guide their own professional development.

Acad Med. 2008; 83:768-774.

There are continual calls for more effective teaching in medical education.<sup>1-5</sup> Evidence shows medical schools generally teach clinical skills inadequately.<sup>6-11</sup> Bedside teaching is in decline,<sup>11</sup> and personalized instruction has been nearly dismissed in the age of electronic teaching.<sup>6</sup>

Although medical educators often perceive teaching as simply transferring knowledge between minds,<sup>1-5</sup> researchers in cognitive science and education have contradicted this view<sup>12-16</sup> and have produced models of effective instruction. Such instructional models help instructors

- identify purpose or area of concentration,<sup>17,18</sup>

- clarify assumptions about the teaching/learning process,<sup>17,19</sup> and
- guide and define patterns for learning experiences.<sup>17,20-22</sup>

These models embody theories about the nature and needs of learners and the effectiveness of teaching/learning methods.<sup>20,22-24</sup> For example, Gagne's<sup>25</sup> model for transforming gifts into talents informs teachers who work with gifted learners not only about how to conceptualize giftedness, but also about how to design learning experiences that draw out those gifts. By framing developmental processes that connect natural learning abilities (i.e., intellectual, creative, and others) to systematically developed outcomes (i.e., academic, arts, technology, and others), Gagne shows how a learner's interpersonal skills connect with environmental characteristics and create both positive and negative learning impacts. Then Gagne models a dynamic process for working with gifted learners by outlining how teachers use conscious intention to attain specific learning goals.

Such models are common in education, and educators call on them when teaching challenges shift and their

teaching skills prove to be less effective with new learning groups.

In preparation for the study described below, we sought to discover the availability of instructional models for clinical educators. We searched PubMed, Web of Science, and ERIC using the following terms and variations: *medical education, medical school, faculty, teaching, pedagogy, instruction, model, framework, and matrix*. Although some models appeared,<sup>26-35</sup> none spoke directly to teaching behaviors during clinical instruction. Expanding our search, we explored conference papers, dissertations, grant reports, government and technical reports, and similar sources, including the National Library of Medicine's Gateway, ProQuest Dissertations and Theses, CRISP, Lexis-Nexis, NTIS, GrayLit Network, USA Search, PapersFirst, ProceedingsFirst, Google, and Google Scholar. Again, we found no models addressing behaviors of teaching practice in clinical education.

One model that our search uncovered addresses relevant knowledge needed by medical instructors.<sup>29</sup> Using interview and observation of six distinguished clinicians, this model indicates that clinical educators need broad knowledge of patients, medicine, learners, case-based teaching, and "general principles of

**Dr. Graffam** is an education specialist, The University of South Florida College of Medicine, Tampa, Florida.

**Dr. Bowers** is assistant professor of pediatrics, The University of South Florida College of Medicine, Tampa, Florida.

**Ms. Keene** is an instructional librarian, Shirnberg Health Sciences Library, The University of South Florida College of Medicine, Tampa, Florida.

Correspondence should be addressed to Dr. Bowers, The University of South Florida College of Medicine, 12901 Bruce B. Downs Blvd, MDC 33, Tampa, FL 33612; telephone: (813) 396-9439; e-mail: (lbowers@health.usf.edu).

teaching.<sup>27</sup> It makes a strong argument for what instructors must know, but it doesn't describe what they must do.

Another model depicts curricular revisions allowing students to receive yearlong mentoring while following patients through health care interventions.<sup>27</sup> Like the previous model, this one describes what a curriculum must provide, not the instructional skills that enhance those opportunities.

A third explores how to uncover good clinical teaching.<sup>33</sup> Yet, this model addresses the development of competent observers, not the nature of good teaching. Citing direct observation as the best way to understand clinical teaching, Beckman found that clinicians' diagnostic training overrode their teaching evaluation skills.<sup>33</sup> The author provided training, but clinician-observers found it difficult to assess pedagogy. This makes sense because clinicians are trained to diagnose and treat, not to evaluate teaching. Like the other two models, it doesn't illuminate teaching practice.

A paucity of instructional models means clinical instructors have little guidance to build learning environments needed by medical students. These environments develop through intentional teaching practices of instructors, practices that can be modeled and learned.<sup>36,37</sup>

### Purpose

Our purpose was to discover, define, and describe the teaching behaviors of a set of clinical instructors. Then, once those behaviors were understood, we would build a model of clinical instruction for medical education. This model would introduce a method of guided reflection for clinicians, who, generally lacking pedagogical training, teach as they were taught.<sup>1,32</sup>

Guiding the development of our model were three significant education texts: Palmer's *The Courage to Teach*,<sup>38</sup> Lowman's *Mastering the Techniques of Teaching*,<sup>36</sup> and Gardner's *The Unschooled Mind*.<sup>39</sup> Each describes behaviors of good teaching while simultaneously presenting concepts teachers call on to do good work.

Most clinicians want to be good teachers. Our sense is that many would benefit from clearer understandings of positive

teaching behaviors so that they would be better able to reflect on and guide the growth of their teaching skills.

### Method

Seeking first to discover and define what clinicians do while teaching, the primary observer (B.G.) spent more than 100 hours of direct participant observation of clinical teaching during the months of January, February, June, and July of 2007 at the University of South Florida College of Medicine's (USFCOM) medical clinic (January and February) and at Tampa General Hospital (TGH) during morning rounds (June and July). Both sites are training centers for USFCOM students.

Participant observation explores the lived experience of people in particular tasks and has a highly regarded record in anthropological research.<sup>40</sup> It is an essential method for researchers hoping to build relationships with those being studied and not merely gather data from them.<sup>41</sup> A participant observer does not just observe but also interacts with those from whom the data are gathered.<sup>42</sup> Often, partnerships are formed. For this reason, it was the right vehicle for our research because we hoped to uncover a system and then find ways to influence that system.

In our study, the primary observer had already built relationships with 11 of the clinicians, and this helped in the data-gathering process. In participant observation, it is important that the observers and participants have a positive working relationship, so that as data are interpreted, insights can be shared.<sup>40,41</sup>

We chose January and February because they allowed access to clinicians working with students who had already participated in several rotations. Some teaching behaviors (e.g., how well an instructor has incorporated various strategies by the middle of the academic year) might be easier to spot in those months. June and July were selected because they are the first two months of rotations, and we could explore what we gleaned in January and February as we made our observations in those months.

### Participants

Sixteen clinicians (eight at both sites) were observed individually on two

separate occasions. Sessions lasted three to four hours.

We recruited clinicians in two ways. Those at TGH were assigned by their internal medicine and pediatrics clerkship directors. Six were internists, and two were pediatricians. Clinicians at USFCOM volunteered to be observed through a joint recommendation from the directors of family medicine and from the primary care and special populations clerkship. Five were family physicians, and three were pediatricians. The clinicians had a range of teaching experience, with three in their first year of teaching and four having more than 15 years of teaching experience.

### Observations

The primary observer for this study is an educator, with degrees in secondary (BS), gifted (MA), and special (PhD) education, as well as more than 20 years of classroom teaching, both in public schools and university settings. As the education specialist at USFCOM, he observes through a lens that sits outside the physician's paradigm, unencumbered by thoughts of diagnosis and/or treatment plan, thereby addressing the concern raised by Beckman<sup>33</sup> (i.e., that clinicians' diagnostic training overrode their teaching evaluation skills). He completed full Health Insurance Portability and Accountability Act training for this project. Considering the no-risk nature of the research, the IRB process was waived.

B.G. observed all clinicians' interactions during the sessions, including time with students, time with colleagues, and time with patients. Observations occurred during morning rounds at TGH and in both morning and afternoon sessions at USFCOM. During observations, B.G. wrote notes on behaviors, attitudes, strategies, conversations, and other details in the learning environment. He also conducted interviews with physicians and students during and after sessions. These interviews were unscripted, probing the intent and attitudes about experiences in the learning environment.

B.G. transcribed the observational data into brief narratives. When two sessions for any one clinician were completed, these narratives were sent to that clinician, as a type of member checking.<sup>43</sup>

*Member checking* is a process where researchers and participants share insights on the observations and interpretations. When the process is seen in similar terms and outcomes, data are strengthened.

Consider, for example, the statement, "Upon entering the exam room, the clinician dominated the encounter and did not let the student address the concerns raised about the patient in the conference room." Through member checks, the clinician might inform observers that "in a very similar case yesterday, the student addressed a patient, but today, in order to expedite the patient encounter, that opportunity was omitted." This can make observers aware of teaching practices that were not observed.

As the discovery and definition processes evolved, a concurrent process of developing a model emerged. To enhance this development, a coding process<sup>43,44</sup> was applied to the narratives to illuminate attitudes, ideas, and teaching practices of these clinicians. Coding organized the interpretation of behaviors, and, with guidance from the education texts, we identified the following seven teaching behaviors that helped us distill the five core behaviors and two ancillary behaviors of our model: *converse*, *model*, *engage*, *empower*, *structure*, *measure*, and *conceptualize*. Although these labels are common educational terms, they emerged clearly during analysis of our data. (These terms are explained in the following section and in List 1).

## Results

Some behaviors were observed in every clinician. All 16 clinicians asked questions and shared reciprocal conversations with students. All modeled many behaviors, though this was generally focused on how to palpate or how to use a certain device, not on how to think about the relationship of symptoms to diagnoses. All assigned academic work to be done away from the clinical setting. These behaviors were labeled, respectively, *converse*, *model*, and *engage*.

Other practices were part of some instructors' tool kits but missing from others. Seven clinicians challenged their students in hypothetical cases while

## List 1

### Explanatory Structure With Guiding Questions to Aid Clinician's Reflection on Teaching<sup>\*</sup>

#### Conceptualize

- The clinician seems to "choreograph" the learning engagement, demonstrating that specific elements of the learning must come in proper order
- The clinician works differently with each student, manifesting that differentiated work through all of the other categories
- The clinician can talk with clarity and purpose about why specific learning engagements were used

#### Converse

- The clinician asks intentional questions and pertinent follow-ups to specific students
- The clinician demonstrates a knowledge of the student by engaging in conversations that are not only focused on the patient or health care but also on the student's life
- The clinician engages the patient in high-quality conversations that uncover a history and present conditions for the case (this is also modeling)

#### Model

- The clinician regular "thinks aloud" the cognitive processes used to sort through a problem
- The clinician demonstrates and (occasionally) narrates the physical behaviors used at the bedside or with a patient in the exam room
- The clinician demonstrates the importance of collegial rapport by engaging other physicians, nurses, and staff in discussions about the health care of a particular patient

#### Engage

- The clinician assigns "home work" on key topics aligned with specific patient care
- The clinician asks "what-if" and hypothetical questions about the specific patient case
- The clinician recognizes the learning needs of the student and changes the context of the learning by presenting a different chart or data recording method
- The clinician asks the student to think aloud as a diagnosis is developed
- The clinician encourages the shared cooperative problem solving of the ward team or the paired students at the clinic

#### Measure

- The clinician gives regular and specific feedback to each student on a daily basis
- The clinician makes certain goals explicit to all students and indicates to them when the attainment of these goals will be assessed
- The clinician engages the student to discern how the student would self-assess regarding recent learning
- The clinician solicits the assessment of other students on their peers' behaviors and knowledge

#### Structure

- The clinician makes explicit changes in the expectations of student behavior as the learning moves forward
- The clinician recognizes that students in their third rotation should have different expectations than students in their first or sixth rotation
- The clinician is cognizant of a student's previous experience with patients and cases and explicitly adjusts the learning for that student
- The clinician is aware of students' differentiated learning abilities and adjusts learning accordingly

#### Empower

- The clinician allows the student to engage the patient more than the clinician engages the patient
- The clinician assigns specific tasks for the student to engage with the patient
- The clinician creates opportunities for students to assess each other
- The clinician creates opportunities for students to teach each other, including the modeling of specific behaviors

\* The authors observed these behaviors in their study of 16 clinician teachers, University of South Florida College of Medicine, 2007.

conversing about the patient: "What if this patient were 20 years younger and male? How might that alter your decision?" Sometimes, this occurred in

the patient's presence. Although this might be classified as *converse*, the challenge elevates cognitive interaction, and we labeled it *engage*.

Five clinicians watched their students work with patients in the exam room, and 11 had their students watch as they worked. Whereas the second practice is clearly *model*, we labeled the first *empower* because it gave students opportunities to practice physician skills while under the eye of an expert.

Two clinicians who empowered students did so through specific tasks: "When we get back with Mr. Patel, I want you to take him through the importance of his physical therapy regimen" or "I think you should give Ms. Johnson a full understanding of her labs, so that she gets a better sense of our concern." This allowed opportunities to provide very specific feedback on student performance.

*Empower*, by our definition, occurred only in the clinical setting; no ward instructor empowered a student during bedside teaching at the hospital. All ward instructors modeled physician behaviors at the bedside; none observed their students working with the patient.

Four clinicians gave instructions similar to "This week, I want you to eliminate unnecessary elements of the history when you report to me and just get to the positive pertinent that frame a treatment plan" or "Today, tell me only the top three ideas in your differential. I may ask you to expand, but I want you to think critically before presenting them to me." Five other clinicians sat with their students at the start of each learning situation and shared information about the patients for that day. In these brief sessions, the clinicians gave some specific challenges to each student, thereby framing the learning of that day.

These were labeled *structure* because they demonstrated clinicians' understanding that learning objectives and outcomes change over time. How learners are taught in week one of rotation one should be different from how they are taught in week one of rotation three. In other words, structuring recognizes individual student needs within the context of the particular teaching environment so that students receive instruction based on those needs.

Six clinicians provided feedback to their students. We have mentioned two clinicians who empowered students with specific tasks and then gave specific

feedback. More often, feedback occurred in general statements like "Nice job" or "You've got a good mind for diagnosing." This element was labeled *measure*.

Eight clinicians spoke extensively with B.G. about their teaching repertoire. Five of these described, unprompted, what a patient/student encounter should be. Three mentioned intentional teaching interactions and the relationships that are built through teaching. The other eight shared no specific or general information about teaching.

These conversations were labeled *conceptualize*. Working from a cognitive frame of teaching methods is central to developing good teaching skills. Different from *structure*, which focuses on the immediate learning environment, this behavior builds from a deeper understanding of the role teachers play in their students' lives. It is as much a sense of identity as it is a practice.<sup>36</sup>

### A Model of Clinical Instruction

During our observations, certain behaviors and conversational topics became key indicators for the five core behaviors (discussed below) of the developing model. The five were chosen because they are observable in the interactions that occur between instructor and student. The other two serve either as a foundation to practice (*conceptualize*) or as a result of practice (*empower*). Because our sessions occurred in two different parts of the year, we used the *behaviors* of the volunteer participants in January and February to build expectations into our observations in June and July.

#### Teaching as practice

Combining observations and interpretations, our model describes the clinician's teaching practice as made up of five core behaviors: *converse*, *engage*, *measure*, *model*, and *structure* (see Figure 1). Clinical teaching skills are manifest in these behaviors. Through quality modeling, in-depth conversations, proper engagement, and authentic measuring, significant learning experiences are created.

The core behaviors interact dynamically: interventions in one area influence interventions in another. When a clinician structures a learning environment, the kind of conversations

and feedback shared with a student will change. Similarly, when a student is empowered, the nature of the learning engagement is altered. Within our model all behaviors are in constant interaction. No one behavior is the specific goal of instruction; rather, clinicians should combine multiple behaviors in their immediate practice.

As with all models, ours works as a guide for reflective and comparative practice.<sup>45-50</sup> Clinicians can juxtapose their teaching practice with the characteristics presented in the model. List 2 provides an explanatory structure and set of guiding questions for the clinician to reflect on teaching. Considering these questions before, during, and after teaching engagements should help a clinician focus on pedagogical practice. It should help engender professional growth and development as a teacher.

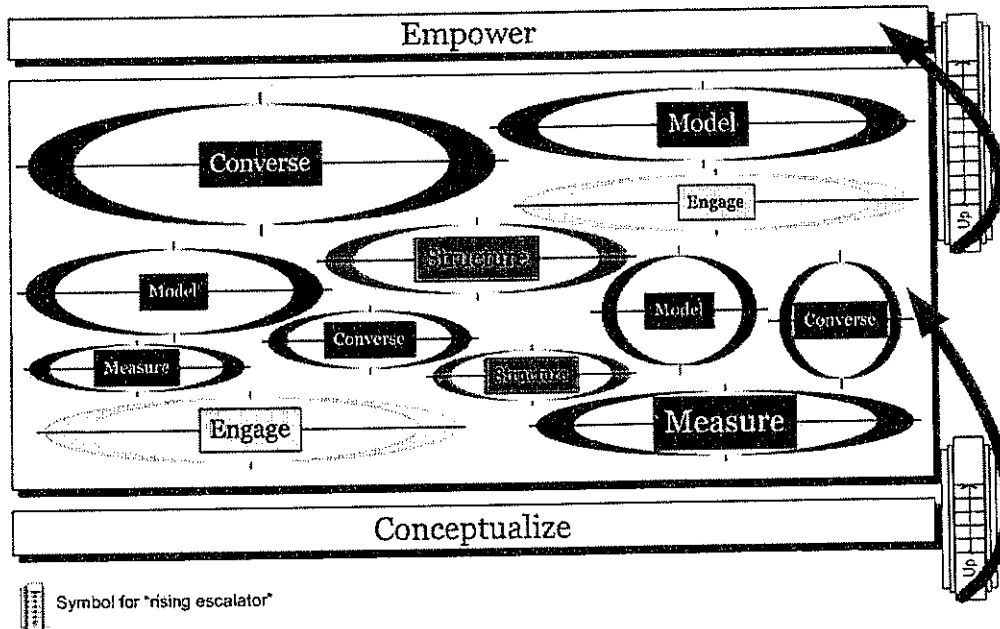
#### Teaching as conceptualizing

As Figure 1 shows, the behaviors of teaching sit atop clinicians' conceptualizations of teaching: how they perceive and define their work drives their practice. Clinicians who used teaching methods intentionally generally created better learning environments. Some clinicians in our study spoke of their love for teaching. Others described why they engaged students as they did.

Considering the background of clinician educators, clinicians can probably give detailed descriptions of their philosophy of patient care but not of their philosophy of teaching. For example, many clinicians pointed out their belief in relationship-centered care. Many shared stories where this philosophy availed them to details and information making the diagnostic process more effective.

However, those same clinicians may not be as comfortable centering their teaching through similar relationships. They don't see that good teaching places the student at the center of learning. In our view, a relationship-centered philosophy allowed good clinicians to glean significant information that helped them instruct their students more effectively.

For intentional teaching to become paramount in teaching practice, and for the five core behaviors to become more understood, it is important for clinicians to make their pedagogy explicit. We



**Figure 1** The authors' model of clinicians' teaching practice, showing the interrelationship between the teaching behaviors used by clinicians. The three-tiered diagram (the bottom tier is labeled *conceptualize*) depicts how the behaviors begin in the clinician's conceptualization of teaching, then move up the escalator to the five core behaviors (*converse*, *engage*, *measure*, *model*, and *structure*), and then, if the core behaviors are well understood and practiced, move up again to the behavior of empowering. In the center tier, the core behaviors are like fluid, variable objects in a fixed space. As one instance of a behavior expands, it affects those surrounding it, which naturally contract and morph to accommodate, and as one contracts, nearby methods naturally expand. The three-tiered structure, linked by rising escalators, shows how a clinician's conceptualization of teaching drives the use of the five core behaviors that, in turn, connect to the clinician's ability to empower learners.

found that instructors who spoke about their teaching philosophy were more effective as instructors.

#### Teaching as empowerment

The core behavior of *empower* sits atop teaching practice (see Figure 1). When clinicians perform the core behaviors with a high degree of purpose, empowerment occurs. For example, clinicians who structured their learning though intentional engagement and who gave regular and specific feedback found it valuable to let their students engage the patient in their presence. It was a better way to observe how well the student was doing. The act of empowering comes from the collective quality of the teaching practices at the core of our model.

Better clinical teaching empowers students to be decision makers, to build relationships with patients, and to think with autonomy in the exam room. Such empowerment is born of the clinicians' philosophies and practices.

#### Discussion and Conclusions

Basing our model on the teaching practices we observed creates a starting place for building a better clinical teacher.

Juxtaposing clinicians who do and do not understand the importance of structuring the learning environment, or of engaging the student with hypothetical extensions of the case being discussed, allowed us to see that a model that describes the behaviors of good practice can be of great benefit to the teaching clinician.

It was surprising to observe that clinicians who shared the same conference room and could have shared their teaching practices did not always do so. It was also surprising that clinicians rounding on the same ward had widely diverse styles of interacting with students. Although we are not proposing that teaching practices be standardized, we do feel that the implementation of a model of clinical instruction, along the lines of ours but refined via more research and trial runs, could help clinicians discern the strengths and weaknesses of their own teaching and, thereby, improve clinical teaching overall.

A significant body of work extols the importance of reflection within education, including the training of medical students.<sup>34-39,45-50</sup> Just as physicians must reflect on the way they have diagnosed and treated patients, teachers need to reflect on the ways they

have enriched students' learning experiences.<sup>50</sup> Not to be reflective is a professional shortcoming for both teachers and physicians.

Physicians generally know how to reflect on their medical practice, but they may not have equal insights into their teaching practice. Having a model for guiding professional self-reflection offers great potential for clinical instruction. It places an understandable framework in the hands of instructors who commonly have no pedagogic vocabulary.<sup>1</sup>

Although this model has yet to be applied broadly in medical education, it is now providing guidelines for informal assessment of clinical and ward instruction at USFCOM. As such, it is expanding the conversation and perceptions about clinical teaching. Moreover, it seems to be increasing the opportunities for students working hospital wards to engage more directly with patients while in the presence of their clinician. Three clinicians in the study have commented that they now appoint a student to initiate the patient encounter each time the clinicians enter the exam room. In the shadow of the literature that has been critical of clinical teaching

## List 2

## Explanatory Structure With Guiding Questions to Aid Clinicians' Reflection on Teaching\*

Category	Guiding Questions	Implications	Model	Structure
<ul style="list-style-type: none"> <li>How do I engage the student's mind during the learning?</li> <li>What examples do I bring for juxtaposition to the present case?</li> <li>How well do I know this student in and outside of the clinical setting?</li> <li>How do I expand the present case hypothetically?</li> <li>How do I insert my preference to the student?</li> <li>What does professional talk sound like to the student? To the patient? To my colleagues?</li> </ul>	<ul style="list-style-type: none"> <li>What are the implications of learner differences?</li> <li>How do I promote self-directed learning on the part of students?</li> <li>How am I making the learning relevant for each learner in the learning environment?</li> <li>In what ways am I motivating the learner?</li> <li>How do I develop learning engagements that address knowledge, skill, and dispositions?</li> </ul>	<ul style="list-style-type: none"> <li>How often and how well do I give the student specific, constructive feedback?</li> <li>How do my formal assessments reflect the actual practice of physicians?</li> <li>How am I developing the student's ability to self-assess?</li> <li>How do I engage other students in the assessment and feedback process?</li> <li>When do I make assessments of a student's basic skills and basic knowledge?</li> <li>When do I make assessments of a student's professional practices and behaviors?</li> </ul>	<ul style="list-style-type: none"> <li>How do I demonstrate to my students the thought processes of a clinician?</li> <li>How do I demonstrate the physical practices of the examination?</li> <li>How do I demonstrate the importance of relationship-centered care?</li> <li>How do I demonstrate the details of taking a high-quality history?</li> <li>How do I demonstrate the importance of lifelong learning?</li> <li>How do I demonstrate exemplary professionalism?</li> </ul>	<ul style="list-style-type: none"> <li>How explicitly have I presented the learning goals for the rotation, the day, and the patient?</li> <li>How do these specific goals address the avenues I feel are central to a student's growth: knowledge, behaviors, and dispositions?</li> <li>How do I manage the student's learning curve?</li> <li>How well do I see the differentiated needs of different students?</li> <li>How is my teaching different at different times of the year and rotation?</li> </ul>
<p>Conversing includes the traditional question-and-answer format, the "what ifs," and the hypothetical add-ons to a case. But it also assists in the development of a positive learning relationship, which, once developed, can foster expanded conversations that probe personal bias and practice.</p>	<p>Engaging reveals the high challenge of the conversational approach. It pushes the learner to make critical decisions on the spot or to spend some time looking for a very specific answer to a difficult question. Engaging is a natural link to measuring, as students are seeking specific and measurable challenges.</p>	<p>Measuring is assessment—formative and summative—that accompanies all good teaching. Feedback must be a part of all clinical instruction, given on the basis of contingent observations and on assigned tasks.</p>	<p>Modeling can be as basic as demonstrating a compassionate bedside manner or as complex as thinking aloud the critical decision-making process that accompanies a difficult diagnosis. Clinicians model the way they use search tools to differentiate a drug choice and the way they engage a colleague about a facet of the diagnosis.</p>	<p>Structuring asks clinicians to see the learning curve for each student. This curve is highly individualized, based not just on the student, but also the rotation (first weeks should be treated differently than fifth weeks) and where the rotation is in the curriculum (first rotations should be treated differently than fifth rotations).</p>

\* This list was derived from the model of clinical instruction created by the authors and described in this report. Based on more than 100 hours of observation of clinical instruction, these questions guide clinicians' reflections on teaching by focusing on specific teaching practices in the model. Remembering that information gleaned under one category will influence both the understanding and practice of another category is an important element in this reflective process. In that regard, there is no starting or stopping point for this process: clinicians may begin their reflective practice in any category.

over the years,<sup>1-11</sup> this is a step in a positive direction.

We hope that others will put the model into practice in their own clinical and ward teaching. Then, as is the case with models, it can be adapted and enhanced so that more instructors are affected by it, and it can be refined and improved to make it even more effective. Models should be living, breathing guides for those who use them. Over time, the conversations and practices the model may engender might just refocus the nature of clinical teaching.

### Acknowledgments

Special thanks to Dr. Maria Cannarozzi, Dr. Kira Zwuygart, and Dr. Jamie Brownlee for allowing observations of their clinical staff. And thanks to Lara Westphal for the visual design of the model.

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