

For the Office-based Teacher of Family Medicine

William Huang, MD
Feature Editor

Editor's Note: In this month's column, Robert Oh, MD, of the Department of Family Medicine at Madigan Army Medical Center in Tacoma, Wash, explains the teaching method used by Socrates and discusses how office-based teachers can use and expand on this method to help learners learn new knowledge. Dr Oh has written an article of similar content that was published in the Spring 2004 edition of *Uniformed Family Physician*, journal of the Uniformed Services Academy of Family Physicians. This month's column is published with the written permission of the Uniformed Services Academy of Family Physicians.

I welcome your comments about this feature, which is also published on the STFM Web site at www.stfm.org. I also encourage all predoctoral directors to make copies of this feature and distribute it to their preceptors (with the appropriate *Family Medicine* citation). Send your submissions to williamh@bcm.tmc.edu. William Huang, MD, Baylor College of Medicine, Department of Family and Community Medicine, 3701 Kirby, Suite 600, Houston, TX 77098-3915. 713-798-6271. Fax: 713-798-7789. Submissions should be no longer than 3–4 double-spaced pages. References can be used but are not required. Count each table or figure as one page of text.

The Socratic Method in Medicine—The Labor of Delivering Medical Truths

Robert C. Oh, MD, MPH

Dr D, a senior resident, infamous for his tough line of questioning, had just finished intensely quizzing another medical student. He then stared at my shiny medical student nametag and asked, "Now, Robert. What can YOU tell me about this patient's chemistry values?"

I started sweating. I looked at the labs carefully. I managed to eke out, "Ummm, his bicarbonate level is high?"

"Are you asking me, or are you telling me?" he replied condescendingly.

"Well, it's high, but I'm not exactly sure what it means."

"Well, what DO you know?"

"I suppose it's high for a reason," I replied.

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"And?" He crossed his arms. It looked like he was going for my jugular for the final kill. I panicked. I blurted out the three words that he reminded us never to say: "I don't know."

The next few minutes were a blur. He seemed to revel in getting me to say, "I don't know." He went on to describe acid-base disorders in detail. Perhaps he even told me the significance of the high bicarbonate level. I don't remember. All I kept thinking to myself was, "What an idiot I must be!"

After suffering through the above and other similar experiences, I began to ponder about using questions to teach, a hallmark of so-called Socratic teaching. But, is fear or humiliation a necessary component for successful Socratic teaching? What is the Socratic method really about? Is there a defined Socratic method in medicine?

What Is the Socratic Method?

After spending much time investigating the use of the "Socratic method" in medicine, I have reached the following conclusion: The Socratic Method is not clearly defined as a tool for clinical teaching. Although many physicians claim to teach using Socratic methodology, I see many variations of this technique—ranging anywhere from a game of "Guess what I'm thinking" to the masterful use of questions that leads a learner to a delivery of cognitive enlightenments. Perhaps we can look on the teachings of Socrates to understand true Socratic teaching methods and then apply those methods to formulate questions that enhance learning in the clinical setting.

Unfortunately, Socrates never wrote a single word and much of what we know about his teachings is through the writings of his protégé-

g , Plato. From looking at the spirited discussions between Socrates and his students, we can discern the heart of his teaching methods. First, Socrates stirred the minds of young Athenians by teaching them to think in-depth about important issues that affected them. Philosophical discussions and spirited dialogue revolved around the meaning of concepts such as truth, justice, and virtue. Second, although Socrates led learners down a path in discerning “truth,” his main purpose was not to instruct or to sway Athenians. Instead, his goal was to stimulate critical thinking and expose faulty reasoning through a series of questions and responses. Last, this process only guided learners to new insights into their preconceived notions. Just as an obstetrician, family physician, or midwife attends to a laboring mother during the process of birth, Socrates nurtured his students in a process of discovering truth and giving birth to new realizations on their own. Therefore, true knowledge lies inside a particular learner all along. The teacher merely attends to the thinking process to deliver truths. In fact, Socratic philosophers analogized their teaching method as a type of “intellectual midwifery”—the delivery of truth and knowledge in a learner.¹

Use of the Socratic Method in Medicine

So how should medical educators use the Socratic method? It is presumptuous to think that we graduate from medical school and residency with a static knowledge of medical “truths.” Medicine comes laden with preconceived definitions and textbook presentations of disease. We should not be rigid in our thinking and, instead, allow a healthy respect for questioning the “truths” in medicine. We must be lifelong skeptics to further the science of medicine. By using Socratic discourse with our learners—asking a series of questions in a stepwise and logical

approach—we can break the barriers of textbook presentations and predefined disease entities. Therefore, we can teach learners to think critically and take their baseline knowledge of medicine to interpret a patient’s unique history and examination in the context of the individual person, his/her environment, and his/her social structure.

While important, the true utility of the Socratic method in medicine does not stop solely at teaching critical thinking skills. The process of question and answer between learner and teacher not only reveals crucial thought processes and what the student knows, but more importantly, it exposes faulty reasoning and what the learner does not know. Effective questioning can quickly and accurately identify a learner’s level of understanding and gaps in knowledge.

Using questions to expose his students’ knowledge deficits, Socrates often led his learners to a point of uncertainty and left them there, never answering his own questions. He was more interested in sharpening thought processes rather than imparting knowledge.² In medicine however, I believe this is an opportunity to expand on ancient Socratic methodology. The real fruit of this painful labor of questions and answers is what teachers do with the newly discovered knowledge gaps of their learners. When learners have thought through the issue on their own as far as they are able to and are uncertain of how to proceed, we can then engage them in a discussion of key clinical points and teaching pearls. And, if time permits, we can launch into a spirited session on the pertinent subject, much akin to the animated conversations Socrates had with the youth in Athens. In this way, teachers can specifically address the newly diagnosed learning needs of their students and residents and provide opportunities for immediate answers to pertinent and relevant clinical questions. In fact,

assessing learners’ abilities and fulfilling their immediate learning needs are two critical principles of adult learning.³ We must seize on these teachable moments.

As medical educators, we have a duty and responsibility to our learners and patients to teach and instruct. Through the use of effective questioning, we can engage learners to hone critical thinking skills, diagnose learning needs, and offer immediate and relevant teaching pearls or engage students to actively seek knowledge and be self-directed in their learning.

In summary, the effective use of the Socratic method in medicine will:

- Challenge the learner’s preconceived notions of medicine by asking questions in a logical and stepwise fashion to hone critical thinking skills in the context of the patient.
- Diagnose the learner’s level of understanding to assess his/her learning needs through questioning.
- Engage learners—encourage focused self-directed learning strategies or teach clinical pearls.

Pitfalls of the Socratic Method

The way we implement the Socratic method in medicine, however, makes a difference on how effectively we teach. One pitfall to avoid is using the method to ask questions without purpose. Just asking questions is not in the spirit of Socrates and is often unproductive when asking questions without purpose.⁴ Because of the ambiguity of the method itself, it has potential to be a “Guess what I’m thinking” game that does not impart any significant learning to the student. We can avoid this ambiguous line of questioning by focusing on improving critical thinking skills and providing teaching concepts and not on specific facts or trivial medical knowledge.

The most important pitfall to avoid is using Socratic questioning to evaluate a learner’s performance.

Focusing on a learner's ability to answer your questions and not on the process of learning harms the learner-teacher relationship.⁵ This is especially true if done in a group setting, where one can make the unknown psychologically disturbing and promote fear of the learning process. While fear and avoidance of humiliation are powerful motivators, it goes against principles of adult learning. Experts in adult education acknowledge the importance of a safe learning environment in fostering growth and learning.³ As educators, instead of focusing on how well a learner performs in giving right answers, we must promote a supportive learning environment that enables a learner to grow through improved thought processes and new acquisition of knowledge. Socrates mainly taught one on one, and that remains the most effective and safest environment for the learning needs of the individual.⁶ Group settings can also work, provided a climate of mutual respect and trust is established. Learners must be secure in knowing that a wrong answer will not subject them to humiliation and that it is all right to say, "I don't know."

Conclusions

Although there is no clearly defined Socratic Method in medicine, I have presented a particular method based on Socratic principles that we can effectively use to teach the science and art of medicine. The goal of a Socratic style of teaching, as applied to medicine, should be not only to teach critical thinking skills but also to build and expand on the preexisting knowledge of our learners. It can also be a valuable method in diagnosing your students and assessing their learning needs. Once the learner has progressed in his/her thinking as far as possible,

we can then offer our key teaching points or clinical pearls to further enhance their learning.

However, we should not use this method just to ask questions or to evaluate a learner's performance. We must also be careful not to subject the learner to humiliation or fear of the learning process. That way, we can deliver true understanding—rejoicing with our learners in their acquisition of new skills and knowledge that are born from our teaching methods.

"Now," Dr B asked, "What is labor?"

The entire class became silent. What seemed obvious didn't seem easy to define. He focused on me and asked again. "What is labor?"

I thought about the question and answered, "The act of giving birth?"

Dr B replied, "So, if a woman has a planned cesarean section, did she labor?"

Another student replied, half in jest, "Labor is work!"

Dr B whirled around to the student, and with a gleam in his eye, he exclaimed with enthusiasm, "Yes, labor is work." He paused—a dramatic pause. "Not just work, but hard work!" He writes WORK in huge letters on the chalkboard. "Now. Who's doing the work?"

The class, energized by his enthusiasm, chimed in, "The mother!"

"What else?" he probed.

Another pause. After a few seconds of silence, someone managed to say, "The uterus?"

He honed in again. "Yes. The uterus." He went on to describe the uterus and its complexity. He explained how this tiny 7-cm uterus, throughout the course of 40 weeks, does not reproduce a single myocyte but hypertrophies to the size of a basketball to prepare for birth.

"And what kind of work does this uterus do?"

"It contracts." the class answers.

"And what do contractions do?"

Silence. He waited. Still, no one dared answer.

Finally he asked, "And, what about the cervix?"

After that, several classmates, including me, finally got it: "Labor is the process of uterine contractions that causes cervical change that eventually leads to birth."

The class, now transfixed, over the next hour—learned. We learned about labor, preterm labor, and its pathophysiology. His energy and his passion poured out, making learning infectious. He wanted us to learn, and he absolutely loved what he did—delivering medical truths.

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Correspondence: Address correspondence to Dr Oh, 1944 Pacific Ave. #612, Tacoma, WA 98402. 253-779-0621. Fax: 253-968-2608. robob98@earthlink.net.

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