

PERSPECTIVE



Would Socrates Have Actually Used the “Socratic Method” for Clinical Teaching?

Hugh A. Stoddard, M.Ed., Ph.D.¹ and David V. O’Dell, M.D.²

¹Department of Medicine, Emory University School of Medicine, Atlanta, GA, USA; ²Department of Internal Medicine, University of Nebraska College of Medicine, Omaha, NE, USA.

Medical students and residents are familiar with clinical teaching methods in which a faculty member poses a series of questions to them. This technique is often called the “Socratic method,” but it is frequently perceived by learners as an attempt to demean them, a practice that is colloquially known as “pimping.” The distinction between Socratic teaching and pimping lies in the perception of “psychological safety.” Psychological safety allows learners to answer questions or ask for help without threats to their dignity or worthiness. In a psychologically safe clinical teaching context, learners recognize that questions posed by attending physicians probe their current understanding and guide them to expand their knowledge. In pimping, questions are posed to embarrass the learner and to reinforce the teacher’s position of power over them. Absent a threat of disparagement or condemnation, learners are able to focus on building schema for knowledge, skills, and attitudes, rather than worrying about shielding their self-worth. This article presents the proper Socratic method, as intended by Socrates, and contrasts it with pimping. This perspective defines psychological safety as the pivotal factor distinguishing Socratic teaching from pimping, and establishes the foundation for empirical studies of these common practices in medical education.

KEY WORDS: Socratic method; clinical teaching; psychological safety; faculty development.

J Gen Intern Med 31(9):1092–6

DOI: 10.1007/s11606-016-3722-2

© Society of General Internal Medicine 2016

The practice of posing exceptionally difficult questions to trainees is colloquially known as “pimping,” a tongue-in-cheek term that was first coined in a JAMA article in 1989.¹ A follow-up article on pimping² and a couple of more recent articles^{3,4} have each sustained the discussion about Socratic teaching, a technique which originated with Plato 2.5 millennia ago. Despite the ongoing discussion of pimping in medical education literature, and extensive deliberation about the Socratic method in broader education literature, the

boundaries and intersections between “pimping,” “good clinical teaching,” and the “philosophy of Socrates” remain blurred. Thus, the term “Socratic method” has been so often misapplied that Socrates himself might not recognize the clinical education techniques that often bear his name. This manuscript will characterize the theoretical foundations of the Socratic method in teaching, and will contrast it with pimping by introducing the construct of “psychological safety.” Defining psychological safety as the theoretical basis for distinguishing Socratic teaching from pimping will support the operationalization of these constructs for future empirical studies.

BACKGROUND

Socrates and His Method

Most college graduates recall having learned that Socrates was a Greek philosopher of the fourth century BCE whose reasoning and beliefs were transcribed for posterity by his student Plato. Socrates and Plato proposed that true knowledge was a characteristic of human nature. Although true knowledge was innate, it could be actualized only by rejecting bogus knowledge—which occurred due to sensory perceptions of the material world—and focusing on knowledge of perfection which existed in an ideal world. Thus, to Socrates, the act of teaching did not consist in transmitting information from “teacher” to “student,” but was an exercise in helping students to cease their reliance on perceptual knowledge of the imperfect material world, and stimulating them to introspectively discover true knowledge through logic and reasoning.^{5,6}

For Socrates, a teacher should not deliver information. Instead, teaching consisted in prompting students, through cross-examination, into acknowledging their own fallacies and then asking them provocative questions to steer them towards realizing true knowledge via introspection. Socrates’ own pedagogy eschewed making statements of fact. Instead, he would pose a series of questions that confronted students and challenged them to deduce knowledge on their own. Plato recorded these teaching sessions as dialogues between Socrates and various other Athenians (or perhaps Plato invented composite dialogues that presented what Socrates would have

Received January 8, 2016

Revised April 6, 2016

Accepted April 20, 2016

Published online April 29, 2016

said). Given his philosophical beliefs, Socratic questioning was the only path to knowledge that was harmonious with the nature of knowledge itself.^{5,7,8} In short, the genuine Socratic method means teaching by posing pointed questions, and Socrates' deployment of questions as a pedagogical tool remains relevant to medical educators.

Socratic Teaching in a Contemporary Context

The Socratic style of teaching is one of four general categories of contemporary teaching methods. We will refer to these categories as the "Kingdoms of Teaching."⁹ These four kingdoms are delineated according to the roles played by teachers and students in terms of posing questions and providing answers to those questions. The four kingdoms are: didactic, Socratic, inquiry, and discovery. "Didactic instruction" entails a teacher delivering the desired information to students with a minimum of student participation. In "Socratic instruction," a series of questions is posed by the teacher, and responses to those questions are provided by students.^{10,11} "Inquiry instruction" centers on the students identifying their own knowledge deficit and then asking questions of the teacher for guidance to resolve that deficit. "Just-in-time learning" fits into this kingdom.¹² The "discovery" kingdom extends the inquiry kingdom by emphasizing that students not only identify knowledge deficits and devise their own questions, but that they find the answers independently, such as in problem-based learning.¹³

"Pimping"

Not unlike the kingdom of Socratic instruction, "pimping" uses sequential questioning of learners by teachers.¹ Although his article was written tongue-in-cheek, Brancati¹ describes pimping as politically motivated, because it encourages learners to admire the teacher, while keeping them in their appropriate place in the pecking order. Two decades later, an equally tongue-in-cheek guide was published to provide learners with defensive maneuvers for use when being pimped.² Humorous essays aside, pimping reinforces power differentials and maintains hierarchies without expanding knowledge.¹⁴ Pimping questions are intended to expose ignorance rather than to stimulate new knowledge.

"Pimping" vs. the Socratic Method

The distinction between the genuine Socratic method and pimping, which is occasionally incorrectly identified as Socratic, is not always obvious,¹⁵ since the essential transaction of both is an exchange in which the teacher poses questions to learners. When a question is posed to trainees, how a particular individual reacts to those questions constitutes the departure point between Socratic teaching and pimping.^{16,17}

The differentiation between Socratic teaching and pimping lies in the intent of the questioner. For example, if a teacher's

questions are intended to offer learners an opportunity to express their existing knowledge, which will in turn promote the synthesis of new knowledge, the dialogue represents the Socratic method. On the other hand, the same questions from a teacher whose intent is to belittle the learner without fostering intellectual curiosity would be pimping.

An effective use of Socratic questioning is to ascertain learners' current knowledge¹⁸ and provide a foundation for teaching at a level that they can comprehend.¹⁹ This probing can be done by posing a series of increasingly difficult questions until the teacher finds the limits of the learners' knowledge.^{8,18,20} If not presented properly, however, those questions can easily be perceived by learners as pimping rather than Socratic. If the educational environment is not conducive to learners recognizing Socratic teaching, then even a well-intentioned teacher's Socratic questions may be received as pimping.

We will assume, and hope, that malevolence does not exist amongst medical school faculty and that they always intend for their questions to promote learning, so pimping would only occur unintentionally.

PSYCHOLOGICAL SAFETY IN LEARNING

Impact of Fear on Learning

Learning is founded on building neuronal connections in the brain. In brief, connections are created and activated to associate existing mental concepts with new information that is presented through sensory input or self-generated reflection.^{21,22} A person's emotional state affects the physiological processes of learning.^{23,24} Deeper and more permanent learning happens when all areas of the brain are used, including the emotional center.²² Students are more likely to learn when the positive centers of the brain are activated.²⁴ It is axiomatic that pimping elicits fear amongst learners,^{1,3} and it is accepted that fear impacts learning, but whether its effect is beneficial, detrimental, or conditional on other factors is not completely clear.^{25,26}

Psychological Safety

In her work involving group processes and learning behaviors in the business world, Amy Edmondson discussed psychological safety as the role of emotion in the group learning process.²⁷ She maintained that group members feel psychologically safe if they sense interpersonal trust, enjoy mutual respect, feel valued, and are comfortable being themselves because the threats of humiliation and hostility are minimized.^{27,28} More importantly, psychological safety leads to increased learning, especially in groups with hierarchical membership. For example, Edmondson²⁹ found that implementing challenging new technology in surgery teams was more successful when members felt comfortable speaking

up, regardless of hierarchical differences between team members.

Psychological Safety and Learner Performance

A psychologically safe environment does not mean accepting substandard performance from learners. Accountability is not a tradeoff for psychological safety, and inadequate performance should be denounced in any context, educational or otherwise³⁰. In an environment of psychological safety, the teacher does not overlook or ignore inadequate performance; however, corrections or reprimands are applied in a compassionate manner that clearly identifies the failings without causing humiliation or resentment. Although Edmondson's research has focused on psychological safety in the workplace,²⁷⁻³⁰ one can easily extrapolate her team's conclusion to workplace learning, such as in clinical education.

THE SOCRATIC METHOD APPLIED TO CLINICAL TEACHING

Psychological Safety is the Difference Between Socratic Teaching and Pimping

The previous section underlines the importance of psychological safety in facilitating learning, and it is the psychological safety of the learner which distinguishes Socratic teaching from pimping. The Socratic method as embodied by Socrates himself does not rely on fear or intimidation tactics to accomplish its goals. The use of open-ended, probing questions by teachers in an environment of psychological safety leads learners to identify their own knowledge deficits and motivates them to expand their own knowledge. These are

characteristics of independent learning, which is a keystone of being a professional.

Pimping, whether intentional or not, enforces status differences between learners and teachers which are antithetical to educating professionals to become independent, analytical, self-directed practitioners. In medical education, trainees should be coached to follow a path of inquiry and lifelong learning, because they will soon become professionals themselves. Humiliation of learners through pimping or abuse of the Socratic method will stifle learners' inquisitiveness during training, and thus cannot spawn the necessary professional attributes of lifelong, self-directed learning.

Building Psychological Safety to Enable Socratic Teaching

Teachers should hold learners accountable for achieving the stated learning objectives, but without resorting to humiliation, hostility, or intimidation to compel acquiescence. Socratic teaching constantly challenges learners to advance themselves while still recognizing that, for students, "it's okay to not know yet." Teachers should build an environment of psychological safety through verbal and non-verbal communication in which learners are challenged and supported, without excusing a lack of effort or overlooking errors. Teachers must uncover learners' existing knowledge and skills in order to pose questions or problems to them that are challenging but do not surpass their current developmental stage. Posing questions is the foundation of the Socratic method, but those questions must be asked at an appropriate level for the learners. Table 1 presents practical examples of such questions and their classification for a clinical education setting. The most effective probing questions will occasionally exceed the bounds of learners' knowledge, and may thus be perceived as pimping

Table 1 Examples of Socratic Questions for Clinical Teaching

Question category	Krathwohl's Taxonomy* Level (Bloom's Taxonomy Revised)	Examples
	*Krathwohl DR. A revision of Bloom's taxonomy: An overview. Theory into Practice. 2002 Nov 1;41(4):212-8.	
Questions to clarify concepts	1. Remember 2. Understand	What is the nature of this? What exactly does this mean? Can you give me an example? What do we already know about this? How does this relate to what we have been talking about?
Questions to probe for rationale, reasons, or evidence	3. Apply 4. Analyze	Can you give me an example of that? How do you know this? Why is that happening? What do you think causes that? What evidence is there to support what you are saying? How does _____ affect _____ ? Then what would happen?
Questions to explore implications and consequences	5. Evaluate 6. Create	Why is that important? How does that fit with what we learned before? What are the implications of that? Based on the history and physical, can you put this together for me? What do we need to know to take care of "Mrs. Smith" today?

if psychological safety has not been established. Finding and using these knowledge boundaries forms the “zone of proximal development.”^{19,31,32} Once learners’ existing knowledge has been ascertained, subsequent questions should then inspire them to expand on that knowledge to solve a problem or care for a patient.

Socratic teaching should take place at a designated time and place which fosters psychological safety. Sufficient time is needed to allow for the strategic use of silence or “pregnant pauses” after posing questions, during which learners have the opportunity to consider the question, reflect on their knowledge, or think aloud. This transaction should happen in a location where the teacher controls the environment, to ensure that distractions and outside influences are eliminated and psychological safety is maintained.

CONCLUSIONS

Teaching medical students and residents about complicated clinical problems can be carried out effectively using genuine Socratic questioning to reveal learners’ existing knowledge and to inspire them towards critical analytical thinking. Regrettably, in clinical education, the term “Socratic” is regularly misapplied to teacher–learner transactions that do not fit the model which Socrates himself employed. What gets called the Socratic method in contemporary education bears little resemblance to what Socrates actually did. In order to reap the benefits of this approach, it must be used as Socrates used it, and only within an environment of psychological safety.

When correctly applied, the Socratic method is very engaging and highly rewarding for teachers and learners; however, it is time- and effort-intensive, so its use should be judicious, and it must be executed correctly. Proper execution of Socratic teaching can occur only in an environment of psychological safety.

More importantly, learners may perceive an instructor’s questioning to be “pimping” rather than Socratic if a proper environment of psychological safety has not been established. Faculty members cannot become Socratic teachers by simply asking questions; the environment must be cultivated before their questioning can be defined as consistent with the authentic Socratic method. The climate of psychological safety is what differentiates the beauty of Socratic teaching from the counter-educational practice of pimping, and failure to establish psychological safety makes unskillful teachers into “pimpers,” regardless of any attempts to characterize themselves as Socratic.

Contributors: *The authors are deeply indebted to Carol R. Thrush, Ed.D. (University of Arkansas for Medical Sciences), for her invaluable contributions to the entire effort. The authors also wish to thank William Branch, Jr., M.D. (Department of Medicine, Emory University), for his insightful comments and input.*

Corresponding Author: *Hugh A. Stoddard, M.Ed., Ph.D.; Department of Medicine Emory University School of Medicine, MS-1020-003-1AE 100 Woodruff Circle, P-378, Atlanta, GA 30322, USA (e-mail: hugh.stoddard@emory.edu).*

Compliance with Ethical Standards:

Funders: *None.*

Prior Presentations: *This content was initially presented at The Generalists in Medical Education Meeting, Nov. 3, 2007 (Washington, DC).*

Conflict of Interest: *The authors declare no conflicts of interest.*

REFERENCES

1. **Brancati FL.** The art of pimping. *JAMA.* 1989;262(1):89–90.
2. **Detsky AS.** The art of pimping. *JAMA.* 2009;301(13):1379–81.
3. **Kost A, Chen FM.** Socrates was not a pimp: changing the paradigm of questioning in medical education. *Acad Med.* 2015;90(1):20–4.
4. **McCarthy CP, McEvoy JW.** Pimping in medical education: lacking evidence and under threat. *JAMA.* 2015;314(22):2347–8.
5. **Pekarsky D.** Socratic teaching: a critical assessment. *J Moral Educ.* 1994;23(2):119–34.
6. **Scott D.** *Recollection and experience: Plato’s theory of learning and its successors.* Cambridge, UK: Cambridge University Press; 2007.
7. **Hansen DT.** Was Socrates a “Socratic teacher”? *Educ Theory.* 1988;38(2):213–24.
8. **Rud AG.** The use and abuse of Socrates in present day teaching. *Educ Policy Anal Arch.* 1997;5(5):1068–2341.
9. **Keegan M.** Optimizing the instructional moment: a guide to using Socratic, didactic, inquiry, and discovery methods. *Educ Technol.* 1993;33(4):17–22.
10. **Reich R.** The Socratic method: what it is and how to use it in the classroom. *Speak Teach.* 2003;13(1):1–4.
11. **Tibbles L.** Epistemologies inherent in various clinical teaching styles. *Acad Med.* 1981;56(5):445–7.
12. **Harden RM.** A new vision for distance learning and continuing medical education. *J Contin Educ Health Prof.* 2005;25(1):43–51.
13. **Davis M.** AMEE Medical Education Guide No. 15: Problem-based learning: a practical guide. *Med Teach.* 1999;21(2):130–40.
14. **Wear D, Kokinova M, Keck-McNulty C, Aultman J.** Pimping: perspectives of 4th year medical students. *Teach Learn Med.* 2005;17(2):184–91.
15. **van Schaik KD.** Pimping Socrates. *JAMA.* 2014;311(14):1401–2.
16. **Antonoff MB, D’Cunha J, eds.** Retrieval practice as a means of primary learning: Socrates had the right idea. *Seminars in Thoracic and Cardiovascular Surgery;* Elsevier: 2011.
17. **Gordon LA.** Is the Socratic method illegal? *Am Surg.* 2003;69(2):181–2.
18. **Tofade T, Elsner J, Haines ST.** Best practice strategies for effective use of questions as a teaching tool. *American Journal of Pharmaceutical Education.* 2013;77(7).
19. **Vygotsky LS.** *Zone of proximal development.* Cambridge, MA: Harvard University Press; 1978.
20. **Oh RC.** The Socratic method in medicine—the labor of delivering medical truths. *Fam Med.* 2005;37(8):537–9.
21. **Brunning RH, Schraw GJ, Norby MM, Ronning RR.** *Cognitive psychology and instruction.* 4th ed. Upper Saddle River, NJ: Pearson Education; 2004.
22. **Zull JE.** *The art of changing the brain: Enriching teaching by exploring the biology of learning.* Sterling, VA: Stylus Publishing; 2002.
23. **Kish-Gephart JJ, Detert JR, Treviño LK, Edmondson AC.** Silenced by fear: the nature, sources, and consequences of fear at work. *Res Organ Behav.* 2009;29:163–93.
24. **McConnell MM, Eva KW.** The role of emotion in the learning and transfer of clinical skills and knowledge. *Acad Med.* 2012;87(10):1316–22.
25. **Artino AR Jr.** When I say... emotion in medical education. *Med Educ.* 2013;47(11):1062–3.
26. **Eva KW, Armson H, Holmboe E, Lockyer J, Loney E, Mann K, et al.** Factors influencing responsiveness to feedback: on the interplay between fear, confidence, and reasoning processes. *Adv Health Sci Educ.* 2012;17(1):15–26.
27. **Edmondson A.** Psychological safety and learning behavior in work teams. *Adm Sci Q.* 1999;44(2):350–83.
28. **Nembhard IM, Edmondson AC.** Making it safe: the effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *J Organ Behav.* 2006;27(7):941–66.
29. **Edmondson AC, Bohmer RM, Pisano GP.** Learning new technical and interpersonal routines in operating room teams: the case of minimally invasive cardiac surgery. In: Neale MA, Mannix EA, eds. *Research on Managing Groups and Teams: Volume 3.* Greenwich, CT: JAI Press, Inc; 2000:29–51.

-
30. **Edmondson AC.** Managing the risk of learning: Psychological safety in work teams. In: AWM, Tjosvold D, Smith KG, eds. *International Handbook of Organizational Teamwork and Co-operative Learning*. Chichester, West Sussex, England: John Wiley & Sons; 2003.
 31. **Mann KV.** Theoretical perspectives in medical education: past experience and future possibilities. *Med Educ.* 2011;45(1):60-8.
 32. **Ten Cate O, Durning S.** Dimensions and psychology of peer teaching in medical education. *Med Teach.* 2007;29(6):546-52.