


Things We Do for No Reason™: Toxic quizzing in medical education

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Inspired by the ABIM Foundation's Choosing Wisely® campaign, the "Things We Do for No Reason™" (TWDFNR) series reviews practices that have become common parts of hospital care but may provide little value to our patients. Practices reviewed in the TWDFNR series do not represent clear-cut conclusions or clinical practice standards but are meant as a starting place for research and active discussions among hospitalists and patients. We invite you to be part of that discussion.

CLINICAL SCENARIO

A medical team encounters a patient with abdominal bruising associated with pancreatitis. The attending asks the third-year medical student the eponym for this sign. When the student does not know the answer, the attending appears annoyed and asks about multiple other gastroenterology eponyms, including those for obscure and rare conditions. After the student repeatedly answers incorrectly, the attending remarks that the student should have had these basic medical facts engrained during the first 2 years of medical school. The attending questions each team member, remarking after incorrect answers that "When I was a resident, we wouldn't be allowed to see patients unless we knew this information". The attending believes that teaching effectively requires asking difficult-to-answer and fact-based questions to

create a sense of urgency within learners. The learners feel frustrated and exposed.

BACKGROUND

Despite constant change in medical education, traditional practices such as "pimping" during teaching rounds have persevered and remain in widespread use.¹ While "pimping" has no single, universal definition, it is often described as the practice of asking trainees questions in a manner that establishes and reinforces a dominant intellectual hierarchy and stresses the trainee.²⁻⁴ Pimping aims to induce shame, humiliation, or distress, and often involves asking difficult questions (sometimes in rapid succession) about recall of facts rather than clinical reasoning.^{2,4} As a complex social phenomenon, most studies of pimping are qualitative in nature.

Multiple sources claim that the term "pimping" is derived from the German term "pumpfrage," for "pump questions."^{2,3} However, Chen et al. note that there is no clear evidence for this claim, and that the "pumpfrage" etymological explanation legitimizes use of the term "pimping" in medical education.⁵ Other terms used synonymously in the literature include "teaching by humiliation," "teaching by intimidation," "grilling," or "toxic quizzing."^{1,4} To avoid

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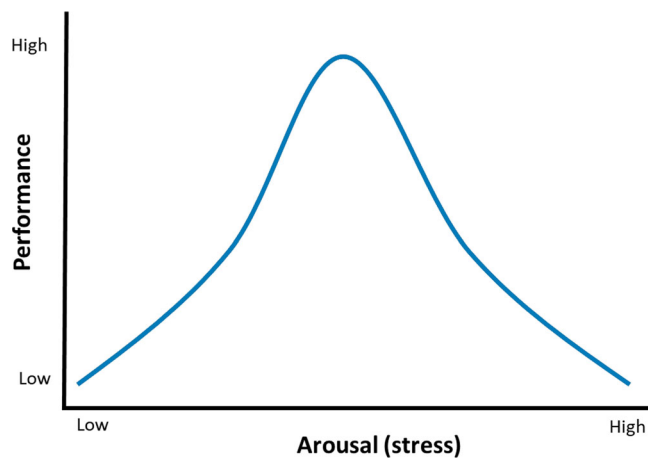


FIGURE 1 The apocryphal Yerkes–Dodson Law posits that task performance increases as stress (arousal) increases until an inflection point is reached when stress becomes overwhelming and performance drops.

perpetuation of this problematic idiom, we will henceforth use “toxic quizzing.”

WHY YOU MIGHT THINK TOXIC QUIZZING IS HELPFUL

There are several reasons why educators continue to quiz trainees in a toxic manner. Some believe that it is an effective pedagogical strategy,^{6,7} reasoning that increasing learner stress augments learning.³ This rationale echoes the oft-cited Yerkes–Dodson law, which asserts that performance increases as arousal (i.e., stress) increases until an apex is reached, after which performance decreases (Figure 1).⁸ Attendings may ascribe efficacy based on toxic quizzing that they received during training, believing: “It worked for me!”³ A 2019 study found that 45% (56/125) of medicine attendings surveyed agreed with the statement that “being pimped by my teachers helped me learn when I was a medical trainee.”⁶ Multiple qualitative studies show that some medical students perceive toxic quizzing as motivating, valuable for learning,^{7,9} or necessary for enculturation into medicine.¹

Educators may also conflate toxic quizzing with the Socratic method.^{2,4} Socrates asked questions to help learners deeply interrogate a thesis or belief to stimulate critical thinking and curiosity.² This approach was a co-operative process that did not always end with a definitive answer. However, in modern medicine, the term “Socratic method” has become conflated with toxic quizzing.² Thus, educators may believe that they are adhering to sound educational practices by using the Socratic method.

Toxic quizzing may be seen as a summative assessment method⁴ used to “clarify whose decisions and opinions are well founded and trustworthy.”³ It may also be seen as a way to test a learner’s mettle under stressful circumstances,^{3,9} preparing them for eventual unsupervised practice.

WHY TOXIC QUIZZING IS HARMFUL

Despite centuries of use, there are no studies reporting meaningful positive learning outcomes of toxic quizzing.¹⁰ While the aforementioned studies reported that some students perceive toxic quizzing to be useful for learning, these studies do not report any actual learning outcomes such as knowledge, skills, or behaviors.^{1,7,9} These studies report learner reaction, not learning. While proponents of toxic quizzing may point to the Yerkes–Dodson law, few know that this flawed model was based on studies using Japanese dancing mice in 1908.⁸ The findings transmuted over time to a “law” stating that increasing stress increases performance, a sentiment that was co-opted by medical education. However, a review of subsequent research has shown that the Yerkes–Dodson law is not supported by robust evidence.⁸ Causing emotional or psychological distress may actually *impede* learning.¹¹ Despite this, the stress–performance sentiment of the Yerkes–Dodson lives on in pedagogical lore.

There is, however, evidence that toxic quizzing causes harm.^{1,7,9} Multiple survey- and interview-based qualitative studies have shown that students report toxic quizzing as demoralizing, vindictive, anxiety-provoking, and defeating.^{1,7} Some learners even report regretting their choice to pursue medicine as a result of toxic quizzing.¹ Two studies that asked learners to sketch or draw their experiences depicted toxic quizzing as trauma, with learners producing scenes that included being run over by a truck, bound and interrogated, and burnt at the stake.^{7,12}

WHY STRESS MAY STILL BE HELPFUL FOR LEARNING

There are no circumstances in which toxic quizzing, as defined earlier in this paper, should be used, given the risk of harm. However, there may be kernels of pedagogical value that can be sifted from the chaff of toxic quizzing.

While the Yerkes–Dodson law is oversimplified and overinterpreted, it is possible that under the right circumstances, adding certain types of stressors may augment learning. Stress is not always beneficial for learning, but neither is it always detrimental. Rudland et al. put forth a pathway integrating the multiple factors that determine if a stressor leads to a positive (eustress) or negative (distress) affective response that either promotes or inhibits learning.¹³ This model shows the complex factors involved in determining the outcome, including the amount and type of stress, learning environment, support structures, learner mindset and personality, situation, and so on. Many of these factors, and hence the expected impact on a learner, are unknowable by an educator. Causing distress through toxic quizzing risks harm, with uncertain impact on learning. Thus, having learners experience stressors in training can be helpful, but not by using intimidation or hierarchy-reinforcing techniques. Educators can effectively push learners to the limits of their abilities, and hence cause stress. However, it must be done in a supportive learning environment that fosters a growth mindset, which is antithetical to intimidation and hierarchy-reinforcing techniques.

WHAT YOU SHOULD DO INSTEAD OF TOXIC QUIZZING

Answering questions is a form of retrieval practice, one of the best-supported methods to enhance long-term retention of information.¹⁴ Pulling information out of long-term memory into working memory and then re-encoding it back into long-term memory builds neural connections and makes information “stick.” Asking learners questions stimulates retrieval practice. However, doing so in a manner consistent with toxic quizzing is not optimal for learning.

Educators should ask themselves, “what is my goal in quizzing my learners?” If the goal is to promote learning or to probe for the edges of knowledge without causing harm to learners, then utilize strategies other than toxic quizzing. One of the most important ways to make pedagogical question-asking fruitful is to create educational safety, particularly in hierarchical situations. Educational safety is a “subjective state of feeling freed from a sense of judgment by others such that learners can authentically and wholeheartedly concentrate on engaging with a learning task without a perceived need to self-monitor their projected image.”¹⁵ Indeed, learners could perceive any clinical questioning from an attending as risky, given the performance mindset that permeates medicine. Educational safety can be fostered through interactions with learners that are friendly, caring, and non-judgmental.¹⁵ When learners disclose weaknesses or knowledge gaps, educators should reinforce that these are learning opportunities, not deficits to hide. Educators can ask questions to which they themselves do not know the answer, role modeling curiosity, self-directed learning, and humility. Most importantly, educators should frequently check in with learners to better understand if they have created educational safety. Once this is established, educators can use open-ended, probing questions such as “How would you approach managing X?” or “Why do you think Y is happening?” to find the limits of learners’ knowledge and stimulate critical thinking. Incorrect responses can be used as stepping stones to promote learning rather than points of emphasis for purposes of humiliation.

RECOMMENDATIONS

1. Examine motivations for question-asking during clinical teaching.
2. Eliminate strategies aimed at reinforcing hierarchy, creating fear, or humiliating learners.
3. Teach within a framework of educational safety.

CONCLUSION

Returning to our clinical scenario, little educational value is created by humiliating learners with rare medical eponym questions or hierarchy-reinforcing interactions. The attending should first clarify that questioning on rounds is for learning, not

to assess knowledge, and that answering “I don’t know” is encouraged when true. This frames knowledge gaps as opportunities for growth rather than something that triggers shame. Then, they could ask questions that stimulate critical thinking and curiosity (not simply facts) such as “Why do you think this bruising is happening?” or “How does this affect your diagnostic workup or treatment plan?” Within the hierarchy of learning, the goal of the teacher should be to bring the learner to their level or beyond, not to keep the hierarchy intact.

Do you think this is a low-value practice? Is this truly a “Thing We Do for No Reason™”? Share what you do in your practice and join in the conversation online by retweeting it on Twitter (#TWDFNR) and liking it on Facebook. We invite you to propose ideas for other “Things We Do for No Reason™” topics by emailing TWDFNR@hospitalmedicine.org.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. Barrett J, Scott KM. Acknowledging medical students’ reports of intimidation and humiliation by their teachers in hospitals. *J Paediatr Child Health*. 2018;54(1):69-73.
2. Carlson ER. Medical pimping versus the socratic method of teaching. *J Oral Maxillofac Surg*. 2017;75(1):3-5.
3. Healy JM, Yoo PS. In defense of “pimping”. *J Surg Educ*. 2015;72(1):176-177.
4. Kost A, Chen FM. Socrates was not a pimp: changing the paradigm of questioning in medical education. *Acad Med*. 2015;90(1):20-24.
5. Chen DR, Priest KC. Pimping: a tradition of gendered disempowerment. *BMC Med Educ*. 2019;19(1):1-3.
6. McEvoy JW, Shatzer JH, Desai SV, et al. Questioning style and pimping in clinical education: a quantitative score derived from a survey of internal medicine teaching faculty. *Teach Learn Med*. 2019;31(1):53-64.
7. Goebel EA, Cristancho SM, Driman DK. Pimping in residency: the emotional roller-coaster of a pedagogical method—a qualitative study using interviews and rich picture drawings. *Teach Learn Med*. 2019;31:1-9.
8. Corbett M. From law to folklore: work stress and the Yerkes-Dodson law. *J Manag Psychol*. 2015;30:741-752.
9. Wear D, Kokinova M, Keck-McNulty C, et al. RESEARCH BASIC TO MEDICAL EDUCATION: pimping: perspectives of 4th year medical students. *Teach Learn Med*. 2005;17(2):184-191.
10. McCarthy CP, McEvoy JW. Pimping in medical education: lacking evidence and under threat. *JAMA*. 2015;314(22):2347-2348.
11. LeBlanc VR. The effects of acute stress on performance: implications for health professions education. *Acad Med*. 2009;84(10):S25-S33.
12. George DR, Green MJ. Lessons learned from comics produced by medical students: art of darkness. *JAMA*. 2015;314(22):2345-2346.

13. Rudland JR, Golding C, Wilkinson TJ. The stress paradox: how stress can be good for learning. *Med Educ.* 2019
14. Roediger III HL, Karpicke JD. Test-enhanced learning: taking memory tests improves long-term retention. *Psychol Sci.* 2006;17(3):249-255.
15. Hsiang-Te Tsuei S, Lee D, Ho C, et al. Exploring the construct of psychological safety in medical education. *Acad Med.* 2019;94(11S): S28-S35.

How to cite this article: Kinnear B, DeCoursey B, Caya T, et al. Things We Do for No Reason™: Toxic quizzing in medical education. *J Hosp Med.* 2022;17: 481-484. doi:[10.1002/jhm.12846](https://doi.org/10.1002/jhm.12846)