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Medical Students’ Understanding of Directed Questioning by Their Clinical Preceptors

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ABSTRACT

Phenomenon: Throughout clerkship, preceptors ask medical students questions for both assessment and teaching purposes. However, the cognitive and strategic aspects of students’ approaches to managing this situation have not been explored. Without an understanding of how students approach the question and answer activity, medical educators are unable to appreciate how effectively this activity fulfills their purposes of assessment or determine the activity’s associated educational effects. Approach: A convenience sample of nine 4th-year medical students participated in semistructured one-on-one interviews exploring their approaches to managing situations in which they have been challenged with questions from preceptors to which they do not know the answer. Through an iterative and recursive analytic reading of the interview transcripts, data were coded and organized to identify themes relevant to the students’ considerations in answering such questions. Findings: Students articulated deliberate strategies for managing the directed questioning activity, which at times focused on the optimization of their learning but always included considerations of image management. Managing image involved projecting not only being knowledgeable but also being teachable. The students indicated that their considerations in selecting an appropriate strategy in a given situation involved their perceptions of their preceptors’ intentions and preferences as well as several contextual factors. Insights: The medical students we interviewed were quite sophisticated in their understanding of the social nuances of the directed questioning process and described a variety of contextually invoked strategies to manage the situation and maintain a positive image.

KEYWORDS

Clinical teaching; student questioning; pimping; Socratic method

Introduction

Verbal interaction between preceptors and medical students constitutes one of the primary educational activities that occur during clinical training. Of the many forms of such verbal interaction, one prevalent form involves preceptors asking students questions. Often labeled the “Socratic method,” it has been a widespread, unchallenged cornerstone of medical education for at least a century, as evidenced by Flexner’s descriptions of the activity occurring in medical schools in the early 20th century.\(^1\) However, the process has also been called “pimping,” a term popularized in a satirical piece by Brancati\(^1\) in 1989 to refer to a series of difficult questions posed to a medical student in quick succession. Although both the terms Socratic method and pimping refer to activities involving directed questions, their connotations differ. Kost and Chen emphasized the ways in which pimping evokes negative emotions in learners, in contrast to the spirit of the Socratic method.\(^2\) The responses to Brancati’s article from 30 physicians from various medical schools across North America demonstrated the widespread familiarity with the term. Moreover, a recent opinion piece in Journal of the American Medical Association has once again sparked a set of discussions in print regarding the use of questioning as an educational tool.\(^3\) Despite these cycles of editorials and responses, pimping has received scant formal study.

Wear and colleagues did explore the perspectives of 4th-year medical students at one institution regarding pimping and described how students categorized pimping as being either “good” or “bad” depending on their perception of the motive of the supervising physician.\(^4\) Questions from a preceptor that were perceived to be intended to test knowledge, to induce practicing the verbalization of what they know, or to teach students to perform in front of people were thought of as “good” pimping. In contrast, questions that seemed intended to remind students that they were not as smart as they...
thought, or questioning that persisted even after students had conceded not knowing the answers, was seen as “bad.” This “bad” aspect of the process may reflect the negative connotations often surrounding the term pimping.

Despite finding descriptions of both good pimping and bad pimping, Wear et al. reported that, overall, students valued pimping as an educational tool and intended to pimp trainees themselves in the future. Students believed pimping motivated them to read more in order to avoid embarrassment and humiliation. This is consistent with literature that has described pimping as a teaching method that reinforces the negativity bias—the idea that humans are more attentive to and influenced by negative aspects of their environment than positive ones. It is described as teaching by intimidation, wherein trainees who cannot produce an acceptable answer are shamed into reading more afterward. Consistent with Wear et al.’s findings, in a survey study following a radiology conference at which different teaching methods were demonstrated, medical students reported preferring questioning to didactic teaching.

Although students’ preferences and judgments regarding pimping have been examined, little is available in the medical education literature to provide an understanding of how the students themselves actually approach the task of addressing directed questions from their preceptors, particularly in situations of uncertainty. However, some insight into this situation might be provided by research that has examined other types of verbal interaction between students and preceptors. This research suggests that students expend considerable effort to manage credibility and that they use specific strategies to do so in circumstances where they have uncertainty. For example, in the context of case presentations, medical students have expressed in interviews a belief that drawing attention to one’s own uncertainty is self-detrimental, as it will negatively impact one’s assessment. Thus, students try to deflect attention away from their deficits, disguise their insecurities, and assert the knowledge they do possess.

Such deliberate and strategic behavior suggests that medical students are aware of a relationship between how they communicate with their supervisors and how clinically competent they are perceived to be. Moreover, it implies that they see the projection of competence as a priority in that context. This prioritization is perhaps justified by evidence to suggest that in the verbal exchanges between supervisor and trainee, not just the content but also the manner in which trainees speak affects how they are assessed. In interview studies involving emergency and internal medicine attending physicians, for example, Kennedy and Lingard revealed that in interactions with medical trainees, supervising physicians rely on language cues, such as anticipating requested information, to assess trustworthiness and clinical competence of the trainee.

Whereas medical students have the opportunity to premeditate and rehearse their strategies when presenting a patient case, having to answer a direct, unprompted question from a preceptor is a different situation. In this case, the students have no choice in whether they are asked questions, and likely do not have the chance to prepare or rehearse. Nonetheless, it is a situation that all students must face daily in the clinical setting. Given the widespread use of questioning of students in medical education, it would be helpful to have an understanding of its uses, limitations, and consequences. In particular, the purposes for which preceptors use questioning may not be fulfilled if students approach the activity in ways that undermine those purposes. This study offers a preliminary exploration of students’ own reflections regarding their approaches to directed questioning in clinical training, and in particular their strategies for dealing with uncertainty in this situation.

Methods

Because for this preliminary study we were interested in exploring students’ own understandings of the questioning process and their intentional strategies for dealing with this situation, we chose student interviews as our data collection method. We employed one-on-one interviews rather than focus groups because of the potential emotional overlay associated with this topic and our resulting concerns about students’ willingness to describe their individual experiences and strategies in a semipublic setting. One-on-one interviewing has been used by others exploring similar questions with students, and informal piloting for this study suggested that, in one-on-one interviews, students were willing and able to articulate explicit strategies that they use in the questioning context. Thus, this study involved semistructured interviews lasting approximately 50–60 minutes with 4th-year medical students in the University of British Columbia undergraduate medical program.

Participants

We selected 4th-year medical students as the target population for several reasons. First, these students had completed their full set of “core” clinical clerkship rotations (which are conducted in the 3rd year of training in our medical school). Thus all the students interviewed had personal experiences of learning in a wide variety of clinical specialty environments including medicine, surgery,
pediatrics, psychiatry, obstetrics/gynecology, and family medicine. We assumed, therefore, that at this stage of training they would have developed skills and strategies for the question–answer exchange and would be able to reflect on these strategies by drawing on learning experiences from across clinical specialties. However, as 4th-year undergraduate medical students, this group had not yet separated into distinct specialty residencies, whose cultural differences might have added a further layer of complexity to the study or might have caused us to limit our findings through the selection of only one specialty. By using 4th-year medical students, we were interviewing a relatively homogenous group of participants who were able to reflect specifically on their experiences as medical students in a variety of contexts. Finally we conducted the study after these students had completed the selection process for residency training. Thus we had reason to believe that they would feel less pressure to “look good” in the eyes of the interviewer (an individual who was about to be appointed as a staff physician in geriatric medicine at the institution where the study was conducted), increasing the likelihood that we would get authentic reflections from the students.

Procedure

Following ethics approval from the University of British Columbia Behavioural Research Ethics Board, the first author recruited participants for 60-minute semistructured individual interviews by introducing the study to the full class of students at the beginning of a classroom lecture. Interested students were asked to contact the investigator directly by e-mail to arrange an interview at a time and location convenient to the student. Although this convenience sampling process likely excluded a number of individuals who were perhaps less strategic in their thinking about this topic or those who felt particularly vulnerable in sharing their ideas about this topic, it did ensure that those who participated were unlikely to prevaricate or be unable to articulate their perspectives effectively, thereby maximizing the richness of the data we were able to obtain.

Each interview began with a description of the goals of the research and an introductory statement highlighting the existence of the question–answer activity in clinical medical education. Participants were asked a series of questions designed to probe their approaches to answering questions from their preceptors when they did not know the answer, the strategies they were aware of employing, and how these were affected by their understanding of the circumstances of the questioning. Consistent with the techniques of semistructured interviewing, each interview was adapted based on the individual student’s personal reflections and insights. However the initial protocol included an inquiry into the student’s educational experiences and plans for future training, then explored the primary research topic, starting with the description of a specific experience using questions such as

Could you tell me about a time a staff/preceptor/senior asked you a question you were not sure you knew the answer to? What was the setting? The context? How did you handle that situation? In what ways was that interaction successful/unsuccesful? Are there better and worse ways to handle that situation? Can you describe these?

After exploring specific examples, additional probes explored more general attitudes about the questioning situation with questions such as

What is the best possible outcome in this situation? How is this achieved? When is it alright to say you don’t know the answer? Do you, or can you, prepare for situations like this? How? If things do not go as you wish, then what? Can you recover the situation? How? How do you perceive others (your peers) to handle these situations? What are the consequences, if any, of handling this situation well or not?

All interviews were audio-recorded and transcribed with all identifying information removed from the final transcripts. The interviewer recorded observational field notes following interviews, summarizing the event and relevant details about participant engagement in order to inform future interview questions or analysis of the data.

Analysis

The research team (consisting of the two authors) analyzed transcripts in the constructivist grounded theory tradition. The principal investigator conducted the primary analysis through a line-by-line reading of transcripts from the earliest interviews, identifying codes that could be grouped into themes, then rereading the transcripts to identify confirming and disconfirming examples, in a recursive process of refining the coding structure. The team met regularly to discuss and refine emerging themes, which were then incorporated into the interviewing of subsequent study participants in an iterative fashion of data collection. The resulting coding framework with definitions and examples formed the basis for the coding of the full set of interview transcripts by a research assistant whose work was regularly discussed with the principal investigator. NVivo 10 was used to organize and summarize coding results.
Results

There were nine participant interviews. Analysis of the resulting 270 pages of interview transcripts produced several themes that reflected interviewees’ understanding of and approach to directed questioning by their preceptors. At the center of their overall approach were two distinct priorities: optimizing their learning and maintaining a favorable image. These two priorities were at times congruent, and at other times competing.

Optimizing learning

All participating students either directly or indirectly expressed the attitude that being asked directed questions by their clinical preceptor was predominantly an opportunity for them to learn. As one student described, “Generally I had the idea … these are … well-intentioned questions. They’re not there to make me look stupid. They’re there for me to learn and kind of test my knowledge” (Interview I2). Students provided examples of how they responded to questions in order to help the preceptor target his or her teaching effectively. In this regard, one motivation for “talking around” a question when a student did not know the answer was to articulate for the preceptor what was known as a guide to further teaching. Students indicated awareness that if one simply says, “I don’t know,” the preceptor might teach at too low a level. So telling the preceptor what one does know allows the preceptor to start in the right place.

Managing image

Although learning was cited by all participants as being an important aspect of directed questioning, participants also described the importance of managing their image in the way they responded to questions. In describing this second motivation, one student stated,

I think my goal is basically to come away from that session with the instructor thinking that I do know my stuff, I know my material. And even if I got some questions wrong, it’s okay, because in the greater context I have a good understanding of the subject. (I9)

Although participants did not explicitly contrast this image management priority with the learning priority, they did describe approaches intended specifically to make a favorable impression rather than maximize learning potential, as the following description illustrates:

A: “You can by making it seem as though you don’t know something. So what some people do is they’ll say, ‘oh, you know, I was reading a little bit about this, maybe you could confirm, RSV does this and this and this.’ So really you know everything because you’ve already read the UpToDate article … just like 10 minutes ago around the corner. But it’s a teaching session or—you make it seem as though you’re not sure and then when they start asking questions, you can answer all the questions. And so you’ve set up a situation where you know the answers, but you make it seem as though you’re learning. But in fact … it’s clear that you were studying and you read at the same time. You’re not just dictating your knowledge. You’re still maintaining your status as the learner. And then at the end of it, they—whoever’s teaching you feels as though they’ve taught you. And also that you learned really well.”

Q: “But the purpose of that interaction, from the point of view of the trainee …”

A: “Is strictly to look good. Strictly.” (I5)

This excerpt also exemplifies a common understanding among the students that looking good was not merely a case of knowing all the answers. Rather, there was also a perceived need to project an image that they are good learners. A good learner was described by students as engaged, interested, and having some content knowledge without necessarily knowing the answer to the question. As one student described,

It’s better to at least answer part of a question and seem interested in the question than to seem disinterested and not know the answer. So probably interest in the question is more important than the correct or incorrect answer. (I1)

A key component of being a good learner was the ability to communicate one’s thought process:

Like, for me I think it’s more important to have people know that you’re thinking and your thought process is logical and makes sense than, like, I would rather, you know, have that and give a wrong answer than just blurt out the right answer. (I4)

Thus, the students’ strategy of sharing partial knowledge was not only a means of bringing the discussion to the limits of their knowledge but also, simultaneously, to demonstrate they were enthusiastic learners and easily teachable.

Another important aspect of managing image involved the projection of confidence. Participants varied in their judgments about how confident they ought to appear when answering their preceptors’ questions, with some generally preferring to express a degree of uncertainty and others generally preferring to sound very certain. Nonetheless, participants universally acknowledged that the management of the projection of confidence was an important component of promoting a favorable image. There was a common principle among participants, whether preferring to express uncertainty or preferring to
sound certain: How confident they should sound depended on their preceptors’ preferences rather than how confident they actually felt at the time. Calibration of this projection of confidence was thus described as deliber-ate, with at least one participant able to articulate specifically how to increase the appearance of confidence.

The way I sound confident when answering questions is just I don’t give much time to think about it. I don’t have a lag between when they ask the question and my answer and I’ll look the preceptor right in the eye and just say in a fairly moderately—moderate level of a speaking voice to them the answer. (I8)

The importance of inferring preceptor intent

Although participants described various approaches toward looking good in the eyes of their preceptors, a strong unifying theme among these approaches was accurately inferring the intentions of the questioner. As one student described, “Well, I kind of framed it—I had to get an idea of why he was asking the question, right?” (I2) Another student was more explicit in relating the questioner’s perceived intent to specific strategies, saying

I mean, if they are asking me just for the sake of knowing my knowledge level, like, I tend to just give very brief answers. Like, they want the five grades of whatever then I’ll just like name them or if they’re wanting to teach and engaging you in a conversation, then I think my answers—like, I would verbalize what I’m thinking in my thought process more.” (I4)

Our student participants perceived that the intention of preceptors fall into three broad categories: to teach, to assess the trainee, or to establish or maintain hierarchy. Depending on what students perceived the intention of preceptor to be, the means of “looking good” would vary, and thus trainees’ approaches to answering questions would change, as in the examples just described by student I4. In general, when they perceived preceptors to be asking questions in order to teach, students universally believed that the most favorable image to present was being a “good learner.” When students perceived that the intention behind a preceptor’s question was strictly to assess the knowledge level of the student, communicating a thought process was less important and the students aimed to be succinct and accurate. When the perceived intention of the preceptors was to assert their hierarchical superiority, students approached these questions by straightforwardly answering to the best of their ability, including conceding they do not know the answer, then patiently enduring the rest of the encounter. Of course, at least some participants understood that the power dynamics of questions meant that all preceptor to student questioning situations had a hierarchical quality to them. As expressed by one participant,

All questions fit into the hierarchy type model … partly because of the way they’re addressed to you and the way that you’re more singled out. … As a medical student I don’t have the power … to say “you, answer this question.” … But everybody else has the power to look at me and say, “[Name], answer this question.” So I don’t have any of that. So all questions in that sense kind of reinforce that little bit of that hierarchy. (I5)

Strategies to manage the situation

Beyond their strategies for answering specific questions asked of them, students expressed a range of tactics to effectively manage the questioning situation itself. Predominant patterns among these approaches included directing the course of the conversation to a topic about which the student is knowledgeable, timing their participation when in a group in order to receive easier questions rather than more difficult ones, and shying away when in a group to avoid being asked questions.

The tactic of directing conversation with a preceptor might easily have been used by students as a mechanism for maximizing their learning by focusing on topics where they felt they needed to improve. However, the participants more commonly described the strategy as a technique to move the conversation into areas of particular strength so as to avoid difficult questions, or even to look knowledgeable or teachable, at the potential cost of real learning opportunities. This was supported by descriptions of how this tactic is carried out, such as reading secretly about a topic immediately before soliciting questions from one’s preceptor on that topic, as quoted from student I5 in the section on managing image. One student (I1) described taking this process of directing conversation a step further by engaging a preceptor in nonmedical conversation to avoid questioning.

Timing one’s participation, another strategy by which students managed the questioning context involved volunteering early to answer to questions that are asked to a group, in anticipation that questions asked later in the session will be more difficult to answer. By volunteering to answer early questions, students believed they would “meet their quota” and would be seen by the preceptor to have adequately participated. They would thus be relieved of having to answer later questions to which they might not know the answers. Again, this was clearly articulated by student I5, who explained,

You can control what questions you answer by getting in on the ground. So often the first few questions … that people ask might be a little more basic. People don’t usually go for the jugular right off, so if you answer those
questions and you’re in a group sometimes then you feel like you have license to shut up for the rest of it. (15)

An even more straightforward strategy for avoiding being asked questions to which students may not know the answer involved avoiding eye contact with the preceptor when in a group setting and disengaging from the group. “Just looking at the floor, not moving, staying still. So you’re almost invisible” (19). Participants explained that although it was possible for this technique to backfire, causing preceptors to deliberately ask questions of a student perceived as trying to shy away, the students expressed a belief that, more often than not, preceptors respected students’ nonverbal cues communicating a desire not to face questions.

Contextual complications

Finally, it is worth noting that students’ descriptions included a number of subtle contextual factors that influenced their considerations when deciding how to answer a question. These contextual complicators fell into three broad categories: (a) who else is present in the directed questioning situation, (b) during which specialty rotation the directed questioning occurs, and (c) the stage of training of the learner.

The presence of other parties, such as patients, other trainees, and members of other healthcare professions, influenced image management during directed questioning. Participants varied in their descriptions of how patients altered the interaction during directed questioning. Whereas some described patients’ presence as shifting the students’ priorities from looking good to being honest, others described an increased desire to appear competent and confident in front of the patient. Of interest, several students noted that the preceptor would often be complicit in the effort to make the student look knowledgeable when in the presence of a patient, thereby further shaping the form of the interaction. The presence of other trainees or other healthcare professionals increased the anxiety associated with directed questioning and heightened students’ desire to look good. However, participants also described an etiquette in responding to directed questioning, wherein maintaining a good image also called for knowing when not to be too outspoken, when to give others a chance to answer questions, when to modestly attribute successful answering to coincidence or chance rather than “intrinsic brilliance” (14), and when to help make colleagues look good in the eyes of the preceptor.

Unanimously, participants expressed that when directed questioning occurred in rotations of the specialties that students were pursuing for future careers, there was more pressure to look good in the eyes of the preceptor. In contrast, many participants acknowledged that, during rotations in specialties for which students were less interested in pursuing as careers, they were more able to prioritize their learning during directed questioning. In such circumstances, they reported being more likely to admit uncertainty and display the limits of their knowledge. As a result, some participants reported feeling that they were able to learn more from directed questioning during the rotations in which they were less interested as a career.

Many participants also expressed that, although they felt comfortable admitting they did not know an answer because they were learners and were not expected to know everything, they anticipated that as they progressed through their clinical training into residency, not having the answers would become less acceptable.

Discussion

The purpose of this study was to understand how medical students describe their approach to directed questioning in clinical training, and in particular the strategic elements involved in their approaches when they are uncertain of the answers to the questions directed at them. Several of our findings inform this question and potentially inform the broader literature regarding student–preceptor interactions.

First, participants acknowledged that one purpose or intention of directed questioning was for teaching and learning, affirming other literature which has suggested that students appreciate its effectiveness for this purpose. As described by many participants, directed questions become effective for teaching and learning when questions target content at the limits of the students’ previous knowledge. This is consistent with previous suggestions that even as a teaching and learning activity, directed questioning capitalizes on the negativity bias. This idea was shared by our study participants in their descriptions of how directed questions were effective in helping them self-identify knowledge gaps and how not knowing an answer and having to either look it up afterward or be told by their preceptors enhanced their retention.

However, consistent with the findings from other clinical learning interactions (with both medical students and residents), we found that although participants saw the potential learning opportunity in the direct questioning interaction, they were also highly attentive to optimizing their image. It was also intriguing in our cohort of student participants that, in the context of directed questioning, the desirable image was not merely the confident, credible clinician but one of the “good learner”
and teachable student. Perhaps because of this “good learner” image, our participants felt that they could have a successful interaction even if they did not know the answer to a question as long as they expressed interest in the question and clarified what they did know in order to help the preceptor effectively focus subsequent teaching. In this regard, the priorities of learning and image management could be compatible when students perceived that the intention of the preceptor was to initiate a teaching opportunity. Although there is research on the perceived pressures in medicine to appear confident and competent, there appears to be little about projecting an image of teachability in clerkship, although there are hints to suggest that doing it well requires considerable social and contextual sensitivity. Given the preliminary and relatively novel nature of our findings in this regard, it would be important to explore in future studies the extent to which our participants’ sense of needing to appear teachable is felt by medical students in other contexts and, if so, whether this sense of needing to appear teachable extends into residency (and whether this is dependent on specialty). It might also be worth exploring the extent to which this perception is accurate (i.e., whether and how preceptors change their attitudes and teaching activities based on their inferences about a learner’s teachability).

Second, our participants showed remarkable sophistication in their understanding that they must be aware of and accommodate a variety of contextual factors when framing their answers. These factors included the perceived intent of the questioner (whether this was a teaching probe, a rapid assessment technique, or strictly an assertion of hierarchy). However, they also included the presence of others, and in particular other trainees whose image was also important to attend to. Thus, we began the study with a particular interest in how students address questions to which they do not know the answer, but we found them also talking about the subtleties of responding when they do know the answer. Being aware of when not to share one’s knowledge, or downplaying the fact that one knows the answer when it might be perceived as “one-upping” another person (the questioner or another learner), became an important consideration. This is reminiscent of the findings of Ginsburg and colleagues, who identified in students’ professional reasoning the principle of “knowing your place” (perhaps an aspect of the good learner image). It also speaks to Ginsburg et al.’s principle of “allegiance” to the team (“Don’t make your senior look bad”), which raises the possibility of another image that may be in students’ minds during directed questioning interactions (albeit less explicitly articulated by our participants) of being a team player. However, we must acknowledge that this is highly speculative, and additional studies targeted at this possibility would be required in order to confirm it and explore it more fully.

As a third important finding, we note that we originally framed our research as an exploration of a situation in which students had little control over the conditions of the interaction. Recognizing the power dynamic embedded in the questioning interaction, we assumed that students would have less control over the situation than in contexts such as the case report or initiating a request for help. However, we found that the students in our study did, in fact, describe several techniques to exert a level of control over the situation. Some of these involved preemptively directing the conversation into “safe” territory (with one student even identifying redirection to nonclinical discussions as a form of maintaining a more equal power dynamic). Others involved sending signals to the preceptor that they did not wish to engage in the activity, which the students generally felt were respected by preceptors. Of course, observational studies in the clinical context would be needed to determine the extent to which our participants’ sense of control is accurate in various clinical contexts, but the possibility is intriguing and suggests that even in the apparently asymmetric power dynamic of directed questioning, students “are not mere and hapless hostages to the social experience.”

Limitations

The findings of this study need to be considered in context of its limitations. For example, the principal investigator and interviewer is also a staff physician who supervises medical trainees, and it must be acknowledged that this may have influenced what participants were comfortable sharing. Further, having been educated in the same system, personal experiences of the principal investigator with directed questioning will have influenced the interpretation of data and emphasis of themes. Conversely, being a supervising physician having been educated through the same medical training system as participants, the principal investigator and interviewer was possibly afforded additional insight into the perspectives participants were attempting to verbalize.

As a second potential limitation, we had a modest sample size of nine participants. In similar studies involving similar participant populations addressing related questions, around ten student interviews have been found to provide theoretical sufficiency, and we do believe that we were achieving effective saturation of the themes relevant to our research question for those who volunteered to participate. However, our sample was also limited by the fact that it proved difficult to find students to volunteer to participate. Although
many possible contributing factors, such as scheduling, research participation fatigue, and lack of interest, may have contributed to a lower response rate, it is also possible that students may have been reluctant to divulge their positions and strategies surrounding directed questioning for the very reasons of image preservation that our study participants highlighted. This suggests that further research confirming and elaborating our findings is needed.

Conclusions

This study was an early exploration of how 4th-year medical students understand and approach directed questioning as a part of clinical training. As such it provides an important initial step toward determining the limits, uses, and consequences of this educational technique. The study findings suggest that students confronted with directed questions may prioritize image management, making use of various specific strategies, but also identify opportunities to optimize their learning by way of these situations. Further research using a variety of interview and observational methodologies is called for to explore these phenomena more fully across various learning contexts, learner groups, and specialties. Given that directed questioning continues to be used for assessment, teaching, and enculturation purposes, such explorations might well include examining the factors that affect students’ approach to the activity, as well as the effect of students’ image management strategies on preceptors’ inferences and actions.

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