Medical Students' Preparedness for Apprenticeship Learning

Jodi Jarecke
Penn State University-Harrisburg

Maryellen Gusic
Penn State Medical Center

Edward W. Taylor
Penn State University- Harrisburg

Medical Students' Preparedness for Apprenticeship Learning

Jodi Jarecke, MPH[1], Maryellen Gusic, MD[2], Edward W. Taylor, EdD[1]
Penn State University-Harrisburg[1], Penn State Medical Center[2]

Keywords: medical education, situated cognition, communities of practice

Abstract: This research investigated medical student and clinical faculty perceptions of preparedness for learning in the clinical setting. It also explored their beliefs about the ways in which the curriculum promotes or fails to promote preparedness for apprenticeship learning.

Medical education in the U.S. is structured such that students complete two years of classroom-based basic science education prior to entering their clinical clerkships in their third year of medical school. During their third and fourth years, students then rotate through the various medical specialties working with physicians on the hospital ward and in outpatient practice sites. Thus, at the beginning of their third year, medical students transition from a primarily objectivist learning environment to an apprenticeship-style educational format (Seabrook, 2004). The challenges third-year students experience following their transition to the clinical environment are significant. Findings indicate students have difficulty applying classroom knowledge and skills to the problems of real patients, shifting their knowledge structure from theory-to-practice (identifying symptoms given a disease) to practice-to-theory (identifying a disease given symptoms) (Prince et al., 2005), and that they face particular challenges with the socialization process and navigating the hierarchy of the clinical environment (Seabrook, 2004). In turn, both Clerkship Directors and students have expressed concerns about students' preparedness for clerkship education (Seabrook, 2004; Windish et al., 2004). From a pedagogical standpoint, the question becomes how can students, who are accustomed to objectivist classroom learning, be prepared for contextualized apprenticeship learning? To address this question, this research study investigated third-year student and clinical faculty perceptions of preparedness for learning in the clinical setting, as well as their beliefs about the ways in which the curriculum promotes or fails to promote preparedness for apprenticeship learning among third-year students.

Theoretical Framework

Research findings involving third-year students have extensive implications for both adult and medical educators, as well as adult learning theory; most notably situated cognition. Situated cognition assumes that "knowledge is situated, being in part a product of the activity, context and culture in which it is developed and used" (Brown et al., 1989, p. 32). From this perspective, learning in turn requires becoming "embedded in the culture in which the knowing and learning have meaning" (Wilson, 1993, p. 77). Thus, learning becomes a process of enculturation (Brown et al, 1989), whereby learners become participants in communities of practice (Lave & Wenger, 1990). Communities of practice are groups of individuals that develop informally in order to "share expertise, learn, and practice" (Merriam et al., 2003, p. 171). According to Lave and Wenger, newcomers, such as third-year students, enter a community of practice, and over time move from legitimate peripheral participation to full participation as they develop expertise and begin to understand and adopt the culture of the community. It is through this process that learners move from being novice students to experts, or in this case, practitioners on the ward.

Although situated cognition and communities of practice may act as a lens through which the previous research findings of third-year students may be explained, further research is needed to examine how students and faculty conceptualize the enculturation process and to identify ways to prepare students for apprenticeship learning. Hence, the purpose of this study was to gain insight from students and faculty regarding clerkship preparedness at a single medical institution.

Methods

This study utilized a qualitative methodology, exploring the perceptions of both third-year medical students and clinical faculty. A basic interpretive qualitative design was employed, which allowed for an in-depth exploration of the perspectives of study participants, and attempted to uncover themes emerging from their experiences (Merriam & Associates, 2002). Focus group and interviews were used with both students and medical faculty members. Purposeful samples of participants were selected, and snowball sampling was used to recruit the appropriate number of participants. Participants were contacted through email. Due to challenges in recruiting volunteers, the number of participants was lower than anticipated. Five focus groups and two interviews were conducted with thirteen participants. There were four student participants and nine faculty members. The student participants included two males and two females, and faculty groups consisted of four females and five males. Five of the faculty participants were Clerkship Directors, and the remaining served as clinical educators. All faculty had both teaching and clinical responsibilities and had experience working with third-year students in the clinical environment. Data gathered during the focus groups were transcribed, and a constant comparison analysis was used to analyze the data (Merriam & Associates, 2002).

Findings

Five significant themes emerged from the data, including: the variability of exposure to early clinical instruction, perceptions of required knowledge, ambiguity of professionalism, necessity for self-direction, and implicit nature of expectations.

The Variability of Exposure to Early Clinical Instruction

Recent literature suggests that there is variability in the clinical skills experience among medical students (Remen et al., 1999). Both faculty and student participants in this study echoed concerns regarding this phenomenon, suggesting there is a great deal of variability in students' early clinical exposure. In their first two years, students are assigned randomly to clinical advisors, with whom they are to meet with regularly and shadow on the ward or in the practice site. Participants suggested that based on clinical advisor assignments, there is variability both in the quantity and quality of clinical instruction sessions. For example, one student noted that the preclinical experience "varies from person to person because we had an advisor…some people's clinical advisor, they never met them in the first two years." Another stated, "I'm not sure if they look at how good their clinical advisor was and how much you felt prepared going into clinical." One physician found it disconcerting that "there's variability in what they see. I know there's variability in the number of sessions. Two of my advisees today told me their roommates had not had any clinical instruction sessions…they are supposed to have had four." While there was agreement between physicians and students about the importance of the clinical advisor, it appears that they have different ideas about the depth of knowledge needed for clerkships.

Varied Perceptions of Required Knowledge

According to the findings, students and faculty appear to hold unique conceptions of what clinical clerkships require in terms of particular knowledge. While a number of physicians suggested that students were unprepared in terms of baseline clinical knowledge, deficiencies

were often attributed to the increase in the amount of biomedical knowledge available and the ways that information is accessed. For instance, one physician commented, “Our students feel as if they don’t need to know the depth of knowledge that we expect them to have” later stating, “they don’t go to the textbook, they don’t go to the medical literature…they go to the internet.” This physician suggested that this was problematic as students come to the clinic with only a “superficial knowledge of things.” In some ways, this was confirmed by students, yet they alluded to the fact that depth of knowledge may not be so critical, and that discrepancies about what students must know may be generational in nature. One student commented:

> The only thing I think I was maybe lacking in… maybe physical diagnosis. I don’t think that’s a problem…It’s just how the medical profession, or the medical whatever is now…You think someone has a murmur, you don’t sit there with a stethoscope and listen to them in certain positions, you get an Echo...[but] certain attendings, especially the elder attendings, want you to have good physical diagnosis skills.

In other words, this student indicated that knowing certain information wasn’t necessary due to the availability of diagnostic testing; however, she stated that some of the “elder” physicians expected students to have certain knowledge regardless of this availability (although it was not necessary to practice medicine “now”). However, perhaps a greater concern than deficiencies in knowledge, particularly among faculty is the lack of certain attributes that are imperative for one to become a physician. As one physician noted, “the cognitive and the psychomotor parts we can teach, but it’s the behavioral parts that we can’t teach…you can enculturate them to medicine as a profession, but the attributes we look for...you have to come to school ready on day one with those.” One such attribute noted by all faculty and a few students was professionalism.

The Ambiguity of Professionalism

Both students and faculty suggested that being prepared for clinical clerkships entails coming in with a certain level of professionalism. There were strong opinions among physicians about what constitutes professionalism or the lack thereof, but they were continuously at a loss to provide a definition for the term itself. As one physician stated, “it’s one of those things you recognize when it’s not there, but defining it and/or teaching, I mean…I know certain things that are not professionalism but they reflect professionalism.” Similar comments were stated almost uniformly, another doctor noting, ”I think absence of what we call professionalism…is more glaring than being able to find that the student has it,” and yet another stated, “I know when I see it or I know it when I don’t see it.” In describing what professionalism means, physicians often referred to the presence or absence of certain attitudes or behaviors. In particular, physicians stated that professionalism is about maintaining “a reasonable attire, a reasonable demeanor, particularly around patients;” “dealing with people with respect whether it’s the rest of the team members or the patients;” it’s about having a sense of “ownership,” and “altruism;” it’s about “empathy, sensitivity, caring.” While all the doctors stated that students must have a certain degree of professionalism to be prepared for clerkships, they also referred to professionalism as a defining characteristic of what it means to be a doctor, equating the term almost directly with the duties entailed in working as a physician. In turn, professionalism became a topic often identified with the students’ enculturation process. For instance, one doctor stated:

> The first two years are just an extension of college…and then you get to the third year and it’s a whole different ball game. Now we’re talking about being real doctors. You have to talk like a doctor. You gotta act like a doctor. You gotta be a doctor. You gotta

> stay up. You gotta read. You gotta be there early. You gotta be there late. That's totally unlike anything they've ever experienced.

This concept seemed to resonate with some students, however, students were more likely to acknowledge the struggles of adopting these attitudes and beliefs. One student, for instance, noting that professionalism was an expectation of the clinical clerkships, stated that it entailed "things like being on time, being courteous, trying to be enthusiastic and learn, taking initiative, not saying derogatory things to patients;" yet he went to state, "Being new to it, it's a little scary sometimes… you're now a member of the team and you have to figure out how to fit into the team. Quite often, people are not there to hold your hand, help you out and explain how the ward works." Another student also indicated that part of the challenge of exhibiting professionalism was the ambiguity of the clinical environment; "like do I call my residents by their first names or last names and…am I supposed to be talking to patients without residents knowing… You kind of have to do it by trial and error, and sometimes you get applauded for doing what you're doing and sometimes you get shot down." Although, students' comments allude to the existence of reasons for hesitating to take specific initiative in the clinical setting, numerous participants discussed the importance of students' preparedness for self-directed learning.

The Necessity for Self-Direction

An important concept for preparedness, identified primarily by faculty, but recognized to some extent by students as well, was the idea of "self-education" or self-directed learning. In terms of engaging in independent learning activities, students commonly referred to the intensity of their exams, suggesting that they spent a great deal of time studying; one student stating**, "**I know I can do well on the exams but I just haven't had enough time to study." The physicians, on the other hand, commonly expressed concern over students' lack of initiative in terms of seeking out opportunities to learn. One faculty member, who expressed frustration in regard to students being passive learners, asked "Do they feel that it's their responsibility to make sure they learn …or is it the faculty's job to kind of spoon-feed them everything they need to know?" Other physicians noted similar concerns; one discussing his experience, where "very often on rounds, it's well what do you know about this? And the answer is almost always, whatever you're going to teach us." Another noted, "It's an expectation of spoon-feeding." Still another physician suggested that taking initiative and being an active learner is a key component to preparedness, stating:

> They kind of take on a very passive role, and I think that third-year students should be very enthusiastic and … take on a very active role, and I think it's disappointing when some students sometimes just show up and you almost have to push them along to learn. And to me, that bothers me more than a student who came in not knowing as much.

Physicians often referred to self-directed learning as a component of professionalism; both of which were described as characteristics of students who were ready for clinical clerkships. However, while few physicians stated so explicitly, it was apparent within their conversations that such attributes, as they defined them, were not necessarily discussed in the pre-clerkship years. This lack of communication in regard to expectations for third-year appears to be a common element among a number of the themes presented in this study.

The Implicit Nature of Expectations

As the findings thus far have indicated, there are specific expectations in regard to knowledge and skills as well as professionalism among third-year students. Numerous physicians presented arguments for the need for certain skills, such as the ability to conduct a history and physical and provide a differential diagnosis. In addition, as these findings suggest, faculty

expected that students act professionally (a term that is associated with much ambiguity) and that students be self-directed in their learning. However, these expectations were often implicit. As one physician stated, "We have to say here's the expectation. Live up to it." He later went on to say, "I know what my…advisees are told because I tell them, here's what you can expect…I know other people don't do that." Similarly, students often made comments about not knowing what was expected of them. For instance, one student stated, "I had no idea what they expected. You know and it's difficult to sit the attending down and say, what are your expectations of me? They don't have time." Lack of awareness of the expectations for clerkships is of particular importance when discussing preparedness for third-year students, as well as implications for practice.

Discussion and Conclusion

The lack of explicit expectations is one of the key findings of this study, and one that suggests that preparing for clerkship education is accompanied by unique challenges. For instance, one must ask how a learner can prepare for a particular community of practice, if he or she is unaware of the expectations that exist within that context. Further, how can learners engage in the "process of absorbing, contributing, and reflecting" that leads to the acquisition of situated, tacit knowledge of practitioners, if they are not provided guidance about their role within this process (Pratt & Associates, 1998, p. 89)? In terms of implications for practice, it appears that educators must become more explicit about expectations so as to not stifle this process, and unintentionally trap students on the periphery of the communities of practice.

Further challenges in this regard are indicated as a result of the apparent complexity of communities of practice in this setting. Based on physicians' comments, it is apparent that the hospital ward does not consist of a single community of practice, but rather communities of practice are often defined by individual specialties, each of which promotes its own unique set of behaviors, skills, attitudes, and beliefs. This is consistent with Wenger's (1998) descriptions of communities of practice as self-organized, social entities wherein participants create and share knowledge of particular importance to them. This is represented by one physician who stated:

> It's just understood that anybody working in that discipline is going to have those characteristics and meet those expectations, but the poor students who are whip-sawed between going from family practice to surgery to ob/gyn to internal medicine, and the characteristics are quite varied between each one of those disciplines, and the expectations and perceptions of both the attendings and the residents on the service.

The existence of specialty-specific communities of practice, however, has implications for students' ability to move from the periphery to full participation. In particular, it again supports the need to be explicit about expectations in order for students to become aware of the practices of each unique community, and allow them a greater degree of access to participation as they move from specialty to specialty. This is consistent with Lave and Wenger (1990), who suggest that access is of utmost importance for participation in communities of practice.

Although there is evidence of multiple communities of practice, there are also skills, attitudes, and behaviors that apparently transcend all disciplines. These characteristics came up time and again in meetings with faculty, as they appear to be at the core of what it means for students to be prepared for clerkship, and at the same time, they appear to be the defining attributes of how these physicians define their profession, or more specifically, how they conceptualize what it means to be a physician. One such attribute that is expected among all students is professionalism; part of which entails being an active learner. This finding begs the question, if being a self-directed learner is a requirement specific to physicians' communities of

practice or rather, is it a prerequisite for apprenticeship learning in general? It would seem reasonable to suggest that some level of self-direction may be a critical component to the facilitation of learning in apprenticeship. Faculty interviewed in this study overwhelmingly suggested that self-direction, or lack thereof, among learners is one of the most difficult challenges that they face as educators. However, it appears that herein lies the paradox of medical education. While there is an appreciation for situated learning (see studies on early clinical experience, e.g., Dornan & Bundy, 2004), there simultaneously exists concern about what needs to be known prior to apprenticeship (FMCR, 2004). The more information required, the more likely to engage in didactic, transmission style formats; formats that in essence often reward students for being passive learners. Therefore, the struggle becomes how can education simultaneously prepare students for, and offer opportunities for, learning in situ? Similarly, how much information do students need to participate in a community of practice? This, in turn, leads to the question: How can students truly be prepared for situated learning, when situated learning is designed to teach what cannot be taught out of context? Perhaps, all we can do then to help prepare students is to become explicit about our expectations, and begin to acknowledge that learning in situ involves taking learners with a variety of prior life experiences, providing them the opportunity to construct knowledge as they move from being members on the periphery to being full participants in the community; at the same time, acknowledging and recalling our own journey to becoming full participants, so that we may provide the support structures required for this transition.

References

Brown, J, Collins, A, & Duguid,P.(1989). Situated cognition and the culture of learning. *Educational Researcher, 18*(1), 32-41.

Dornan, T, & Bundy, C. Learning in Practice: What can experience add to early medical education? Consensus Survey. *British Medical Journal*, 2004;329:1151-9.

Family Medicine Curriculum Resource [FMCR]. (2004). Retrieved from www.stfm.org/curricular/index.htm

Lave, J, & Wenger, E. (1990).Situated Learning: Legitimate Peripheral Participation. Cambridge, UK: Cambridge University Press.

Merriam, S. Courtenay, B. & Baumgartner, L.(2003). On becoming a witch: Learning in a marginalized community of practice. Adult Education Quarterly, 53(3), 170-88.

Merriam, S, & Associates (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco: Jossey-Bass.

Prince, K., Boshuizen H., Van der Vleuten, C., & Scherpbier, A. (2005). Students' opinions about their preparation for clinical practice. *Medical Education, 39,* 704-12.

Pratt, D. & Associates. (1989). Five perspectives on teaching in adult and higher education. Malabar, FL: Kreiger Publishing.

Remmen, R., et al. (1999). Can medical schools rely on clerkships to train students in basic clinical skills? *Medical* Education, *33*(8):600-5.

Seabrook, M. (2004). Clinical students' initial reports of the educational climate in a single medical school. *Medical Education, 38,* 659-69.

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker.* Retrieved from http://www.co-i-l.com/coil/knowledge-garden/cop/lss.shtml

Wilson, A. (1993). The promise of situated cognition. In S. Merriam (Ed.), *New Directions for Adult and Continuing Education, 57*, 71-9.

Windish, D., Paulman, P., Goroll, A., & Bass, E., (2004). Do clerkship directors think medical students are prepared for the clerkship years? *Academic Medicine, 79*(1), 56-61.