The Way into the Profession: Medical Students’ Experiences During Their Clerkship

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A Work in Progress

Abstract

Medical education is a blend of classroom instruction and practical experience. Typically students study the scientific knowledge of medicine in classroom settings for two years and then enter hospitals and clinics to observe and participate in the practice of medicine. The purpose of this study was to understand how medical students become socialized into the profession through their third year clerkship experience. In their third year of medical school they participate in a rotation program that gives them experience in several different medical specialties working with real patients and medical professionals. Through these experiences they expect to develop their skills in diagnostic thinking, patient care, and to understand the nature of the health care profession. This was an ethnographic study that followed 12 medical students over the course of a year through their clerkship experiences documenting what they learned and how they learned. Though students developed greater confidence in navigating the health care environment and became more comfortable interacting with patients, they reported that they did not learn as much as they expected about diagnostic thinking and medical procedures. The social dynamics of the learning situations had a huge influence on their learning. The learning situations were governed by contextual and social factors largely unexpected by the students.

Introduction

The typical model of medical education is over 100 years old and there is increasing concern about its relevance and effectiveness in the 21st century (Cooke et al., 2010). The model starting with two years of classroom education in the basic sciences followed by two years of clinical experience has produced high levels of effectiveness and expertise over the past century,
however medical practice has undergone enormous transformations in recent times (Cooke et al., 2010). Developments in the learning sciences, the explosion of technological innovations, the shift in employment structures, the challenges to professional expertise, and the rise of social imperatives in the professions at large have put pressure on the traditional education of physicians, not to mention the post educational practice of medicine (Cooke et al., 2010; Evetts, 2011).

In many professional fields, the transition from academic learning to practice is a challenging and complex social process (Schön, 1987). Schön particularly challenged the effectiveness and status of scientific knowledge for professional practitioners. His explanation of a reflexive stance needed in practice, especially for solving complex human problems, highlighted the interdependencies and ambiguities inherent in practice. More recently, the study of practice has taken on new vigor and depth as philosophers and scholars have recognized the shortcomings of the traditional perspectives, values, and boundaries of professional knowledge, knowing, wisdom, and development (Feldman and Orlikowski, 2011; Nicolini, 2013; Schatzki, 2001).

Medical students transition from the classroom to clinics and hospitals in their third-year clerkship experiences. This year is designed to give students the opportunity to apply their scientific knowledge to the care of real patients in real settings. The setting of the ‘teaching hospital’ was expected to provide students with effective learning experiences working with patients under the guidance of expert physicians. Despite rigorous instruction in the medical sciences, students typically begin their clerkship experience with little practical experience of caring for patients. In some cases, students have a ‘transition to clerkship’ course prior to entering their clerkship year (Cooke et al., 2010).
The study described in this working paper followed 12 medical students through their clerkship year. We interviewed them prior to, during, and after their clerkship year to record their expectations, experiences, and reflections on their experiences caring for patients and navigating the clinical world of medicine. At this point we have completed an initial analysis of the data from interviews and observations.

**Literature Review**

The clerkship experience is the first immersive and authentic clinical experience for students in medical school. It is designed to be a practical experience aiming to give students opportunities to apply their scientific knowledge to the diagnosis and care of real patients, as well as to introduce them to the everyday work of the team of professionals that deliver health care (Cooke et al., 2010). The complex system into which students enter is an amalgamation of the scientific practices embedded in social, political, cultural, technological, and commercial, practices (Nicolini, 2013).

As a socialization process into the profession, medical education is not only about transmitting knowledge and skills, but also about changing individuals’ values and identity enroute to becoming a doctor (Hafferty, 2009). More than a socialization process, it is a resocialization process designed to turn lay people into medical professionals, with all the attendant values, beliefs, practices, and identity that make one a member of this profession.

Encountering this mix of competing and coordinating practices was something for which students were not well prepared. The following review presents key ideas and concepts regarding the objectives and means for clerkship education; current views of professional education and work; and recent thinking on the realm of practice in general.

**The Clerkship Education**
Medical training is characterized as a 2x2 model, in which students spend the first two years in studying basic science knowledge in classroom settings and the other two years in applying classroom learning to real patient care throughout ‘clerkship’ rotations in clinics and hospitals. Clerkships are generally divided into specialty blocks including internal medicine, surgery, family community medicine, obstetrics and gynecology, psychiatry, and neurology. Therefore, clerkship is the first time that medical students experience all representative specialties in real health care settings. Students are assigned to a health care team and allowed to see patients, conduct patient interviews, and write patient chart notes. Students also go to surgical operations where they observe surgical procedures and sometimes receive opportunities to participate in simple procedures.

While medical knowledge and clinical skills are explicit goals of the clerkship experiences, there are hidden curricula that are often untold, yet these hidden plans or assumptions govern medical students’ clerkship experiences (Hafferty and Franks, 1994; Lempp and Seale, 2004; Lindberg, 2009; Tekian, 2009; Treadway and Chatterjee, 2011).

“They perceive their task as learning how to apply to actual patient care the knowledge they’ve gained in the first 2 years. They do not understand the potential impact of the experiences and the environment in which their learning takes place. The “water” that surrounds them and of which, like the young fish, they may be largely unaware, is the hidden curriculum – all those behaviors and events that students observe and experience that may be significant variance with what they’ve been taught. The impact of this hidden curriculum is profound” (Treadway and Chatterjee, 2011, p. 1191).

Lindberg (2009) identified six virtues (or vices) of physicians directing the hidden curriculum, which includes wisdom, discipline, humility, empathy, maturity, and strength. In
fact, the hidden curricula are substantial in developing medical students’ professionalism, which is one of the core medical training goals (Rogers et al., 2012).

Throughout medical training, especially clerkships, medical students have opportunities to develop professional knowledge and skills leading to inclusion in the profession. Students learn how to talk and how to relate with other doctors as pathways to becoming a member of the profession. And at the same time, students also experience the ‘social exclusivity’ that is an important element of the professional identity of medicine (Weaver et al., 2011).

Professional Education as Developmental Learning

One of the major characteristics of the professions is the control over a specialized body of knowledge supporting the practices of the profession. In addition, to controlling access to this knowledge, the professions control membership and the socialization of new members (Evetts, 2011; McAuliffe, 2006). Professional education is a means to prepare individuals for membership in a profession. As such it is more than training to impart the requisite knowledge and skills, it is also a deeper process of transforming the individual into the prototypical member of the professional group (Hafferty, 2009). In addition to developing the knowledge and skills of the profession, professional education strives for developing the identity and values of a professional in newcomers (Hafferty, 2009).

Professional competence is more than the routine application of technical knowledge, it is reflective judgment and decision making (Schön, 1987), autonomous, self-directed thinking and personal authority (Kegan, 1994), or a higher level of thinking needed to handle uncertain and complex situations, which are a hallmark of the professions (McAuliffe, 2006). Kegan (1994) described higher levels of consciousness related to professional development. In his scheme, third-level consciousness is where external sources prescribe one’s identity and the individual
strives to fit in, upholds the group’s norms, and expects mutual reciprocity from others. Individuals at the fourth-level of consciousness are masters of their work and careers, take responsibility, are self-initiating, self-evaluating, and self-correcting, and are guided by their own visions. Torbert’s (as cited in McAuliffe, 2006) taxonomy of professional competence follows a similar developmental hierarchy with lower levels described by opportunistic, unreflective, conformist attitudes that are most resistant to development learning. At a mid-level, transitional stage, individuals focus on technical standards and adhere to their personal logic and views. Torbert claimed that most professionals are at this stage. Two higher-level stages move beyond the rigid perspective of a technician to more reflective practitioners. They are more likely to question assumptions, and seek developmental learning. One of the values of expertise is not the acquirement of experience, but how one uses experience for learning (McAuliffe, 2006).

Similar to other stage models of intellectual development, Kitchener, King, and DeLuca (2006) described a model of development in which novices start with beliefs that knowledge is certain and directly knowable to higher levels in which individuals believe that knowledge is uncertain and dependent on judgments of evidence and opinion. The focus of their work was on how adults understand and make decisions about ill-structured problems. These are the kinds of controversial problems that typically “cannot be defined with a high degree of completeness, and that they cannot be solved with a high degree of certainty” (King and Kitchener, 2004). King and Kitchener (2004) identify epistemic cognition as the assumptions individuals use to characterize knowledge and justify their beliefs. Their model is built on seven stages developing through three levels: (a) pre-reflective thinking, (b) quasi-reflective thinking, and (c) reflective thinking.

In this time of increasing flux in the professions, Fenwick (2013) examined various disciplinary views of professional transitions, identifying an important topic in this discussion.
was the transition from school-to-work. Generally, the perspective of this transition is that it is difficult and disorienting. The ‘gap’ between education and practice is a common perspective that continually elicits recommendations for educational reform.

Professional education is oftentimes formidable, as well as formative. The belief that stress and pressure build strong professionals is valued in many professions (Hafferty, 2009). Yet the practice of professional education for increasing levels of professional competence is not always clear or aligned with the objectives of developmental learning. Educating aspiring professionals for professional behaviors and technical competence is different from education that develops deep learning, professional values, and identity.

**Practice Theory**

Another valuable line of research and theorizing has emerged from scholars interested in developing a better understanding of practice—including professional practice. Since professional practice is largely the context for clerkship experiences, and a major driver of education, this line of research is providing new insights into the study of practices (Feldman and Orlikowski, 2011; Nicolini, 2013; Schatzki, 2001). Despite a variety of definitions and foci for practice theories, there are generally three principles guiding research of practice: (a) situated actions and artifacts produce and reproduce social structure; (b) different elements in the practice are intertwined and mutually constitutive, not dichotomous; and (c) all phenomena are interrelated, not independent (Feldman and Orlikowski, 2011).

The practice perspective focuses on the activities, performance, interactions, artifacts, and shared meanings that constitute practices (Nicolini, 2013). Practices are the source of social reality and organization (Feldman and Orlikowski, 2011). The practices in an organizational setting enable certain activities and constrain others.
There is no single theory of practice, however common characteristics are explained as a focus on embodied activity, knowledge as a way of acting beyond its verbal or textual representations, and the significance of materials and artifacts in practice (Miettinen et al., 2009; Nicolini, 2013; Schatzki, 2001). Thus, this perspective is a fitting complement to the traditional focus on individuals as practitioners. The emphasis is on what is actually done \textit{in situ}. It is a situated array of human and non-human activities that constitute a field of practices.

Engaging in practice triggers changes in the knowledge held by practitioners. This is especially apparent with students, as novices, engaging in work experiences. The learning that results from their experiences is a form of sense-making employed by students as they seek to balance what they know with what they are experiencing (Billet and Somerville, 2004). Learning in workplace settings is often the only place people can develop their professional or vocational skills. In these settings, what and how people learn is dependent on the opportunities available to them to participate in work, the tasks they are allowed to do, and the kinds of guidance they receive (Billett, 2002). However, this transition requires them to undergo a different learning experience where they face a lot of ambiguity and uncertainty (Lester and Radcliffe, 2003; Teunissen and Westerman, 2011). It is more than merely transmitting knowledge to novices in an authentic context but also involves a social interactional process.

Viewing professional education (e.g., clerkship experiences) from a practice theory perspective expands the frame beyond technical knowledge and skills, professional norms and values, and ethics. It includes a vast array of artifacts, habits, social interactions, and material environments, along with non-human machines—all of which contribute to the learning and practices of students and experienced practitioners in the setting.
In this paper, we share initial results from a longitudinal study of medical students’ learning during their clerkship experience. The primary research question was: What and how do medical students learn about practicing medicine through their clerkship experience? This analysis toward answering this question is based on the theorization and study of developing professional competence and the theorizing of practice. These two views provide a more holistic perspective on the clerkship experience by guiding our study to consider the individual in context.

**Research Design**

The study setting was at a medical school located in the United States. The medical school has a problem-based learning (PBL) curriculum, one outpatient clinic, two affiliated teaching hospitals and two large multispecialty physician groups. In the first two years, students learn basic science and clinical knowledge through the PBL curriculum. In the third year, students have six clerkship rotations of internal medicine, surgery, psychiatry, pediatric, family and community medicine, and obstetrics and gynecology. In the fourth year, students have additional clerkships including neurology and electives and residency planning activities. Twelve third year medical students participated in this study out of a class of 78. The participants received compensation of $100 for their commitment to this study. Seven of the participants were female and the group was ethnically diverse. Two of the researchers were faculty in the medical education program and were confident that the twelve students adequately represented the class.

The primary research question for this study was: *How do medical students become socialized into the profession through their third year clerkship experience?* Using a longitudinal qualitative research design method, we followed the experiences of the 12 participants across
their clerkship year (2011-2012). Each student participated in three interviews with the researchers: one prior to their clerkship experience, one at the mid-point, and one after they finished their experience. We recorded and transcribed the interviews of each participant. Additionally, we observed each participant through a full day of their clerkship experience and developed a set of field notes to augment the interviews.

The pre-clerkship interview protocol included prior health professional experience, learning expectations, and concerns about their upcoming clerkship experience. Mid-clerkship interviews included four major areas: comparing actual experiences with expectations, applying medical knowledge to patient care, social interactions, and learning the norms of practice. Post-clerkship interviews elaborated on the previous two interviews and captured students’ reflections on their experiences, including recommendations for improving the experience.

We continue to analyze the transcriptions and field notes following the qualitative and inductive analysis methods recommended by Miles and Huberman (1994) and Strauss and Corbin (1998). We are using a qualitative data analysis software, Atlas.ti to help facilitate the coding and analysis. Following a grounded theory approach, we use a constant-comparative process of testing emerging themes by comparing them back to the original data and across all the interviews.

Initially, all three researchers coded and analyzed the data collaboratively. We began by discussing the coding process and how we would proceed. These discussions helped us calibrate our thinking with each other to achieve a higher level of agreement about the analysis. We also coded several transcripts as a group further achieving agreement about the coding process. After this calibration process, the remaining transcripts were divided among us and coded individually.
The first step was to carefully read the transcripts and attach general descriptive codes to the text. The second step was to open code the text at a finer level of detail staying close to the participants’ language (Strauss and Corbin, 1998). The final step will be to categorize the open codes by similarity and label the categories based on the general theme of the category. This paper reports on the initial findings as a work-in-progress, and the analysis is still underway at the time of writing.

**Initial Findings**

An important step in the socialization of medical students into the profession is successfully completing their clerkship experience. In answer to the question of how medical students become socialized into the profession through their third year clerkship experiences, we analyzed the reports of their experiences and observed their activities within the practice setting of the hospital.

Most students were understandably uncertain of what they would experience and typically described their expectation in terms similar to an apprenticeship, or lab and clinical experiences under the guidance of experts. After experiencing a few rotations through different specialties, students reported their awareness that their learning process, especially through hands-on experiences, was somehow related to the interactions or relationships with the attending physician in a rotation. Given the ambiguity and subjectivity of attending physicians’ and residents’ expectations and evaluation criteria, students had to independently figure out how to integrate and participate effectively with different teams as they rotated from one specialty to the next.

Students perceived that creating favorable impressions and taking initiative was closely related to their learning opportunities and evaluations. Common rituals to present a favorable
impression were asking ‘intelligent’ questions and answering questions from physicians professionally. Another key behavioral ritual described by students was positioning oneself as prepared and eager to participate in the activities at hand. Students shared information about what to do and what not to do in particular situations or with particular attending physicians. The social dynamics of the small group of students, residents, and physicians were important factors influencing and mediating the learning experiences of students.

The rituals of the situation were important for students to observe and engage in. For example, two important concerns for students were passing the shelf exams at the end of the clerkship year and getting favorable recommendations from attending physicians. We also observed students’ use of tools, such as computers, databases, study aids, smart phones, and other sources of information. Most of them carried study aids around in their pockets, pulling them out whenever the opportunity arose to study. Navigating the environment was an important concern of students.

As we followed the teams on their ‘rounds’ we could watch students interact with team members and with patients—and could see how the quality of the social interactions affected the exchange of information and communication, as well as opportunities to get hands-on experience. Students typically followed the physicians and residents on the rounds with brief question and answer exchanges before entering a particular patient’s room. These question and answer sessions often tested the student’s knowledge of and preparation for the patient encounter.

**Preliminary Conclusions**

These students began their clerkship experience expecting substantial learning about how to apply the knowledge they previously learned in the classroom to real patients, however, the
transition was typically characterized by much more ambiguity and subjectivity than they expected (Han, Roberts and Korte, n.d.). The rituals of this practical experience both helped them socialize into the profession and constrained them from learning the deeper complexities of diagnostic thinking and patient care. Students experienced unwritten rules and social practices in their clerkships and they perceived that failure to understand and follow these norms and practices could negatively affect their learning and evaluations.

Professional practice entails far more than the application of knowledge and skills. It is also a social community with a particular culture, identity, artifacts, and ritualistic ways of doing things. There are tools and artifacts that mediate how work is done, as well as controlling and signifying the status of members of the profession. And there are also performance standards, legitimating processes, and social roles and norms governing the practices in this professional setting.

An important goal of the clerkship experience is to socialize novices into the profession. This is a very complex environment--especially for novices. Learning to navigate through this environment includes learning to manage the social and material aspects of the practice, as well as the performance expectations of members. Upon further analysis, we expect to better understand the socialization process of medical students in their first structured experiences with medical practice.

References


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