How clerkship students learn from real patients in practice settings

How Clerkship Students Learn From Real Patients in Practice Settings

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Abstract

Purpose
To explore how undergraduate medical students learn from real patients in practice settings, the factors that affect their learning, and how clerkship learning might be enhanced.

Method
In 2009, 22 medical students in the three clerkship years of an undergraduate medical program in the United Kingdom made 119 near-contemporaneous audio diary entries reflecting how they learned from real patients. Nineteen attended focus groups; 18 were individually interviewed. The authors used a qualitative theory-building methodology with a conceptual orientation toward Communities of Practice theory. A learning theorist guided selective coding of a constant-comparative analysis.

Results
Participants learned informally by participating in the communicative practices of workplaces. Two overlapping practices, patient care and education, were identified. Patient care created learning opportunities, which were enriched when practitioners intentionally supported participants' learning. Education, however, was not always coupled with patient care. So, *talk* positioned the boundaries of two practices in three configurations: education without patient care, education within patient care, and patient care without education. The nature and quality of participants' learning depended on how practitioners entered dialogue with them and linked the dialogue to authentic patient care.

Conclusions
Findings strongly suggest that medical students learn from real patients by participating in patient care within an educational practice. Their learning is affected by clinicians' willingness to engage in supportive dialogue. Promoting an informal, inclusive discourse of workplace learning might enhance clerkship education. This approach should take its place alongside—and perhaps ahead of—the currently dominant discourse of "clinical teaching."

During clerkships, students with little prior experience of patient care prepare to enter practice by progressively taking on the roles and identities of physicians. Cooke et al,[1] in their book published during the Flexner centenary, noted that changes in health care are taking a toll on clerkship learning and asked how such learning could be improved. Solutions to date have included moving practice-based learning from inpatient to ambulatory settings, from hospitals to community settings,[2–4] and into longitudinal integrated clinical attachments.[5] Outcome-based, integrated approaches have been introduced,[1,6] and students have been given preceptors to coordinate their learning across a series of block rotations.[1]

An alternative response would be to identify and reinforce processes that have made clerkships such an enduring way of learning to be a doctor. The term *clerk* emphasizes a contribution to patient care, which was how medical students learned in Flexner's time. But it is unclear what happens now. Clerkships have been called "black boxes"[7] because only the inputs and outputs—faculty availability and students' performance in assessments—are open to scrutiny.

The term *clinical teaching* is used to describe medicine's "signature pedagogies,"[1] which include case presentations with feedback, discussions, and development of clinical reasoning. Monrouxe et al[8] graphically illustrated drawbacks of privileging teaching over learning in a recorded bedside teaching encounter:

> You're driving me nuts. Come and do it properly … come on, you're here to learn. For crying out loud. Go round that side. You always examine the patient from the right. Get him where you want him.

"Teaching," as illustrated in this recording, includes treating a patient as a learning object and obliging a student to perform a clinical skill in a teacher's own preferred way. This transmission of competence from teacher to learner conforms to an "acquisition metaphor."[9] An alternative "participation metaphor" is also applicable to workplace clinical learning.[10–13] It privileges neither teacher nor learner in isolation from the other but privileges social processes in which clinicians, students, and patients[14] coparticipate in triadic relationships.

In a previous publication,[15] we gave theoretical reasons for shifting attention from teaching to learning. There are empirical reasons as well. Teaching is biased toward the roles of expert, professional, and scholar,[16] even though doctors' other important activities include

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the roles of health advocate, manager, communicator, and collaborator.[17] Teaching does not necessarily result in learning,[18] particularly when it fails to engage learners intellectually.[19] Group bedside teaching can mean treating students and patients as teaching and learning objects, which is demotivating.[10] Only a small minority of students' clerkship time is spent in teaching them, and that is not necessarily their most valued time.[20] Finally, workplace learning in the professions in general is mostly informal, rather than a result of teaching.[21]

Shipengrover and James[7] argued that students and teachers should be seen as interdependent coproducers of learning, that learning processes should be emphasized over outcomes, and that clinicians should be seen as managers of learning more than as teachers. Subsequent research[5,10–13,15,18–20,22–28] has drawn attention to the sheer complexity of workplaces and the wide variety of boundary conditions and coparticipatory processes that promote learning. Many of those findings, however, came from focus groups, individual interviews, and questionnaires. The long lag between having experiences and reporting them, which is inherent in post hoc accounts, is a validity threat because it allows experience to be reconstructed. Logbooks, competence assessments,[23] video recordings,[8] and field observations,[5,18,19] in contrast, avoid a time lag, but they do not give learners' perspectives.

We have argued that learning exists in the eyes of learners[10] and that the relatively new data-gathering technique of solicited audio diaries makes it possible to explore learning both close to the event and also from learners' perspectives.[29] Focus groups and interviews at a later date can supplement diary entries by exploring experiences in greater depth. In the qualitative research reported below, we used that combination of data sources to answer these questions: How do undergraduate medical students learn from real patients in practice settings? What factors affect their learning? How, in light of answers to those questions, might clerkship learning be enhanced?

Method

Conceptual orientation

In this research, we took a realist epistemological stance, which acknowledges the existence of external realities but holds that interpretation of them is influenced by social factors.[30] Following van der Zwet and colleagues,[12] we viewed learning as a sociocultural process in which learners and practitioners learn by participating together. Lave and Wenger's[31] sociocultural learning theory—Communities of Practice (COP)—describes how novices learn by legitimate peripheral participation in communities of practice, which fits clerkship education very well. It equates "practice" with "relations among people in activity in, with, and arising from the socially and culturally structured world."[31] Learners develop professional identities by engaging with practitioners in meaningful workplace experiences.[32]

Context

We undertook this study in 2009 in hospitals and family practices affiliated with the University of Manchester School of Medicine. The undergraduate program within which the research was conducted is problem based and community oriented. The curriculum is horizontally integrated and partially vertically integrated in that students have limited real-patient exposure during the first and second years, before entering full-time clerkships.

Participants

Participants in this research were drawn from the 360 students in their first, second, and final clerkship years (third, fourth, and fifth years of the program) who were attending problem-based learning (PBL) tutorials and lectures. All these students were informed of the aims of the study, told that participation was voluntary, and asked to participate. In return, they were offered a teaching session by the chief investigator and certificates to include in their portfolios. We, the research team, consisted of a resident (K.S.), a learning theorist (E.W.), a medically qualified education researcher (T.D.), an education researcher and cognitive psychologist (H.B.), and an education researcher and curriculum leader (A.S.). The University of Manchester senate ethics committee approved this study.

Procedures

Participants kept audio diaries in which they recorded reflections on their real-patient encounters over the course of one week, the cues for which are shown in Box 1. A week later, and after one of us (the chief investigator, K.S.) had listened to their diaries, they participated in four focus group discussions with her and other participants from the same-year group, who had also kept audio diaries. Prompts for those discussions are shown in Box 2. The chief investigator used insights from the diaries to guide the discussion but did not breach confidentiality by repeating individual students' responses in front of their peers. Each participant then took part in an individual semistructured interview with the chief investigator, who asked about specific points mentioned in their audio diaries. All materials were transcribed verbatim, anonymized, and entered into the NVivo qualitative analysis package (QSR, Victoria, Australia).

Box 1

Audio Diary Instructions to Participants in a Qualitative Study of Clerkship Students' Perceptions of Real-Patient Encounters, University of Manchester School of Medicine, 2009*

Real Patient Learning: Audio Diary Instructions

Please record your thoughts on *any* experience you have had with real patients. This may have been with a group, on your own or with a supervisor, in hospital or community. Think about the statements below when making you recording. Feel free to add to your recordings at a later date, but make sure you refer back to the situation you are talking about.

- What did you learn from the encounter? This may have included *knowledge*, *skills*, or *ideas about becoming a doctor*.
- How do you think the encounter may help with your current learning or PBL (problem-based learning) case?
- Was there anything that made the experience more or less beneficial for you? In particular, how did a tutor /supervisor affect the experience?

*The 22 study participants, all of whom were participating in clerkships at hospitals and family practices affiliated with the University of Manchester School of Medicine, kept audio diaries in which they recorded reflections on their real-patient encounters over the course of one week. This box shows the instructions and questions the participants were given to guide them in recording their reflections.

Box 2

Interviewer's Prompt Sheet From a Qualitative Study of Clerkship Students' Perceptions of Real-Patient Encounters, University of Manchester School of Medicine, 2009*

- What do students feel they learn from real patients?
- What are benefits of learning from real patients?
- How could learning from patients be improved?
- Do clinicians/tutors link experiences with patients to theory/the curriculum?
- Ask students about any specific examples from audio diaries.
- Ask students about particularly good examples of learning from real patients and why it was beneficial.
- How do students learn, or do they learn from observing doctors?
- Do doctors explain their actions in clinical learning environments?
- Do students get much feedback from real patient encounters?
- What is the role of peers in their learning?
- How do they feel they are developing as a doctor?
- Do students keep a log or record of interactions with patients? If so, for what purpose?
- How may the audio diary have affected their learning?

*The 22 study participants, all of whom were participating in clerkships at hospitals and family practices affiliated with the University of Manchester School of Medicine, kept audio diaries in which they recorded reflections on their real-patient encounters over the course of one week. A week later they participated in four focus group discussions with the chief investigator and other participants from the same-year group, who had also kept audio diaries. This box shows the interviewer's prompts for those discussions, which explored participants' experiences of learning from real patients.

Qualitative analysis

A decision was made a priori that all data (labeled according to their sources) would contribute to a single analysis. Two of us (K.S., T.D.) read the data closely and independently and discussed our interpretations with H.B. and A.S. K.S. applied the constant comparative method,[33] open-coding the data and discussing her interpretation with the rest of us. K.S. and T.D. then conducted a round of axial coding, which was critiqued by H.B. and A.S. That exercise provided a provisional answer to the first research question: that *talk* was central to participants' learning. K.S. and T.D. presented the interim interpretation to E.W., who contributed insights from COP theory about the relationship between talk and practice, and about the relationship between different practices (patient care and clinical education) that could be identified in the data. That led to reexamination of the raw data followed by additional open, axial, and selective coding stages. A refined answer to each of the three research questions was developed. After all of us carried out a further round of critique, we prepared a condensed statement of results for the present report. Quotations, presented below, were chosen for their ability to help readers understand the findings we arrived at by synthesizing conclusions from the whole dataset.

Results

Participants

The 22 students who volunteered to participate were drawn from all three clerkship years. The proportions of men and women were the same as those in the whole program, although men were overrepresented in the third-year sample and women in the fifth-year sample (see Table 1 for more details). All participants kept audio diaries, together contributing diary entries (range 2–12 per participant). Nineteen of the 22 participants attended focus groups, and 18 were interviewed. One participant who kept a diary attended neither a focus group nor an interview.

Two practices in three configurations

Participants learned in clinical workplaces by talking with doctors, nurses, other health professionals, peers, and patients. They asked and answered questions, conversed, did clinical tasks, and listened. Within workplace talk, two overlapping practices could be identified: a practice of patient care and a practice of education (both teaching and learning). Patient care created learning opportunities, which were enriched when practitioners intentionally supported participants' learning. Intentional support of learning, however, was not always coupled with patient care. So, *talk* positioned the boundaries of the two practices in three configurations: education without patient care, education within patient care, and patient care without education, each of which we discuss below. The nature and quality of participants' learning depended on whether and how practitioners entered dialogue with them and linked their dialogue to authentic patient care activities. Figure 1 summarizes the results diagrammatically, showing how participants followed a trajectory into practice-based learning and toward independence.

Education without patient care

When participants first entered workplaces, they participated in educational practice but not patient care practice.

Not being legitimate. The experience of entering workplaces was of not being legitimate within the practice of patient care:

> Part of me hates patient interaction as a medical student because I just feel [that] I'm a medical student. I'm not going to make them better. I'm there purely for my benefit.

Participants felt even more illegitimate when, in the name of education, doctors "shouted them down" and said, "No, you're stupid, why on earth would you think that?" Patients could inadvertently worsen their sense of illegitimacy by asking them for their clinical opinions. They had to "dodge a little bit."

Becoming legitimate. Socializing into health care settings for educational purposes made participants feel more legitimate. They socialized by talking with doctors about nonmedical interests. They learned the talk of practice. They learned how to "interact with lay people." They learned how to use language in ways that would not harm patients:

> You familiarize yourself with using certain words that don't create alarms…. It's just kind of practicing your interactions and trying to make it as comfortable and as easy and as fluent as possible.

They learned "how to be with people," "how to adjust [your manner] to different people," and how to respond to "people getting … upset in the middle of telling you something." They rehearsed clinical interviewing with patients who were "aware that we are medical students

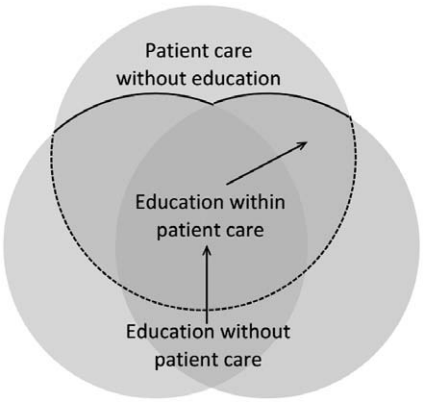

Figure 1 Relationship between teaching, learning, and patient care. A practice of patient care, indicated by the uppermost circle, overlaps a practice of education, whose two components of teaching and learning are indicated by the lower two circles. There are three zones, reported in detail in the qualitative findings (see the report). (1) *Patient care without education*. Clinical care is provided, but no teaching takes place, and students are not able to learn patient care practice. (2) *Education within patient care*. Students learn from patient care with or without the intentional support of a teacher. (3) *Education without patient care.* Students learn and/or are taught, but patient care does not directly contribute to their learning. The two-part arrow charts a learner's trajectory into practice-based learning and toward continued learning in independent practice.

and discussed the topic suitably." As their education progressed, they socialized into a wider range of settings. In pediatric settings, for example, they played with healthy babies, and in psychiatric settings, they spoke to people with dementia or psychosis:

> I asked her about her friends the unicorns, the ponies, and the dragons … and they live in this little field … and they come and visit her and they talk to her and they have wings … and she's really happy talking about that.

Even when participants were not ready to participate in patient care, doctors could make them feel more legitimate by talking through real patients' problems. One participant's reaction was "Oh, yeah, I feel I could be a doctor."

Rites of entry. Participants sometimes earned their entry to workplaces by surviving challenging experiences. One participant was "embarrassed into making mistakes" by a doctor. Another was sent to conduct an interview without being told the patient was demented, which the doctor "found quite funny." Another went through a rite of entry with a kindly intent:

> He called me from one of the wards because he knew that there was a medical student in the hospital and he's very eccentric and [he says] "Examine this patient. What do you see?.… Don't touch, look … and I'll hang you if you don't tell me the right answer."

Teaching that stands in the way of learning. Teaching could have adverse as well as positive effects. Senior doctors, for example, could be preoccupied with specialist clinical practice that was meaningless to participants:

> Consultants get so passionate about their … minute area, and they think everyone else is as passionate as they are, so they'll just talk for hours about things that they want to talk about and talk about themselves and how great they are and, you know, how good they are at this procedure, and you just sit there and it's, like, "Oh, that's not very interesting to me." I think teaching from [residents] is probably the most beneficial.

"Spouting a few gems of knowledge that they thought you should know" was less valuable than asking, "What would you do next?" Well-intentioned residents distracted participants from patient-based learning by focusing on assessments: "If you're in an exam, this is what you have to say." Also, "Really good patients" and "brilliant historians who've seen 17 or 18 students before you" presented their problems in nonauthentic ways. The time when teaching was the greatest obstacle to learning was when doctors maltreated patients. The result was an intolerable tension between participants' wish to deliver empathic patient care and their participation in an educational practice that was anything but empathic:

> The patient consented and the student began the examination. As things progressed, it became … clear to everyone in the group that the patient wasn't really comfortable moving around, getting into different positions to be examined, and was starting to get shaky and emotional. The resident insisted that [the patient] was percussed and auscultated from the back as well as the front, which involved her getting out of her chair and pulling her nightdress above the level of her waist. She was wearing underpants but obviously still found this quite difficult, and some of the students started to suggest things like "Can I get you a drink?"; "Would it be okay if we adjusted the front?" and the resident insisted that we carry on without really paying attention to what the patient wanted or was … indicating. The examination got to the point where the front was being auscultated, and then the student said she wasn't happy to continue, and the patient was on the bed in tears at this point. The resident from the end of the bed said to us, "Oh, she's got some really good signs, it's a shame she's not being more cooperative so that you can all get to hear them," which was very, very awkward.

Education within patient care

In this second configuration, participants learned to practice patient care by being part of patient care. They gained access to practice, learned to practice from such access, and developed the ability to take on increased responsibility.

Gaining access. Participants depended on the support of doctors to enter patient care practice. Doctors recruited patients and briefed both them and participants. They made it possible for participants to participate in patient care activities. Most of all, they asked participants, suggested to them, or (more commonly) "told" them to perform clinical tasks: "Right, go and interview this patient, and I want you to present it to me." Such encounters provided even better access to practice when doctors debriefed participants afterwards. The debriefing might be a formal case presentation, but informal talk was a powerful entrée to practice and source of legitimacy:

> I like a bit of banter.… I've had tutors where you can have a conversation with them and talk about experiences and then they'll give you their experiences back.… If somebody starts to ask me just a simple question about where you are from, like, that's enough for me, that shows me that they've got interest in you other than that you are a medical student.

Even when participants gained access to practice on their own initiative, they depended on doctors' willingness to enter into dialogue with them.

> Try and find whoever's the friendliest in the ward; try and present … and then really push them to give you some specific feedback.

Participants gained access to practice by asking questions, which required them to be "quite forceful." Senior student peers could help junior students gain access:

> The Year 5s helped us; they would say "Do that for us"; "Look, we've got the bloods, you go and do this one."

Table 1

Characteristics of 22 Clerkship Students Participating in a Qualitative Study of Students' Reflections on Real-Patient Encounters, University of Manchester School of Medicine, 2009*

Class year, study group, and coded name	Sex	Number of audio diary entries	Participated in focus group	Participated in interview
Year 3				
3.1	Male (M)	4	Yes (Y)	Y
3.2	Female (F)	6	Y	Y
3.3	M	4	No (N)	Y
3.4	M	3	Y	Y
3.5	M	9	Y	Y
3.6	F	3	Y	N
Year 4, group A				
4A.1	F	12	Y	Y
4A.2	F	3	Y	Y
4A.3	F	4	Y	Y
4A.4	M	3	Y	Y
Year 4, group B				
4B.1	F	5	Y	Y
4B.2	F	7	Y	Y
4B.3	M	6	Y	N
4B.4	F	2	Y	Y
4B.5	F	6	N	Y
4B.6	M	3	N	N
4B.7	F	6	Y	N
Year 5				
5.1	F	4	Y	Y
5.2	F	11	Y	Y
5.3	F	3	Y	Y
5.4	F	4	Y	Y
5.5	F	10	Y	Y

*Participants, all of whom were participating in clerkships at hospitals and family practices affiliated with the University of Manchester School of Medicine, kept audio diaries in which they recorded reflections on their real-patient encounters over the course of one week. A week later they participated in four focus group discussions with the chief investigator and other participants from the same-year group, who had also kept audio diaries. In year 4, the authors created two groups, A and B, because there were too many volunteers in that year's group for a single focus group.

Nurses, also, helped participants gain access:

> If you manage to have a nice conversation and have a laugh with [a nurse] … it's just, like, mundane things. You have to ask someone and then you therefore have a conversation.

Learning to practice by observing and modeling. Participants learned practice by observing talk between doctors and other health professionals. They listened attentively when "terms were being thrown around between doctors." They used conversation as a "source of information." They saw doctors ask for help:

> If they don't know, they say they don't know, and they'll ask people, which I think is really good.

They learned how doctors collaborate in caring for patients, and they learned how and when to refer patients to other services or to delegate tasks to other workers. They learned, also, by seeing doctors talk with patients:

> He crouches down and takes the patient's hand and then talks to them and they absolutely love that and … it sort of breaks down a lot of boundaries.

Participants saw how doctors framed questions effectively and helped patients make choices about their management. Participants picked up phrases they could use in their own communication with patients. They modeled on doctors' compassionate behavior and ability to give simple, clear explanations:

> I've seen doctors sit and explain things to patients when [the patients] obviously seemed worried about something, and you've just literally seen the patient physically relax at that news.

When doctors dictated chart entries and letters, participants heard lay conversations translated into professional language. Participants identified bad as well as good examples of interpersonal communication and reflected on how they could learn from what they had observed:

> I've seen ones where you walk in and nothing gets mentioned to the patient at all and … "OK, the nurses will come and sort you out in a bit."

Learning to practice by engaging in dialogue. Participants became involved in practice by engaging in dialogue with doctors in the course of patient care. Doctors questioned participants, discussed patients' problems with them, and gave explanations. They "probed" participants' knowledge; asked, "Why did I refer him to this person?"; and asked participants' opinions' about patients' diagnoses and management. They showed participants how they thought through problems and told stories about practice. In the following quotation, a participant learned by being present when a pediatrician spotted that a child was seriously ill:

> I asked him, "Why did you suddenly say, 'Stop the ward round, this one's ill'?" He passed on this little gem of knowledge, and I will never forget certain signs like the mottled ashen complexion, the tracheal tug, which you read in a book, you watch the videos, you see some kids with a little bit of tracheal tug on the admissions ward but when the consultant suddenly made you stop and everyone to act on it, then you're, like, "Oh, I'll never, ever forget what that child looked like and will always be able to assess knowing that I might not know what's wrong but I know there's something really, really wrong with this child."

Developing increasing responsibility. Participants saw patients in the emergency room. They cared for hospitalized patients, presented them

on rounds, and helped make decisions about them. They conducted ambulatory consultations while doctors looked on. They saw patients independently and presented their findings. They performed simple tasks (e.g., routine follow-up appointments) without supervision. They built confidence by conducting more challenging consultations—patients with unfamiliar diseases, patients who were hard to communicate with, or patients whose relatives were present. They wrote in patients' charts, which obliged them to commit themselves and be open to critical scrutiny. They compared their entries in charts with doctors' entries. They wrote clinical letters. Performing simpler procedures gave them opportunities to work relatively autonomously and practice relating to patients. They were given tips about how to improve their procedural skills. They helped resuscitate patients during cardiac arrests. They gave patients explanations and negotiated with them. They communicated with other hospital departments. Whatever form of practice they engaged in, they learned best when supervising doctors asked them questions and required them to make management plans. One participant defined effective supervisors in this way:

> The people that treat you as a doctor in training and make you do the things you'd have to do as a doctor and say, "Now, what would you do?"

There were few reports of negative experiences of learning in practice. One was about being asked to interview a psychotic patient, and another concerned a supervisor who repeatedly shouted at a participant.

Patient care without education

In this third and final configuration, participants and their education fell outside the boundary of doctors' activities, and students did not learn. One participant described how doctors did not allow talk to develop:

> You're, like, "What shall I do?" and they're, like, "I don't know. Do whatever you want to do, just give me a break."

Nurses also could exclude participants from practice by not talking to them. One student, when asked whether he had many conversations with nurses, responded that "it's lucky when you do." Doctors who excluded participants from practice were often also described as people who communicated poorly with patients:

> A particular [resident] … just started examining [patients] without asking permission and never taught us a single thing, never asked us a single question in a whole two-hour ward round.

Discussion

Principal finding and its meaning

Our main finding is that the medical students we studied learned by having dialogue with doctors. They first entered an educational practice, which was located in clinical workplaces but separate from the practice of patient care. Doctors' behavior made students feel more or less legitimate, which made it more or less possible for them to progress along a trajectory toward learning by participating in patient care. Workplace education could hinder as well as help students' progress, particularly when clinicians were overly keen to "teach" or behaved insensitively toward patients. Dialogue remained central to students' learning as they gained access to patient care practice, modeled on doctors' behavior in practice, and became increasingly active participants in it. Doctors' educational contributions were to facilitate students' participation, coparticipate with them, question them, guide them, and require them to perform as "doctors-in-training." It was possible, however, for practitioners to prevent students from learning by actively or passively excluding them from patient care.

The meaning of our main finding is illuminated by the work of theorists such as Vygotsky, a postrevolutionary Russian scholar. He was the originator of sociocultural learning theory, which provided a conceptual orientation for this research. Bakhtin, a near-contemporary of Vygotsky, was influential in the development of discourse theory, which is represented in publications of our own time by such authors as Fairclough, Holland, and Gee.[34–36] One interpretation of our findings is that discourse has a central place in learning. Given that sociocultural and discourse theories have common origins in early 20th-century Russian scholarship, it is unsurprising that socioculturally inspired research should find that *language*—a key component of discourse—has a central place in learning. For Vygotsky, language and physical artifacts "mediated" learning. Discourse theory goes further, regarding discourse as both determining how social groups function and providing a way of analyzing their functioning.[37] So, our claim that learning resides in the communicative practices of workplaces has a coherent theoretical foundation as well as an empirical one. We do not claim this research to be discourse analysis, but we propose that close attention to discourse could give valuable insight into medical students' workplace learning. An earlier publication of our own[38] has provided evidence to support that claim.

According to COP theory, identity development is intimately connected with practice. Doctors' inclusive talk, from a COP perspective, moved our participants forward along their trajectories into the identities of doctors. When doctors excluded them from practice, participants' identity development was interrupted. Identification with positive role models and disidentification with negative ones contributed to participants' emerging identities. Involvement in the various written and spoken forms of communication allowed participants to negotiate their community membership and, as a result, their identities. Competence, community membership, and identity developed integrally with one another.

Bleakley and colleagues[39,40] have called for patients to be placed at the center of medical students' education. Why then, one might ask, did patients have such a small part in the discourse reported here? They did not play a small part insofar as participants were motivated by a wish to care well for patients, but, to do so, they had first to learn from doctors how to be doctors. It has been shown that some patients are perfectly satisfied—indeed, prefer—to contribute to medical students' learning as "objects" rather than as active participants,[13] although others wish to be more actively involved. Patients, we suggest, were integral to the educational discourse, although sometimes present "vicariously" rather than as active participants in students' learning. How patients can take a more central place in students' learning is, as Bleakley and colleagues[40] indicate, a very important topic for future research.

Our findings are consistent with the work of Eraut,[21] according to whom most professional learning takes place informally, rather than as a result of formal educational activities; moreover, the wide range of types and outcomes of learning described by our participants are just like the trajectories described by Eraut. Our participants were learning the type of pragmatic knowledge whose importance was stressed in Cooke and colleagues'[1] Flexner centenary report. Their learning was at least as much a process as a product, which fits well with Sfard's[9] sociocultural "participation metaphor" of learning.

Implications for practice and research

The research we report here has clear implications for educational practice. Practitioners—doctors in particular—play a vital facilitatory role in medical students' practice-based learning from real patients. They do so by engaging students into the communicative practices of clinical workplaces. Before students are able to contribute to the practice of patient care, doctors help them access learning opportunities and strive to confer legitimacy on them. Doctors facilitate students' educational interactions with real patients, oversee those interactions, and (importantly) debrief students afterwards. Informal talk plays as important a part as formal talk.

Clarifying and probing questions are important, and they are most effective when coupled with the social warmth of a welcoming learning environment. Rather than the closed questioning of an interrogation, doctors engage students in the type of talk that helps them elaborate their understanding and see how doctors think through clinical problems. Doctors are creative in using dialogue to open up practice to students and help them participate, to the level their current abilities and the complexity of clinical situations permit. They encourage observation and a type of model in which workplace discourses are laid open to students. They use dialogue to engage students into patient care activities, in which they and students coparticipate.

Our concept that students are in a dialogical relationship with the practitioners they learn from has far-reaching consequences. Not only are students' identities changed as a result of their participation but clinical communities are changed by students. This radical move beyond the acquisitionist form of teaching described in the introductory part of this report provides an answer to the third question we stated there: How might clerkship learning be enhanced? Clerkship learning, we suggest, could be enhanced by clinical communities allowing themselves to be changed by learners, just as learners are changed by communities. For that to be possible, the prevailing imbalance of power between teachers and learners must shift in learners' favor. Then it may be possible for the culture of clinical workplaces to move from teaching to learning and from knowledge-centeredness to authentic patient-centeredness.

A discourse perspective on clinical learning opens up new ways of researching practice-based learning. Until now, the role of power has been tacitly acknowledged, but there has been little research into how it affects educational relationships between doctors, patients, and medical students. It would be foolish to pretend that relationships between fully trained doctors and medical students are relationships between equals. Our data suggest, however, that doctors who are able to handle their inherently asymmetrical relationships with students in ways that foster learning make the best teachers. We propose that future exploratory and interventional research should seek to understand how educational discourse can best be fostered to the best advantage of all three members of the educational triad—doctors, students, and patients.

Strengths and limitations

A conceptual orientation toward sociocultural learning theory and COP provided a strong foundation for our research. We capitalized on that by involving a learning theorist in the analysis of the data. There was a good response from students at various stages in the trajectory of undergraduate workplace learning, which provided rich materials for analysis. The conceptual model shown in Figure 1 is an output of this research and may be useful to other researchers. Models can be seductive in the way they simplify complex processes, and ours is no exception. There is an implication that education just adds to students' existing capacities, whereas it may sometimes entail shedding bad habits. And there is a risk that negative role modeling may even encourage bad habits. Our model renders patient care unproblematic, whereas in reality it is, like learning, constructed dialogically between patients and health professionals and is therefore very complex and individual.

Like any qualitative research, we have to be cautious about claiming that our findings are generalizable outside the research context. Features of the United Kingdom's medical education—such as the younger age of students than of those in U.S. and Canadian medical schools and a less strong tradition of students contributing to clinical practice—influenced our findings. Many more positive experiences were reported than negative ones, which may suggest a positive reporting bias in our qualitative methods. Our wish to highlight learning may have led us to be unduly negative about teaching. The dependence of our findings on students' self-reports might be seen as a weakness, although an earlier publication[41] presented grounds for believing that students are the people who are best able to tell what they are learning and how they are learning it. It is worth noting that the use of portfolios to encourage and assess reflective learning makes just the same assumptions as we made in our research, so our use of self-report is consonant with contemporary educational practice. Ethnographic observation of learning in practice would usefully complement the type of self-report on which our findings depend. There would be clear value, also, in using video as well as audio recordings to provide insights from nonverbal as well as verbal communication.

Conclusion

Our findings strongly suggest that undergraduate medical students learn from real patients in practice settings by engaging in the communicative practices of clinical communities. Practitioners' willingness to interact with students is the major factor that affects their learning. Clerkship learning could be enhanced by practitioners working to engage learners more actively in their communicative processes. We advocate a move from "clinical teaching," based on acquisitionist concepts, toward participatory clinical learning. Education within patient care will flourish, we suggest, when experts are willing to share their expertise with

novices and be coparticipants in a practice focused on the needs of patients.

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